

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**RACHEL L. BARNES**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Proposed Electric Tariff Sheets (M.P.S.C No. 14 – Redlined Version)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-4.00**

(Continued From Sheet No. C-3.00)

**C1. CHARACTERISTICS OF SERVICE (Contd)**

**C1.4 Extraordinary Facility Requirements and Charges (Contd)**

Contribution In Aid of Construction Allowance Schedule							
Schedule	Customer Voltage Level(CVL)	With a Full Service Contract, by Contract Duration					Without Full Service Contract
		1 Year	2 Year	3 Year	4 Year	5 Year	
General Service Primary Rate GP	1	<del>\$0.022</del> \$0.028/kWh	<del>\$0.042</del> \$0.055/kWh	<del>\$0.060</del> \$0.080/kWh	<del>\$0.078</del> \$0.103/kWh	<del>\$0.094</del> \$0.124/kWh	<del>\$0.009</del> \$0.020/kWh
	2	<del>\$0.025</del> \$0.033/kWh	<del>\$0.048</del> \$0.064/kWh	<del>\$0.070</del> \$0.092/kWh	<del>\$0.090</del> \$0.118/kWh	<del>\$0.109</del> \$0.143/kWh	<del>\$0.022</del> \$0.033/kWh
	3	<del>\$0.045</del> \$0.049/kWh	<del>\$0.059</del> \$0.075/kWh	<del>\$0.085</del> \$0.108/kWh	<del>\$0.110</del> \$0.140/kWh	<del>\$0.133</del> \$0.169/kWh	<del>\$0.045</del> \$0.049/kWh
Large General Service Primary Demand Rate GPD	1	<del>\$90</del> \$80/kW	<del>\$175</del> \$160/kW	<del>\$250</del> \$230/kW	<del>\$325</del> \$295/kW	<del>\$395</del> \$355/kW	\$30/kW
	2	\$110/kW	<del>\$215</del> \$210/kW	<del>\$315</del> \$305/kW	<del>\$405</del> \$395/kW	<del>\$490</del> \$480/kW	<del>\$95</del> \$100/kW
	3	<del>\$185</del> \$160/kW	<del>\$265</del> \$270/kW	<del>\$385</del> \$390/kW	<del>\$495</del> \$505/kW	<del>\$595</del> \$610/kW	<del>\$185</del> \$160/kW
General Service Primary Time-of-Use Rate GPTU	1	<del>\$0.017</del> \$0.020/kWh	<del>\$0.032</del> \$0.039/kWh	<del>\$0.047</del> \$0.057/kWh	<del>\$0.060</del> \$0.073/kWh	<del>\$0.073</del> \$0.089/kWh	NA
	2	<del>\$0.019</del> \$0.024/kWh	<del>\$0.037</del> \$0.047/kWh	<del>\$0.054</del> \$0.068/kWh	<del>\$0.069</del> \$0.088/kWh	<del>\$0.084</del> \$0.106/kWh	NA
	3	<del>\$0.023</del> \$0.029/kWh	<del>\$0.045</del> \$0.057/kWh	<del>\$0.065</del> \$0.082/kWh	<del>\$0.084</del> \$0.106/kWh	<del>\$0.101</del> \$0.128/kWh	NA
Energy Intensive Primary Rate EIP	1	\$0.012/kWh	\$0.023/kWh	<del>\$0.034</del> \$0.033/kWh	<del>\$0.043</del> \$0.042/kWh	<del>\$0.052</del> \$0.051/kWh	NA
	2	<del>\$0.015</del> \$0.016/kWh	<del>\$0.028</del> \$0.031/kWh	<del>\$0.041</del> \$0.045/kWh	<del>\$0.052</del> \$0.059/kWh	<del>\$0.063</del> \$0.071/kWh	NA
	3	<del>\$0.019</del> \$0.022/kWh	<del>\$0.036</del> \$0.042/kWh	<del>\$0.052</del> \$0.061/kWh	<del>\$0.068</del> \$0.078/kWh	<del>\$0.082</del> \$0.094/kWh	NA

The Company reserves the right to make special contractual arrangements as to the provision of necessary Service Facilities, duration of contract, minimum bills, require upfront deposit and other service conditions, including, but not limited to, when the customer's load requirements are of a short-term duration, temporary or a transient nature, or if in the opinion of the Company, the customer does not have acceptable credit history or represents an unacceptable credit risk or other reasons within the sound discretion of the Company.

Contributions in Aid of Construction otherwise required by the Company may be suspended for publicly available AC Level 2 or DC Fast Charge sites participating in the PowerMIDrive pilot. Suspension is at the Company's sole discretion, for a term of three years from the date of Commission approval of the PowerMIDrive pilot.

**C1.5 Invalidity of Oral Agreements or Representations**

When a written contract is required, no employee or agent of the Company is authorized to modify or supplement the Rules and Regulations and Rate Schedules of the Electric Rate Book by oral agreement or representation, and no such oral agreement or representation shall be binding upon the Company.

(Continued on Sheet No. C-5.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-10.00**

**C4. APPLICATION OF RATES**

**C4.1 Classes of Service**

The rates specified in this Electric Rate Book are predicated upon the delivery of each class of service to a single metering point for the total requirements of each separate premises of the customer, unless otherwise provided for in the Company's Electric Rate Book.

Service to different delivery points and/or different classes of service on the same premises shall be separately metered and separately billed. In no case shall service be shared with another premises or transmitted off the premises to which it is delivered. *The restriction on transmitting service off the premises to which it is delivered does not apply to electricity that may be delivered to a renewable energy generation facility spanning multiple parcels of property through the facilities' collector system.*

**C4.2 Choice of Rates**

A customer may be eligible to have service billed on one of several rates or provisions of a rate. Upon request, the Company shall advise the customer in the selection of the rate or rate provision which is most likely to give the customer the lowest cost of service based on the information provided to the Company. The selection of the rate or provision of a rate is the responsibility of the customer. Because of varying customer usage patterns and other reasons beyond its reasonable knowledge or control, the Company does not guarantee that the most economic applicable rate will be applied.

After the customer has selected the rate and rate provision under which service shall be provided, the customer shall not be permitted to change from that rate and rate provision to another until at least twelve months have elapsed. The customer shall not be permitted to evade this rule by temporarily terminating service. However, the Company may, at its option, waive the provisions of this paragraph where it appears a change is for permanent rather than for temporary or seasonal advantage. The provisions of this paragraph may also be waived where the customer can demonstrate that a Bona Fide Change in Customer Load has occurred. The effective date of a rate change under this rule shall be the beginning read date of the next bill issued. The intent of this rule is to prohibit frequent shifts from rate to rate.

The Company shall not make refunds in instances where the customer would have paid less for service had the customer been billed on another applicable rate or provision rate.

Where the customer has provided the Company with incorrect information to gain an economic benefit, backbilling may be rendered to the date the incorrect rate selection initially occurred.

In order to reduce load in times of high system demands, the Company may make contractual arrangements with customers who can self-generate power, shift load from on-peak to off-peak periods and/or provide other forms of voluntary load reduction.

**(Continued on Sheet No. C-11.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Original Sheet No. C-13.00

(Continued From Sheet No. C-12.00)

**C4. APPLICATION OF RATES (Contd)**

**C4.3 Application of Residential Usage and Non-Residential Usage (Contd)**

**A. Residential Usage and Rate Application (Contd)**

**(5) Farm Service**

Service shall be available to farms for residential use under the appropriate Residential Service Secondary Rate. Service may be used through the same meter so long as such use is confined to single-phase or three-phase secondary service where electric energy is used for the culture, processing and handling of products grown or used on the customer's farm. The qualifying small farm customer must be the owner and operator of the farm, a physical occupant of the main household which is used as the customer's principal residence, and the associated farm buildings/facilities must be located on the same premises as the main household. Use of service for purposes other than set forth above shall be served and billed on the appropriate General Service Rate.

In general, the entire electrical needs of the farm operation and residence on a single premises shall be served through a single meter. A second meter on a General Service Rate may be allowed on the premises for a portion of the farm operation if a representative of the Company determines that it is impractical to serve the load through a single metering installation.

**B. Non-Residential Usage and Rate Application**

For purposes of rate application, "Non-Residential usage" shall be usage metered and consumed that does not qualify for residential usage. Non-Residential usage includes usage associated with the purchase, sale, or supplying (for profit or otherwise) of a commodity or service by a public or private person, entity, organization or institution. Non-Residential usage includes usage associated with penal institutions, corrective institutions, motels, hotels, separately metered swimming pool heater usage, yachts, boats, tents, campers or recreational vehicles.

Non-Residential usage shall be billed on the Company's appropriate General Service Rate.

Tourist homes, rooming houses, dormitories, nursing homes and other similarly occupied buildings containing sleeping accommodations for more than six persons shall be classified as Non-Residential and billed on the appropriate General Service Rate. The landlord and his/her immediate family are not included in the six-person rule.

Rules for Multifamily Dwellings and Farm Service can be found in Sections A(4) and (5) of this rule.

**C. Combined Residential and Non-Residential Usage and Rate Application**

When the electricity supplied to a customer is used for both residential and Non-Residential purposes, the wiring may be so arranged that the residential and Non-Residential usage are metered separately. Each type of usage shall be billed on the appropriate Rate Schedule. If the usage is not separately metered, the Company shall determine the appropriate Rate Schedule for billing based on the customer's usage.

(Continued on Sheet No. C-14.00)

(Continued From Sheet No. C-13.00)

**C4. APPLICATION OF RATES (Contd)**

**C4.3 Application of Residential Usage and Non-Residential Usage (Contd)**

**D. Rate Application for Seasonal Condominium Campgrounds**

When the electricity supplied to a customer is used for Seasonal Condominium Campgrounds, the usage shall be considered Non-Residential and shall be billed on the Company's appropriate General Service Rate. To be considered a Seasonal Condominium Campground, the following conditions must exist:

- (1) The property must, in total or in part, be owned by a single legal entity, such as an Association, who must have primary operational responsibility for the property.
- (2) The legal entity with ownership and operating responsibility must be subject to licensing provisions under Act 368 of 1978 of the State of Michigan, specifically that required for operation of a campground or its equivalent.
- (3) All components of the property must be subject to limitations of occupancy of six months or less.
- (4) No individual owning such property in part or in total may claim such property as their Principal Residence.
- (5) Units allowed within the park are restricted to those classified by law as a Camping Trailer, Travel Trailer, Camping Cabin, or Park Model Recreational Unit by Act 206 of 1893 and 368 of 1978.

In the absence of any of these conditions, the Company shall classify the customer as residential or Non-Residential, based on the criteria in other portions of this Rule. The customer shall then be required to take service consistent with the requirements of that classification and bear any expenses to be incurred in meeting such requirements, or be subject to shutoff of service by the Company.

Customers that meet the above conditions may be served by individual meters or by a single metering installation, but must adhere to the following conditions in cases where individual metering by the Company is not applicable.

- (1) The customer's facilities may not be constructed so as to cross public streets, alleys, or rights-of-way.
- (2) The customer's facilities for each unit shall not exceed 50 amps. Should the customer desire service above 50 amps for any unit, they shall request service from the Company and pay all costs incurred by the Company in supplying such service.
- (3) If the customer uses meters or similar measuring devices on his/her side of the Company's point of attachment to his/her facilities, then the customer is required to take service under the resale provision included in one of the Company's General Service Rate Schedules, GS, GP, or GPD, and is subject to Rule C4.4, Resale.
- (4) The customer must, at his/her own expense, have the electrical facilities initially installed and periodically inspected, every five years at a minimum, by a licensed electrical contractor. In the event that it is determined that the installation is unsafe, the customer shall modify the system at his/her own expense using a licensed electrical contractor.
- (5) The customer must notify individuals and/or co-workers utilizing the customer's property that the customer's facilities may not be able to be located by Miss Dig.

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-15.00**

(Continued From Sheet No. C-14.00)

**C4. APPLICATION OF RATES (Contd)**

**C4.3 Application of Residential Usage and Non-Residential Usage (Contd)**

**D. Rate Application for Seasonal Condominium Campgrounds (Contd)**

- (6) The customer must notify individuals and co-owners utilizing the customer's property that requests and concerns regarding electric service will be addressed between the single legal entity and ownership and primary operating authority, not with individuals.
- (7) The customer shall be responsible for ensuring that the electrical facilities are adequate to meet the needs of the units placed within the Seasonal Condominium Campground in their entirety and shall pay the Company for any charges incurred for modifications necessary to accommodate load according to other portions of this Electric Rate Book.

**C4.4 Resale**

This provision is closed to resale for general unmetered service, unmetered or metered lighting service and new or expanded service for resale for residential use.

No customer shall resell electric service to others except when the customer is served under a Company rate expressly made available for resale purposes, and then only as permitted under such rate and under this rule.

Where, in the Company's opinion, the temporary or transient nature of the proposed ultimate use, physical limitation upon extensions, or other circumstances, make it impractical for the Company to extend or render service directly to the ultimate user, the Company may allow a customer to resell electric service to others.

For the purposes of this tariff, the provision of electric vehicle charging service for which there is no direct per kWh charge shall not be considered resale of service.

A resale customer is required to take service under the resale provision of one of the following rates for which they qualify: General Service Secondary Rate GS, General Service Secondary Time-of-Use Rate GSTU, General Service Secondary Demand Rate GSD, General Service Primary Rate GP, Large General Service Primary Demand Rate GPD, or General Service Primary Time-of-Use Rate GPTU. Resale Service is provided pursuant to a service contract providing for such resale privilege. Service to each ultimate user shall be separately metered.

- A. If the resale customer elects to take service under a Company Full Service resale rate, the ultimate user shall be served and charged for such service under standard Rate RSM for residential use or under the appropriate standard General Service Rate applicable in the Company's Electric Rate Book available for similar service under like conditions. Reselling customers are not required to offer or administer any additional service provisions or nonstandard rates contained in the Electric Rate Book, such as the Income Assistance Service Provision or the Educational Institution Service Provision.
- B. If the resale customer elects to take service under a Company Retail Open Access Service rate, the ultimate user shall be served and charged for such service under Rate ROA-R for residential use or under Rate ROA-S or ROA-P applicable in the Company's Electric Rate Book available for similar service under like conditions.
- C. If the ultimate user is a campground lot or boat harbor slip, the resale customer has the option to charge a maximum of the following all inclusive rate per kWh in place of billing the ultimate customer on the appropriate standard Company tariff rate:

~~\$0.148888~~ ~~0.146212~~ per kWh for all kWh during the months of June-September

~~\$0.151641~~ ~~0.145170~~ per kWh for all kWh during the months of October-May

The Company shall be under no obligation to furnish or maintain meters or other facilities for the resale of service by the reselling customer to the ultimate user.

The service contract shall provide that the reselling customer's billings to the ultimate user shall be audited each year by February's month end, for the previous calendar year. The audit shall be conducted either by the Company, if the Company elects to conduct such audit, or by an independent auditing firm approved by the Company. The reselling customer shall be assessed a reasonable fee for an audit conducted by the Company. If the audit is conducted by an independent auditing firm, the customer shall submit a copy of the results of such audit to the Company in a form approved by the Company.

(Continued on Sheet No. C-16.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. C-36.00

(Continued From Sheet No. C-35.00)

**C8. POWER SUPPLY COST RECOVERY (PSCR) CLAUSE (Contd)**

A. Applicability of Clause (Contd)

"Power Supply Costs" means those elements of the costs of fuel and purchased and net interchanged power as determined by the Commission to be included in the calculation of the Power Supply Cost Recovery Factor. The Commission determined in its Order in Case No. U-10335 dated May 10, 1994 that the fossil plant emissions permit fees over or under the amount included in base rates charged the Company are an element of fuel costs for the purpose of the clause.

B. Billing

- (1) The Power Supply Cost Recovery Factor shall consist of an adjustment factor of 1.07735 ~~1.08378~~ applied to projected average booked cost of fuel burned for electric generation and purchased and net interchange power incurred above or below a cost base of \$0.05570 per kWh (excluding line losses). Average booked costs of fuel burned and purchased and net interchange power shall be equal to the booked costs in that period divided by that period's net system kWh requirements. The average booked costs so determined shall be truncated to the full \$0.00001 cost per Kilowatt-hour. Net system kWh requirements shall be the sum of the net kWh generation and net kWh purchased and interchange power.

- (2) Each month the Company shall include in its rates a Power Supply Cost Recovery Factor up to the maximum authorized by the Commission as shown on Sheet No. D-6.00.

Should the Company apply lesser factors than those shown on Sheet No. D-6.00, or if the factors are later revised pursuant to Commission Orders or Michigan Compiled Laws, Annotated, 460.6 et seq., the Company shall notify the Commission if necessary and file a revised Sheet No. D-6.00.

C. General Conditions

- (1) The power supply and cost review shall be conducted not less than once a year for the purpose of evaluating the Power Supply Cost Recovery Plan filed by the Company and to authorize appropriate Power Supply Cost Recovery Factors. Contemporaneously with its Power Supply Cost Recovery Plan, the Company shall file a 5-year forecast of the power supply requirements of its customers, its anticipated sources of supply and projections of Power Supply Costs.
- (2) Not more than 45 days following the last day of each billing month in which a Power Supply Cost Recovery Factor has been applied to customers' bills, the Company shall file with the Commission a detailed statement for that month of the revenues recorded pursuant to the Power Supply Cost Recovery Factor and the allowance for cost of power included in the base rates established in the latest Commission order for the Company, and the cost of power supply.
- (3) All revenues collected pursuant to the Power Supply Cost Recovery Factors and the allowance for power included in the base rates are subject to annual reconciliation proceedings.

(Continued on Sheet No. C-37.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-54.00**

**(Continued from Sheet No. C-53.00)**

**C10. RENEWABLE ENERGY PLAN (REP) (Contd)**

**C10.5 Pilot Solar Program (Contd)**

**E. Solar Energy Credits**

Solar Energy Credits applied to the customer's monthly bill are based on the customer's subscription level, the energy credit and the capacity credit.

The Solar Energy Credits in years one through five will be based on the Short Term Program Energy and Capacity Value and in years six through twenty-five on the sum of the Long Term Program Energy Value and the Long Term Program Capacity Value.

The Long Term Program Energy Value includes a factor to account for avoided line losses attributable to the distributed resource location on the distribution system. The avoided line loss factor is 2.13 ~~2.38~~%. This value will be revised when line losses are updated in general electric rate cases, as approved by the Commission.

Customers that chose to have the REC sold when this option was initially available will be credited quarterly. The REC credit is based on a Michigan Renewable Portfolio Standard REC value published quarterly in the Midwest Market Notes by Clear Energy Brokerage and Consulting, LLC, or successor publication, multiplied by the RECs generated. Alternatively, the REC value may be based on the actual sale of the RECs.

If the monthly Solar Energy Credit is greater than the customer's bill, the excess credit will be rolled over and applied to the next month's bill. If a Solar Energy Credit accumulates to an amount greater than \$100, the Company shall pay the balance to the customer.

**F. Reporting**

Solar Program production data will be available on the Company's website. Each participating customer's monthly energy bill will include the Subscription Payment and Solar Energy Credit.

**G. Cost Recovery**

Costs will be recovered as set forth in the Commission Order in Case No. U-17752.

**H. MI Sunrise Solar**

MI Sunrise Solar is a pilot option that allows Non-profit Organizations the option to procure block subscriptions and assign the credits from the blocks to low-income residential customers as defined in Rule C5.4 Shutoff Protection Plan for Residential Customers. Non-profit Organizations may procure block subscriptions in excess of their own annual usage if the excess block subscriptions are used for the purpose of assigning credits to low-income customers. Participating Non-profit Organizations serving low-income residential customers will determine the low-income residential customers' program eligibility based on established income-eligibility criteria used as defined in Rule C5.4, Shutoff Protection Plan for Residential Customers. Non-profit Organizations may also procure block subscriptions for assigning credits to educational facilities.

Subscription costs for Non-profit Organizations may be funded through grants or tax-deductible donations and shall be payable per the single upfront payment terms as specified in Section D of this rule. Subscribed blocks are distributed to low-income residential customer recipients at up to 10 blocks per household for a maximum of a three-year term. After the three-year term has concluded, the participating Non-profit Organizations may choose to renew the subscription with the low-income residential customer recipient or rotate to a new recipient to distribute the benefits to multiple households. However, non-profit educational facilities shall not have the total subscriptions exceed the benefiting facilities' Annual Net Usage.

Participating Non-profit Organizations shall provide annual reporting to the Company by April 30 of each year regarding number of eligible customers, number of customer applications, and total customer participation.

**(Continued on Sheet No. C-55.00)**

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-64.10**

(Continued from Sheet No. C-64.00)

**C11. SELF-GENERATION, NET METERING AND DISTRIBUTED GENERATION (Contd)**

**C11.3 DISTRIBUTED GENERATION PROGRAM**

- A. The Distributed Generation Program is offered as authorized by 2008 PA 295 as amended, 1939 PA 3, as amended by 2016 PA 341, Section (6)(a)(14), and the Commission in Case No. U-20697.
- B. Distributed Generation Definitions
1. A Category 1 distributed generation customer has one or more Eligible Electric Generators with an aggregate nameplate capacity of 20 kW or less that use equipment certified by a nationally recognized testing laboratory to IEEE 1547.1 testing standards and is in compliance with UL 1741 scope 1.1A located on the customer's premises and metered at a single point of contact.
  2. A Category 2 distributed generation customer has one or more Eligible Electric Generators with an aggregate capacity greater than 20 kW but not more than 150 kW located on the customer's premises and metered at a single point of contact.
  3. A Category 3 distributed generation customer has one or more methane digesters with an aggregate nameplate capacity greater than 150 kW but not more than 550 kW located on the customer's premises and metered at a single point of contact.
  4. Eligible Electric Generator – a renewable energy system or a methane digester with a generation capacity limited to no more than 100% of the customer's electricity consumption for the previous 12 months and does not exceed the following:
    - a. For a renewable energy system, 150 kW of aggregate generation at a single site
    - b. For a methane digester, 550 kW of aggregate generation at a single site
  5. Inflow – the metered inflow delivered by the Company to the customer during the billing month or time-based pricing period.
  6. Outflow – the metered quantity of the customer's generation not used on site and exported to the utility during the billing month or time-based pricing period.
  7. Outflow Demand for Secondary Rate Customers – the total metered outflow quantity of Kilowatts (kW) during the billing period divided by the number of hours in the billing period.
  8. Outflow Demand for Primary Rate Customers – the total metered outflow quantity of Kilowatts (kW) during the On-Peak period divided by the number of On-Peak hours in the billing period.
  - ~~7~~ 9. Program Capacity – maximum program limit of 2% of the Company's average Peak Demand for Full-Service Customers during the previous five calendar years. Within the Program Capacity, 1.0% is reserved for Category 1 legacy Net Metering Customers and Distributed Generation Customers, 0.50% is reserved for Category 2 legacy Net Metering Customers and Distributed Generation Customers and 0.50% is reserved for Category 3 legacy Net Metering Customers and Distributed Generation Customers.
  - ~~8~~ 10. Renewable Energy Resource – a resource that naturally replenishes over a human, not geological, timeframe and that is ultimately derived from solar power, water power, or wind power. Renewable energy resource does not include petroleum, nuclear, natural gas, or coal. A renewable energy resource comes from the sun or from thermal inertia of the earth and minimizes the output of toxic material in the conversion of the energy and includes, but is not limited to, all of the following:
    - a. Biomass
    - b. Solar and solar thermal energy
    - c. Wind energy
    - d. Kinetic energy of moving water, including the following:
      - i. Waves, tides or currents
      - ii. Water released through a dam
    - e. Geothermal energy
    - f. Thermal energy produced from a geothermal heat pump
    - g. Any of the following cleaner energy resources:
      - i. Municipal solid waste, including the biogenic and anthropogenic fractions
      - ii. Landfill gas produced by municipal solid waste

- iii. Fuel that has been manufactured in whole or significant part from waste, including, but not limited to, municipal solid waste. Fuel that meets the requirements of this subparagraph includes, but is not limited to, material that is listed under 40 CFR 241.3(b) or 241.4(a) for which a nonwasted determination is made by the United States Environmental Protection Agency pursuant to 40 CFR 241.3(c). Pet coke, hazardous waste, or scrap tires are not fuel meeting the requirements of this subparagraph.

(Continued on Sheet No. C-64.20)

See Barnes Testimony, Page 6, Lines 9-16; Miller Testimony, Page 24, Lines 10-21; Exhibit A-17 (RLB-1) Item #7

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-64.30**

(Continued from Sheet No. C-64.20)

**C11. SELF-GENERATION, NET METERING AND DISTRIBUTED GENERATION (Contd)**

**C11.3 DISTRIBUTED GENERATION PROGRAM (Contd)**

E. Customer Billing – Category 1, 2 and 3 Customers (Cont)

a. Full Service Customers Outflow Credit

Customers will be credited per kWh or per kW of Outflow based on the power supply rates (which exclude transmission costs) of their Full Service Rate Schedule as shown below, plus the PSCR factor as shown on Tariff Sheet No. D-6.00.

<b>Residential Rates</b>		
Summer	<del>(\$0.120699)</del> <del>(\$0.119655)</del>	per kWh of On-Peak Outflow between June 1 and September 30
On-Peak Basic	<del>(\$0.080969)</del> <del>(\$0.080485)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
Rate RSP	<del>(\$0.082810)</del> <del>(\$0.084785)</del>	per kWh of all Outflow kWh between October 1 and May 31
	<del>(\$0.120699)</del> <del>(\$0.119655)</del>	per kWh of On-Peak Outflow between June 1 and September 30
Smart Hours	<del>(\$0.080969)</del> <del>(\$0.080485)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
Rate RSH	<del>(\$0.089492)</del> <del>(\$0.090731)</del>	per kWh of On-Peak Outflow between October 1 and May 31
	<del>(\$0.080454)</del> <del>(\$0.082526)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
	<del>(\$0.120699)</del> <del>(\$0.119655)</del>	per kWh of On-Peak Outflow between June 1 and September 30
Nighttime Savers	<del>(\$0.090527)</del> <del>(\$0.092844)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
Rate RPM	<del>(\$0.056983)</del> <del>(\$0.059543)</del>	per kWh of Super Off-Peak Outflow between June 1 and September 30
	<del>(\$0.089492)</del> <del>(\$0.090731)</del>	per kWh of On-Peak Outflow between October 1 and May 31
	<del>(\$0.089322)</del> <del>(\$0.090111)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
	<del>(\$0.065783)</del> <del>(\$0.067101)</del>	per kWh of Super Off-Peak Outflow between October 1 and May 31
<b>Secondary Rates</b>		
Rate GS	<del>(\$0.074172)</del> <del>(\$0.077430)</del>	per kWh of Outflow during the billing months of June through September
	<del>(\$0.076297)</del> <del>(\$0.075793)</del>	per kWh of Outflow during the billing months of October through May
Rate GSTU <sup>(1)</sup>	<del>(\$0.092070)</del> <del>(\$0.107369)</del>	per kWh of On-Peak Outflow during the billing months of June through September
	<del>(\$0.073295)</del> <del>(\$0.085363)</del>	per kWh of Mid-Peak Outflow during the billing months of June through September
	<del>(\$0.048256)</del> <del>(\$0.056707)</del>	per kWh of Off-Peak Outflow during the billing months of June through September
	<del>(\$0.084627)</del> <del>(\$0.087262)</del>	per kWh of On-Peak Outflow during the billing months of October through May
	<del>(\$0.065174)</del> <del>(\$0.067811)</del>	per kWh of Off-Peak Outflow during the billing months of October through May

Rate GSD <sup>(1)</sup>	<del>(\$0.027586)</del> <del>(\$0.036126)</del>	per kWh of Outflow during the billing months of June through September
	<del>(\$0.027941)</del> <del>(\$0.033377)</del>	per kWh of Outflow during the billing months of October through May
	<del>(\$18.92)</del> <del>(\$16.12)</del>	per kW of Outflow Demand during the billing months of June through September
	<del>(\$15.42)</del> <del>(\$13.16)</del>	per kW of Outflow Demand during the billing months of October through May
<sup>(1)</sup> Outflow credit will be reduced by the applicable Interruptible Credit for GSTU and GSD customers participating on GSI Provision.		

(Continued on Sheet No. C-64.40)

See Barnes Testimony, Page 2, Lines 21-22; Exhibit A-17 (RLB-1) Item #7; Exhibit A-16 (HWM-3), Pages 1-25

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-64.40**

(Continued from Sheet No. C-64.30)

Primary Rates		
Rate GP		
Customer Voltage Level 1	<del>(\$0.068354)</del> <del>(\$0.067725)</del>	per kWh of outflow during the billing months of June through September
	<del>(\$0.070224)</del> <del>(\$0.066332)</del>	per kWh of outflow during the billing months of October through May
Customer Voltage Level 2	<del>(\$0.069322)</del> <del>(\$0.068678)</del>	per kWh of outflow during the billing months of June through September
	<del>(\$0.071220)</del> <del>(\$0.067273)</del>	per kWh of outflow during the billing months of October through May
Customer Voltage Level 3	<del>(\$0.070049)</del> <del>(\$0.070169)</del>	per kWh of outflow during the billing months of June through September
	<del>(\$0.071969)</del> <del>(\$0.068741)</del>	per kWh of outflow during the billing months of October through May
Rate GPD <sup>(2)</sup>		
Customer Voltage Level 1	<del>(\$0.031510)</del> <del>(\$0.030103)</del>	per kWh of On-Peak Outflow during the billing months of June through September
	<del>(\$0.020076)</del> <del>(\$0.019387)</del>	per kWh of Off-Peak Outflow during the billing months of June through September
	<del>(\$22.10)</del> <del>(\$19.91)</del>	per kW of Outflow Demand during the billing months of June through September
	<del>(\$0.025403)</del> <del>(\$0.024654)</del>	per kWh of On-Peak Outflow during the billing months of October through May
	<del>(\$0.023499)</del> <del>(\$0.022925)</del>	per kWh of Off-Peak Outflow during the billing months of October through May
	<del>(\$19.88)</del> <del>(\$18.01)</del>	per kW of Outflow Demand during the billing months of October through May
Customer Voltage Level 2	<del>(\$0.031907)</del> <del>(\$0.030473)</del>	per kWh of On-Peak Outflow during the billing months of June through September
	<del>(\$0.020329)</del> <del>(\$0.019625)</del>	per kWh of Off-Peak Outflow during the billing months of June through September
	<del>(\$22.42)</del> <del>(\$20.21)</del>	per kW of Outflow Demand during the billing months of June through September
	<del>(\$0.025723)</del> <del>(\$0.024957)</del>	per kWh of On-Peak Outflow during the billing months of October through May
	<del>(\$0.023795)</del> <del>(\$0.023207)</del>	per kWh of Off-Peak Outflow during the billing months of October through May
	<del>(\$20.18)</del> <del>(\$18.28)</del>	per kW of Outflow Demand during the billing months of October through May
Customer Voltage Level 3	<del>(\$0.032169)</del> <del>(\$0.031072)</del>	per kWh of On-Peak Outflow during the billing months of June through September
	<del>(\$0.020496)</del> <del>(\$0.020011)</del>	per kWh of Off-Peak Outflow during the billing months of June through September
	<del>(\$22.67)</del> <del>(\$20.66)</del>	per kW of Outflow Demand during the billing months of June through September
	<del>(\$0.025934)</del> <del>(\$0.025448)</del>	per kWh of On-Peak Outflow during the billing months of October through May
	<del>(\$0.023990)</del> <del>(\$0.023663)</del>	per kWh of Off-Peak Outflow during the billing months of October through May
	<del>(\$20.40)</del> <del>(\$18.69)</del>	per kW of Outflow Demand during the billing months of October through May
<sup>(2)</sup> For customers on Rate GPD GI Provision, On-Peak kW Outflow Credit shall be reduced by \$7.00 per kW during the billing months of June through September and \$6.00 per kW during the billing months of October through May.		

(Continued on Sheet No. C-64.50)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-64.50**

(Continued from Sheet No. C-64.40)

Rate GPTU		
Customer Voltage Level 1	<del>(\$0.103034)</del> <del>(\$0.103363)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.094730)</del> <del>(\$0.094190)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.074885)</del> <del>(\$0.074474)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.051946)</del> <del>(\$0.052216)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.065951)</del> <del>(\$0.068752)</del>	per kWh of High-Peak Outflow between October 1 and May 31
	<del>(\$0.063892)</del> <del>(\$0.066481)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.057230)</del> <del>(\$0.059877)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
Customer Voltage Level 2	<del>(\$0.104504)</del> <del>(\$0.104822)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.096088)</del> <del>(\$0.095528)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.075960)</del> <del>(\$0.075534)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.052689)</del> <del>(\$0.052956)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.066875)</del> <del>(\$0.069699)</del>	per kWh of High-Peak Outflow between October 1 and May 31
	<del>(\$0.064790)</del> <del>(\$0.067400)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.058031)</del> <del>(\$0.060701)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
Customer Voltage Level 3	<del>(\$0.105613)</del> <del>(\$0.107102)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.097117)</del> <del>(\$0.097615)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.076777)</del> <del>(\$0.077187)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.053252)</del> <del>(\$0.054110)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.067560)</del> <del>(\$0.071188)</del>	per kWh of High-Peak Outflow between October 1 and May 31
	<del>(\$0.065458)</del> <del>(\$0.068844)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.058625)</del> <del>(\$0.061996)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
Rate EIP		
Customer Voltage Level 1	<del>(\$0.114308)</del> <del>(\$0.103385)</del>	per kWh of Critical Peak Outflow between June 1 and September 30
	<del>(\$0.076205)</del> <del>(\$0.068923)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.068993)</del> <del>(\$0.062392)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.054935)</del> <del>(\$0.050133)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.036688)</del> <del>(\$0.033705)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.083794)</del> <del>(\$0.076009)</del>	per kWh of Critical Peak Outflow between October 1 and May 31
	<del>(\$0.055862)</del>	per kWh of High-Peak Outflow between October 1 and May 31

	<del>(\$0.050672)</del>	
	<del>(\$0.053063)</del> <del>(\$0.048519)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.047043)</del> <del>(\$0.042875)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
Customer Voltage Level 2	<del>(\$0.115814)</del> <del>(\$0.104742)</del>	per kWh of Critical Peak Outflow between June 1 and September 30
	<del>(\$0.077209)</del> <del>(\$0.069828)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.069906)</del> <del>(\$0.063215)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.055662)</del> <del>(\$0.050796)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.037172)</del> <del>(\$0.034149)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.084883)</del> <del>(\$0.076987)</del>	per kWh of Critical Peak Outflow between October 1 and May 31
	<del>(\$0.056588)</del> <del>(\$0.051323)</del>	per kWh of High-Peak Outflow between October 1 and May 31
	<del>(\$0.053754)</del> <del>(\$0.049144)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.047654)</del> <del>(\$0.043427)</del>	per kWh of Off-Peak Outflow between October 1 and May 31
Customer Voltage Level 1	<del>(\$0.116860)</del> <del>(\$0.106900)</del>	per kWh of Critical Peak Outflow between June 1 and September 30
	<del>(\$0.077906)</del> <del>(\$0.071267)</del>	per kWh of High-Peak Outflow between June 1 and September 30
	<del>(\$0.070541)</del> <del>(\$0.064523)</del>	per kWh of Mid-Peak Outflow between June 1 and September 30
	<del>(\$0.056171)</del> <del>(\$0.051847)</del>	per kWh of Low-Peak Outflow between June 1 and September 30
	<del>(\$0.037511)</del> <del>(\$0.034855)</del>	per kWh of Off-Peak Outflow between June 1 and September 30
	<del>(\$0.085627)</del> <del>(\$0.078550)</del>	per kWh of Critical Peak Outflow between October 1 and May 31
	<del>(\$0.057084)</del> <del>(\$0.052366)</del>	per kWh of High-Peak Outflow between October 1 and May 31
	<del>(\$0.054226)</del> <del>(\$0.050143)</del>	per kWh of Mid-Peak Outflow between October 1 and May 31
	<del>(\$0.048074)</del> <del>(\$0.044310)</del>	per kWh of Off-Peak Outflow between October 1 and May 31

- b. Retail Open Access Customers  
The Outflow Credit will be determined by the Retail Service Supplier

(Continued on Sheet No. C-64.60)

See Barnes Testimony, Page 2, Lines 21-22; Exhibit A-17 (RLB-1) Item #7; Exhibit A-16 (HWM-3), Pages 1-25

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. C-76.00**

(Continued From Sheet No. C-75.00)

**C18. STANDARD OFFER - PURCHASED POWER (Contd)**

**B. Published Avoided Cost Rates**

The capacity and energy rates applicable to the Standard Offer will be based on a competitive bidding solicitation procedure approved by the Commission in its Order in Case No. U-20165 dated June 7, 2019. New full avoided costs rates stemming from each competitive solicitation will be filed with the Commission for review and approval within 30 days of the conclusion of each competitive solicitation.

**C. Monthly Rate**

System Access Charge - Equal to the System Access Charge of the customer's delivery account but not in excess of \$50, assessed per generator meter, to be paid to the Company by the customer or to be deducted from the payment to the customer by the Company.

Energy – For all energy supplied by the seller, the seller shall receive an energy payment equal to one of the rate options below, as selected by the seller and applicable for the term of the contract. The line loss adjustment factor will be revised for future new PPAs when line losses are updated, as approved by the Commission.

Rate Option	Energy Rate \$/kWh	
1. As Available Rate	Actual MISO Day Ahead Locational Marginal Price (LMP) at the Company's CONS.CETR load node under a 15-year term then multiplied by 1 plus the line loss adjustment factor of <u>2.13</u> <del>2.38</del> % and less the Administrative Fee of \$0.001/kWh.	
2. LMP Energy Rate Forecast	A 10-year term based on a forecast of LMPs for the first five years and year six through year 10 of the term will be equal to the price of energy in the fifth year of the LMP forecast. Rates include the line loss adjustment and Administrative Fee as provided in Rate Option 1.	
	<b>On-Peak Energy Rate</b>	<b>Off-Peak Energy Rate</b>
<b>Year</b>	<b>\$/kWh</b>	<b>\$/kWh</b>
2019	\$0.03103	\$0.02670
2020	\$0.03173	\$0.02705
2021	\$0.03264	\$0.02777
2022	\$0.03373	\$0.02852
2023	\$0.03474	\$0.02935
2024	\$0.03600	\$0.03058
2025	\$0.03723	\$0.03176
2026	\$0.03844	\$0.03279
2027	\$0.03970	\$0.03391

(Continued on Sheet No. C-77.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-2.10**

**SURCHARGES**

<b>Energy Efficiency  Program Surcharge  (Case No. U-20702)  Effective beginning the  January 2021  Billing Month<sup>(1)</sup></b>				<b>Distribution Charge for all  Residential Rate Schedules</b>		<b>Total  Distribution Charge<sup>(5)</sup></b>	
<b>Rate Schedule</b>							
Residential Rates	\$ 0.003484/kWh	+		\$ <del>0.069121</del> /kWh 0.055826	=	\$ <del>0.072605</del> /kWh 0.059310	
				<b>System Access Charge for each  Non-Residential Rate Schedule</b>	=	<b>Total  System Access Charge<sup>(5)</sup></b>	
Rate GS and GSTU							
Tier 1: 0-1,250 kWh/mo.	\$ 8.22/billing meter	+	\$ 20.00/month	=	\$ 28.22/month		
Tier 2: 1,251 – 5,000 kWh/mo.	43.32/billing meter	+	20.00/month	=	63.32/month		
Tier 3: 5,001 – 30,000 kWh/mo.	180.84/billing meter	+	20.00/month	=	200.84/month		
Tier 4: 30,001 – 50,000 kWh/mo.	331.89/billing meter	+	20.00/month	=	351.89/month		
Tier 5: >50,000 kWh/mo.	523.44/billing meter	+	20.00/month	=	543.44/month		
Rate GSD							
Tier 1: 0-1,250 kWh/mo.	\$ 8.22/billing meter	+	\$ 30.00/month	=	\$ 38.22/month		
Tier 2: 1,251 – 5,000 kWh/mo.	43.32/billing meter	+	30.00/month	=	73.32/month		
Tier 3: 5,001 – 30,000 kWh/mo.	180.84/billing meter	+	30.00/month	=	210.84/month		
Tier 4: 30,001 – 50,000 kWh/mo.	331.89/billing meter	+	30.00/month	=	361.89/month		
Tier 5: >50,000 kWh/mo.	523.44/billing meter	+	30.00/month	=	553.44/month		
Rate GP							
Tier 1: 0-5,000 kWh/mo.	\$ 22.16/billing meter	+	\$ 100.00/month	=	\$ 122.16/month		
Tier 2: 5,001 – 10,000 kWh/mo.	72.49/billing meter	+	100.00/month	=	172.49/month		
Tier 3: 10,001 – 30,000 kWh/mo.	314.23/billing meter	+	100.00/month	=	414.23/month		
Tier 4: 30,001 – 50,000 kWh/mo.	653.87/billing meter	+	100.00/month	=	753.87/month		
Tier 5: >50,000 kWh/mo.	1318.61/billing meter	+	100.00/month	=	1418.61/month		
Rate GPD, GPTU, and EIP							
Tier 1: 0-5,000 kWh/mo.	\$ 22.16/billing meter	+	\$ 200.00/month	=	\$ 222.16/month		
Tier 2: 5,001 – 10,000 kWh/mo.	72.49/billing meter	+	200.00/month	=	272.49/month		
Tier 3: 10,001 – 30,000 kWh/mo.	314.23/billing meter	+	200.00/month	=	514.23/month		
Tier 4: 30,001 – 50,000 kWh/mo.	653.87/billing meter	+	200.00/month	=	853.87/month		
Tier 5: >50,000 kWh/mo.	1318.61/billing meter	+	200.00/month	=	1518.61/month		
Rate GSG-2 <sup>(3)</sup>	NA		NA		NA		
Rate GML <sup>(3) (4)</sup>	NA		NA		NA		
Rate GUL <sup>(3) (4)</sup>	\$ 0.27/fixture per month <sup>(2)</sup>		NA		NA		
Rate GU-LED	NA		NA		NA		
Rate GU	NA		NA		NA		
Rate PA	NA		NA		NA		
Rate ROA-R, ROA-S, ROA-P	Same as Full Service Delivery Rate Schedule		Same as Full Service Delivery Rate Schedule		Same as Full Service Delivery Rate Schedule		

<sup>(1)</sup> This is subject to all general terms and conditions as shown in Rule C12, Energy Efficiency. The Energy Efficiency Program Surcharge amount may vary during specific months as authorized by the Michigan Public Service Commission. The Company will file a new tariff sheet to reflect any change in surcharges once the financial incentive recovery period has been completed.

<sup>(2)</sup> Company-Owned lighting fixture customers served on General Service Unmetered Lighting Rate GUL shall pay this surcharge. Rate codes 1455 and 1460 will not be charged this surcharge.

<sup>(3)</sup> Additional Rate Schedules can opt-in to the Energy Efficiency Program as described in Rule C12., Energy Efficiency.

<sup>(4)</sup> Lighting rates that choose to opt-in to the Energy Efficiency Program shall be assessed \$0.27 per fixture per month.

<sup>(5)</sup> This charge will be shown on the monthly utility bill using the methodology as described in Rule C12, Energy Efficiency.

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-4.00

## SURCHARGES

	<u><i>Demand Response (DR)</i></u>
	<u><i>Reconciliation Surcharge</i></u>
	<u><i>(Case No. U-20963)</i></u>
	<u><i>Effective for service rendered</i></u>
<u><i>Rate Schedule</i></u>	<u><i>January 1, 2022</i></u>
<u><i>Rate RSP</i></u>	<u><i>\$0.001904/kWh</i></u>
<u><i>Rate RSH</i></u>	<u><i>0.001904/kWh</i></u>
<u><i>Rate RPM</i></u>	<u><i>0.001904/kWh</i></u>
<u><i>Rate RSM</i></u>	<u><i>0.001904/kWh</i></u>
<u><i>Rate GS</i></u>	<u><i>0.001551/kWh</i></u>
<u><i>Rate GSTU</i></u>	<u><i>0.001551/kWh</i></u>
<u><i>Rate GSD</i></u>	<u><i>0.54/kW</i></u>
<u><i>Rate GP</i></u>	
<u><i>Customer Voltage Level 1</i></u>	<u><i>0.001388/kWh</i></u>
<u><i>Customer Voltage Level 2</i></u>	<u><i>0.001405/kWh</i></u>
<u><i>Customer Voltage Level 3</i></u>	<u><i>0.001417/kWh</i></u>
<u><i>Rate GPD</i></u>	
<u><i>Customer Voltage Level 1</i></u>	<u><i>0.56/kW</i></u>
<u><i>Customer Voltage Level 2</i></u>	<u><i>0.57/kW</i></u>
<u><i>Customer Voltage Level 3</i></u>	<u><i>0.58/kW</i></u>
<u><i>Rate GPTU</i></u>	
<u><i>Customer Voltage Level 1</i></u>	<u><i>0.001250/kWh</i></u>
<u><i>Customer Voltage Level 2</i></u>	<u><i>0.001266/kWh</i></u>
<u><i>Customer Voltage Level 3</i></u>	<u><i>0.001277/kWh</i></u>
<u><i>Rate EIP</i></u>	
<u><i>Customer Voltage Level 1</i></u>	<u><i>0.000373/kWh</i></u>
<u><i>Customer Voltage Level 2</i></u>	<u><i>0.000377/kWh</i></u>
<u><i>Customer Voltage Level 3</i></u>	<u><i>0.000380/kWh</i></u>
<u><i>Rate LTILRR</i></u>	<u><i>NA</i></u>
<u><i>Rate GSG-2</i></u>	<u><i>NA</i></u>
<u><i>Rate GML</i></u>	<u><i>0.000398/kWh</i></u>
<u><i>Rate GUL</i></u>	<u><i>0.000399/kWh</i></u>
<u><i>Rate GU-LED</i></u>	<u><i>0.000399/kWh</i></u>
<u><i>Rate GU</i></u>	<u><i>0.001102/kWh</i></u>
<u><i>Rate PA</i></u>	<u><i>NA</i></u>
<u><i>Rate ROA-R</i></u>	<u><i>NA</i></u>
<u><i>Rate ROA-S</i></u>	<u><i>NA</i></u>
<u><i>Rate ROA-P</i></u>	<u><i>NA</i></u>

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-9.00**

**RATE CATEGORIES AND PROVISIONS**

<b>Description</b>	<b>Full Service</b>	<b>Retail Open Access</b>
<b>RESIDENTIAL SUMMER ON-PEAK BASIC RATE RSP</b>		
Residential	1001	Not Applicable
<u>Provisions</u>		
Residential Summer On-Peak Basic With Income Assistance (RIA) *	Applicable	Not Applicable
Residential Summer On-Peak Basic With Low Income Assistance Credit (LIAC) *	Applicable	Not Applicable
Residential Summer On-Peak Basic With Senior Citizen (RSC) *	Applicable	Not Applicable
Peak Power Savers – <del>Air Conditioner Peak</del> <u>Device</u> Cycling Program	Applicable	Not Applicable
Peak Power Savers – Peak Reward ***	Applicable	Not Applicable
Peak Power Savers – Critical Peak Pricing ***	Applicable	Not Applicable
Residential Summer On-Peak Basic With Self-Generation (SG) **	1700	Not Applicable
Net Metering Program	Applicable	Not Applicable
Distributed Generation Program	Applicable	Not Applicable
Green Generation Program ****	Applicable	Not Applicable
Renewable Energy Credit (REC) Programs	Applicable	Not Applicable
<b>RESIDENTIAL SMART HOURS RATE RSH</b>		
Residential	1040	Not Applicable
<u>Provisions</u>		
Residential Smart Hours With Income Assistance (RIA) *	Applicable	Not Applicable
Residential Smart Hours With Low Income Assistance Credit (LIAC) *	Applicable	Not Applicable
Residential Smart Hours With Senior Citizen (RSC) *	Applicable	Not Applicable
Peak Power Savers – <del>Air Conditioner Peak</del> <u>Device</u> Cycling Program	Applicable	Not Applicable
Peak Power Savers – Peak Reward ***	Applicable	Not Applicable
Peak Power Savers – Critical Peak Pricing ***	Applicable	Not Applicable
Residential Smart Hours With Self-Generation (SG) **	1702	Not Applicable
Net Metering Program	Applicable	Not Applicable
Distributed Generation Program	Applicable	Not Applicable
Green Generation Program ****	Applicable	Not Applicable
Renewable Energy Credit (REC) Programs	Applicable	Not Applicable
<b>RESIDENTIAL NIGHTTIME SAVERS RATE RPM</b>		
Residential	1050	Not Applicable
<u>Provisions</u>		
Residential Nighttime Savers With Income Assistance (RIA) *	Applicable	Not Applicable
Residential Nighttime Savers With Low Income Assistance Credit (LIAC) *	Applicable	Not Applicable
Residential Nighttime Savers With Senior Citizen (RSC) *	Applicable	Not Applicable
Residential Nighttime Savers – Plug-In Electric Vehicle Only Credit	Applicable	Not Applicable
Peak Power Savers – <del>Air Conditioner Peak</del> <u>Device</u> Cycling Program	Applicable	Not Applicable
Peak Power Savers – Peak Reward ***	Applicable	Not Applicable
Peak Power Savers – Critical Peak Pricing ***	Applicable	Not Applicable
Residential Nighttime Savers With Self-Generation (SG) **	1703	Not Applicable
Net Metering Program	Applicable	Not Applicable
Distributed Generation Program	Applicable	Not Applicable
Green Generation Program ****	Applicable	Not Applicable
Renewable Energy Credit (REC) Programs	Applicable	Not Applicable
<b>RESIDENTIAL SERVICE SECONDARY NON-TRANSMITTING METER RATE RSM</b>		
Residential	1000	Not Applicable
<u>Provisions</u>		
Residential Non-Transmitting Meter With Income Assistance (RIA) *	Applicable	Not Applicable
Residential Non-Transmitting Meter With Low Income Assistance Credit (LIAC) *	Applicable	Not Applicable
Residential Non-Transmitting Meter With Senior Citizen (RSC) *	Applicable	Not Applicable
Green Generation Program ****	Applicable	Not Applicable
Renewable Energy Credit (REC) Programs	Applicable	Not Applicable

\* Provisions shall not be taken in conjunction with each other.

\*\* Provisions shall not be taken in conjunction with the Net Metering Program or the Distributed Generation Program.

\*\*\* Peak Reward and Critical Peak Pricing shall not be taken in conjunction with each other.

\*\*\*\* Closed to new customers, effective April 5, 2019.

**(Continued on Sheet No. D-10.00)**

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-14.00**

**RESIDENTIAL SUMMER ON-PEAK BASIC RATE RSP**

**Availability:**

Subject to any restrictions, this rate is available to any Full Service Customer desiring electric service for any usual residential use in: (i) private family dwellings; (ii) tourist homes, rooming houses, dormitories, nursing homes and other similarly occupied buildings containing sleeping accommodations for up to six persons; or (iii) existing multifamily dwellings containing up to four households served through a single meter. Service for single-phase or three-phase equipment may be included under this rate, provided the individual capacity of such equipment does not exceed 3 hp or 3 kW, nor does the total connected load of the home exceed 10 kW, without the specific consent of the Company.

This rate is not available for: (i) resale purposes; (ii) multifamily dwellings containing more than four living units served through a single meter; (iii) tourist homes, rooming houses, dormitories, nursing homes and similarly occupied buildings containing sleeping accommodations for more than six persons; (iv) any other Non-Residential usage; or (v) Rule C5.5 – Non-Transmitting Meter Provision participants.

Residences in conjunction with commercial or industrial enterprises and mobile home parks may take service on this rate only under the Rules and Regulations contained in the Company's Electric Rate Book.

**Nature of Service:**

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

**Monthly Rate:**

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Energy Charge:

Non-Capacity	Capacity	Total	
\$ <u>0.045739</u> <del>0.055119</del>	\$ <u>0.056379</u> <del>0.045530</del>	\$ <u>0.102118</u> <del>0.100649</del>	per kWh for Off-Peak kWh between June 1 and September 30
\$ <u>0.068283</u> <del>0.081916</del>	\$ <u>0.083881</u> <del>0.067740</del>	\$ <u>0.152164</u> <del>0.149656</del>	per kWh for On-Peak kWh between June 1 and September 30
\$ <u>0.043964</u> <del>0.055841</del>	\$ <u>0.055324</u> <del>0.044655</del>	\$ <u>0.099288</u> <del>0.100496</del>	per kWh for all kWh between October 1 and May 31

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges: These charges are applicable to Full Service Customers.**

System Access Charge:	\$8.00	per customer per month
Distribution Charge:	\$ <u>0.069121</u> <del>0.055826</del>	per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**(Continued on Sheet No. D-15.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-16.00

## RESIDENTIAL SUMMER ON-PEAK BASIC RATE RSP

(Continued From Sheet No. D-15.00)

### Monthly Rate: (Contd)

#### Peak Power Savers:

Customers can elect to participate in the ~~Air Conditioner Peak~~ Device Cycling Program and the Peak Reward Program as described in this tariff. When a customer participates in both programs, the customer's incremental energy savings earned under the Peak Reward is compared to the ~~Peak Power Savers—Air Conditioning~~ total credit earned under the Peak Device Cycling Program ~~Credit~~. The greater of the two credits will be applied to the customer's invoice for that billing month. Both credits will not apply in a single billing month. Customers participating in the Peak Reward Program cannot participate in the Critical Peak Price Program. The Company reserves the right to call test events between October 1 and May 31 for customers participating in Peak Power Savers Programs.

#### ~~Air Conditioner Peak~~ Device Cycling Program

A customer in a single family residence who is taking service from the Company may be eligible to participate in the Company's voluntary Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program for load management of eligible ~~electric central air conditioning, central heat pump, or other qualifying~~ electric equipment, including central air conditioning, water heaters, generators and other qualifying equipment. Customer eligibility to participate is determined solely by the Company. Device Cycling Program Credits may be taken in conjunction with one another. The Company will accept a customer's ~~central air conditioning, central heat pump, and other~~ qualifying electric equipment under this program only if it has the capability to be controlled by the Company. ~~Load Management of a customer's swimming pool pump is permitted under this program only if the customer is allowing Load Management of their air conditioner or heat pump unit.~~ The Company will install the required equipment at the customer's premises which will allow Load Management upon signal from the Company. When Load Management equipment is installed at a premises, future customers will be auto-enrolled into the Peak Power Savers ~~Air Conditioner Peak~~ Device Cycling Program. Upon move-in, the customer will be notified confirming participation in the Peak Power Savers ~~Air Conditioner Peak~~ Device Cycling Program and will have 30 days to opt out. Such equipment shall be furnished, installed, maintained and owned by the Company at the Company's expense. Equipment installations must conform to the Company's specifications.

The Company reserves the right to specify the term or duration of the program. The customer's enrollment shall be terminated if the voluntary program ceases, if the customer tampers with the control switch or the Company's equipment or any reasons as provided for in Rule C1.3, Use of Service.

Load Management may occur any day of the week including weekends between the hours of 7:00 AM and 8:00 PM for no more than an eight hour period in any one day. Load management may be implemented for, but not limited to, maintaining system integrity, making an emergency purchase, economic reasons, or when there is insufficient system generation available to meet anticipated system load. Load Management may only occur outside of the hours of 7:00 AM and 8:00 PM during a declared emergency event as directed by MISO.

The customer may contact the Company to request to override a Load Management event for one Load Management event during the June through September months in any one calendar year for the balance of the hours left in that Load Management event with no penalty. The request shall be granted at the discretion of the Company. If the override request was granted by the Company and the customer requests and is granted any additional overrides in the same calendar year, the Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Credit may be forfeited for that billing month.

Rule C1.1 Character of Service, Rule C3 Emergency Electrical Procedures and other rules and regulations contained in the Company's Electric Rate Book apply to customers taking service under this Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program.

The monthly credit(s) for the Peak Power Savers Program shall be applied as follows:

#### Power Supply Charges: These charges are applicable to Full Service Customers.

##### ~~Peak Power Savers –~~

Air Conditioner Peak Cycling Credit:	<del>\$(6.00 8.00)</del>	per customer per month during the billing months of June – September
<u>Water Heater Cycling Credit:</u>	<u>\$(1.60)</u>	<u>per customer per month for all billing months</u>
<u>Back-Up Generator Cycling Credit:</u>	<u>\$(11.20)</u>	<u>per customer per month for all billing months</u>

(Continued on Sheet No. D-17.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-17.00

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**RESIDENTIAL SUMMER ON-PEAK BASIC RATE RSP**

(Continued From Sheet No. D-16.00)

**Monthly Rate: (Contd)**

**Peak Power Savers: (Contd)**

**Peak Reward**

Participating customers are able to manage electric costs by reducing load during critical peak events. The Company may call up to fourteen critical peak events between June 1 and September 30 and up to five critical peak events between October 1 and May 31. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers will be credited the Peak Reward per kWh of incremental energy reductions.

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Peak Reward: \$(1.00) per kWh of incremental energy reduction during a critical peak event

**Critical Peak Price**

Participating customers are able to manage electric costs by shifting load during critical peak events to a lower cost pricing period. The Company may call up to fourteen critical peak events between June 1 and September 30. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers will be charged the Critical Peak Price per kWh consumed during the critical peak event.

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Critical Peak Price: \$1.00 per kWh of energy consumed during a critical peak event between June 1 and September 30

Off-Peak Discount: \$(0.015226 ~~0.018259~~) per kWh of Off-Peak kWh between June 1 and September 30

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

**Net Metering Program:**

The Net Metering Program is available to any eligible customer as described in Rule C 11.2., Net Metering Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C11.2.B, Net Metering Definitions.

A customer who participates in the Net Metering Program is subject to the provisions contained in Rule C 11.2., Net Metering Program.

**Distributed Generation Program:**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Program:**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

(Continued on Sheet No. D-18.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-36.00**

**RESIDENTIAL SMART HOURS RATE RSH**

**Availability:**

Subject to any restrictions, this rate is available to any Full Service residential customers who have the required metering equipment and infrastructure installed. The Company will furnish, maintain and own the required equipment at the customers' premises at the Company's request. By selecting this rate schedule, the customer agrees to provide an email address. Electric consumption is billed using on-peak and off-peak periods year-round on the Residential Smart Hours Rate.

This rate is not available for resale purposes or for any Non-Residential usage.

**Nature of Service:**

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

**Monthly Rate:**

**Power Supply Charges: These charges are applicable to Full Service Customers.**

	Non-Capacity	Capacity	Total	
Off-Peak – Summer	<del>\$0.045739</del> <del>0.055119</del>	<del>\$0.056379</del> <del>0.045530</del>	<del>\$0.102118</del> <del>0.100649</del>	per kWh for all Off-Peak kWh between June 1 and September 30
On-Peak – Summer	<del>\$0.068283</del> <del>0.081916</del>	<del>\$0.083881</del> <del>0.067740</del>	<del>\$0.152164</del> <del>0.149656</del>	per kWh for all On-Peak kWh between June 1 and September 30
Off-Peak – Winter	<del>\$0.043362</del> <del>0.055019</del>	<del>\$0.053326</del> <del>0.043086</del>	<del>\$0.096688</del> <del>0.098105</del>	per kWh for all Off-Peak kWh between October 1 and May 31
On-Peak – Winter	<del>\$0.047298</del> <del>0.059440</del>	<del>\$0.060661</del> <del>0.049013</del>	<del>\$0.107959</del> <del>0.108453</del>	per kWh for all On-Peak kWh between October 1 and May 31

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges: These charges are applicable to Full Service Customers.**

System Access Charge:	\$8.00	per customer per month
	<del>\$0.069121</del>	
Distribution Charge:	<del>0.055826</del>	per kWh for all kWh for a Full Service customer

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Income Assistance Service Provision (RIA):**

When service is supplied to a Principal Residence Customer, where the household receives a Home Heating Credit (HHC) in the State of Michigan, a credit shall be applied during all billing months. For an income assistance customer to qualify for this credit the Company shall require annual evidence of the HHC energy draft or warrant. The customer may also qualify for this credit by meeting the requirements under Rule B2, Consumer Standards and Billing Practices for Electric and Natural Gas Service, R 460.102, Definitions; A to F. Confirmation shall be required by an authorized State or Federal agency to verify that the customer's total household income does not exceed 150% of the Federal poverty level.

The monthly credit for the residential Income Assistance Service Provision shall be applied as follows:

**Delivery Charges: These charges are applicable to Full Service Customers.**

Income Assistance Credit: \$(8.00) per customer per month

This credit shall not be taken in conjunction with a credit for the Senior Citizen Service Provision (RSC).

**(Continued on Sheet No. D-37.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-37.00

## RESIDENTIAL SMART HOURS RATE RSH

(Continued From Sheet No. D-36.00)

### Monthly Rate: (Contd)

#### Low Income Assistance Credit (LIAC):

Company selected Residential customers may receive LIAC for up to 12 consecutive months. The number of customers enrolled may be adjusted, at the Company's discretion, in order to dispense Commission-approved LIAC funding on an annual basis. Any shortfall in the dispensing of annual LIAC funds to qualified customers shall be carried over into the subsequent LIAC program year. LIAC customer selection will be based on highest need chosen from one or more of the following eligibility criteria:

1. Customers with an approved critical care certification where the total household income does not exceed 150% of the Federal Poverty level within the last 12 months, as verified by an authorized State, Federal or community agency.
2. Customers who are enrolled in the Company's Consumers Affordable Resources for Energy (CARE) program.
3. Customers who have received a Home Heating Credit in the previous 12 months.
4. Customers whose total household income does not exceed 150% of the Federal Poverty level as verified by an authorized State, Federal or community agency.

The monthly credit for LIAC shall be applied as follows:

Low Income Assistance Credit: \$(30.00) per meter per month

If a credit balance occurs, the credit shall apply to the customer's future electric utility charges. Re-enrollment, if applicable, and confirmation of qualification is required for each annual period of participation.

Customers selected for LIAC will not be eligible for the RIA Provision while enrolled in LIAC.

#### Senior Citizen Service Provision (RSC):

When service is supplied to the Principle Residence Customer who is 65 years of age or older and head of household, a credit shall be applied during all billing months.

The monthly credit for the residential Senior Citizen Service Provision shall be applied as follows:

#### Delivery Charges: These charges are applicable to Full Service Customers.

Senior Citizen Credit: \$(4.00) per customer per month

This credit shall not be taken in conjunction with a credit for the Income Assistance Service Provision (RIA).

### Peak Power Savers:

Customers can elect to participate in the ~~Air Conditioning Peak~~ Device Cycling Program and the Peak Reward Program as described in this tariff. When a customer participates in both programs, the customer's incremental energy savings earned under the Peak Reward is compared to the ~~Peak Power Savers – Air Conditioning~~ total credit earned under the Peak Device Cycling Program ~~Credit~~. The greater of the two credits will be applied to the customer's invoice for that billing month. Both credits will not apply in a single billing month. Customers participating in the Peak Reward Program cannot participate in the Critical Peak Price Program. The Company reserves the right to call test events between October 1 and May 31 for customers participating in Peak Power Savers Programs.

#### ~~Air Conditioner Peak~~ Device Cycling Program

A customer in a single family residence who is taking service from the Company may be eligible to participate in the Company's voluntary Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program for load management of eligible ~~electric central air conditioning, central heat pump, or other qualifying~~ electric equipment, including central air conditioning, water heaters, generators and other qualifying equipment. Customer eligibility to participate is determined solely by the Company. Device Cycling Program Credits may be taken in conjunction with one another. The Company will accept a customer's ~~central air conditioning, central heat pump, and other~~ qualifying electric equipment under this program only if it has the capability to be controlled by the Company. ~~Load Management of a customer's swimming pool pump is permitted under this program only if the customer is allowing Load Management of their air conditioner or heat pump unit.~~ The Company will install the required equipment at the customer's premises which will allow Load Management upon signal from the Company. When Load Management equipment is installed at a premises, future customers will be auto-enrolled into the Peak Power Savers ~~Air Conditioner Peak~~ Device Cycling Program. Upon move-in, the customer will be notified confirming participation in the Peak Power Savers ~~Air Conditioner Peak~~ Device Cycling Program and will have 30 days to opt out. Such equipment shall be furnished, installed, maintained and owned by the Company at the Company's expense. Equipment installations must conform to the Company's specifications.

(Continued on Sheet No. D-38.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-38.00

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**RESIDENTIAL SMART HOURS RATE RSH**  
(Continued From Sheet No. D-37.00)

**Monthly Rate: (Contd)**

**Peak Power Savers: (Contd)**

**Device Cycling Program: Contd**

The Company reserves the right to specify the term or duration of the program. The customer's enrollment shall be terminated if the voluntary program ceases, if the customer tampers with the control switch or the Company's equipment or any reasons as provided for in Rule C1.3, Use of Service.

Load Management may occur any day of the week including weekends between the hours of 7:00 AM and 8:00 PM for no more than an eight hour period in any one day. Load management may be implemented for, but not limited to, maintaining system integrity, making an emergency purchase, economic reasons, or when there is insufficient system generation available to meet anticipated system load. Load Management may only occur outside of the hours of 7:00 AM and 8:00 PM during a declared emergency event as directed by MISO.

The customer may contact the Company to request to override a Load Management event for one Load Management event during the June through September months in any one calendar year for the balance of the hours left in that Load Management event with no penalty. The request shall be granted at the discretion of the Company. If the override request was granted by the Company and the customer requests and is granted any additional overrides in the same calendar year, the Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Credit may be forfeited for that billing month.

Rule C1.1 Character of Service, Rule C3 Emergency Electrical Procedures and other rules and regulations contained in the Company's Electric Rate Book apply to customers taking service under this Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program.

The monthly credit(s) for the Peak Power Savers Program shall be applied as follows:

**Power Supply Charges: These charges are applicable to Full Service Customers.**

~~Peak Power Savers –~~

Air Conditioner Peak Cycling Credit:                      \$(~~6.00~~ 8.00) per customer per month during  
the billing months of June – September

Water Heater Cycling Credit:                                      \$(1.60)                      per customer per month for all billing months

Back-Up Generator Cycling Credit:                                      \$(11.20)                      per customer per month for all billing months

**Peak Reward:**

Participating customers are able to manage electric costs by reducing load during critical peak events. The Company may call up to fourteen critical peak events between June 1 and September 30 and up to five critical peak events between October 1 and May 31. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers on will be credited the Peak Reward per kWh of incremental energy reductions.

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Peak Reward                      \$(1.00)                      per kWh of incremental energy reduction during a critical peak event

**Critical Peak Price**

Participating customers are able to manage electric costs by shifting load during critical peak events to a lower cost pricing period. The Company may call up to fourteen critical peak events between June 1 and September 30. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers on will be charged the Critical Peak Price per kWh consumed during the critical peak event.

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Critical Peak Price \$1.00 per kWh of energy consumed during a critical peak event between  
June 1 and September 30

Off-Peak Discount \$(0.015226 ~~0.018259~~) per kWh for Off-Peak kWh between June 1 and September 30

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

**(Continued on Sheet No. D-39.00)**

See AJGriffin Testimony, Page 48, Lines 1-20; Barnes Testimony, Page 6, Line 17 through Page 7, Line 2; Exhibit A-17 (RLB-1) Items #6 and #8; Exhibit A-16 (HWM-3) Page 2

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-40.00**

**RESIDENTIAL NIGHTTIME SAVERS RATE RPM**

**Availability:**

The Residential Nighttime Savers Rate will be available on a date to be announced by the Company.

The Residential Nighttime Savers Rate is voluntary and available to Full Service residential customers who have the required metering equipment and infrastructure installed. The Company will furnish, install, maintain and own the required equipment at the customers' premises at the Company's expense.

This rate is not available for: (i) resale purposes; (ii) multifamily dwellings containing more than four living units served through a single meter; (iii) tourist homes, rooming houses, dormitories, nursing homes and similarly occupied buildings containing sleeping accommodations for more than six persons; (iv) any other Non-Residential usage or (v) customers being served under Rule C5.5 Non-Transmitting Meter Provision.

Residences in conjunction with commercial or industrial enterprises and mobile home parks may take service on this program only under the Rules and Regulations contained in the Company's Electric Rate Book.

**Nature of Service:**

Service under this program shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

**Monthly Rate:**

**Power Supply Charges:** These charges are applicable to Full Service Customers.

**Energy Charge:**

	Non-Capacity	Capacity	Total	
Super Off-Peak - Summer	<del>\$0.034305</del> <del>0.042369</del>	<del>\$0.036705</del> <del>0.030317</del>	<del>\$0.071010</del> <del>0.072686</del>	per kWh for all Off-Peak kWh between June 1 and September 30
Off-Peak - Summer	<del>\$0.053276</del> <del>0.064633</del>	<del>\$0.060293</del> <del>0.049800</del>	<del>\$0.113569</del> <del>0.114433</del>	per kWh for all Mid-Peak kWh between June 1 and September 30
On-Peak - Summer	<del>\$0.068283</del> <del>0.081916</del>	<del>\$0.083881</del> <del>0.067740</del>	<del>\$0.152164</del> <del>0.149656</del>	per kWh for all On-Peak kWh between June 1 and September 30
Super Off-Peak - Winter	<del>\$0.036827</del> <del>0.047040</del>	<del>\$0.041108</del> <del>0.031447</del>	<del>\$0.077935</del> <del>0.078487</del>	per kWh for all Off-Peak kWh between June 1 and September 30
Off-Peak - Winter	<del>\$0.048949</del> <del>0.062140</del>	<del>\$0.057316</del> <del>0.043846</del>	<del>\$0.106265</del> <del>0.105986</del>	per kWh for all Off-Peak kWh between October 1 and May 31
On-Peak - Winter	<del>\$0.047298</del> <del>0.059440</del>	<del>\$0.060661</del> <del>0.049013</del>	<del>\$0.107959</del> <del>0.108453</del>	per kWh for all On-Peak kWh between October 1 and May 31

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges:** These charges are applicable to Full Service Customers.

System Access Charge: \$8.00 per customer per month

Distribution Charge: ~~\$0.069121~~ ~~0.055826~~ per kWh for all kWh for a Full Service Customer

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Income Assistance Service Provision (RIA):**

When service is supplied to a Principal Residence Customer, where the household receives a Home Heating Credit (HHC) in the State of Michigan, a credit shall be applied during all billing months. For an income assistance customer to qualify for this credit the Company shall require annual evidence of the HHC energy draft or warrant. The customer may also qualify for this credit by meeting the requirements under Rule B2., Consumer Standards and Billing Practices for Electric and Natural Gas Service, R 460.102, Definitions; A to F. Confirmation shall be required by an authorized State or Federal agency to verify that the customer's total household income does not exceed 150% of the Federal poverty level.

The monthly credit for the residential Income Assistance Service Provision shall be applied as follows:

**Delivery Charges:** These charges are applicable to Full Service Customers.

**Income Assistance Credit:** \$(8.00) per customer per month

This credit shall not be taken in conjunction with a credit for the Senior Citizen Service Provision (RSC).

**(Continued on Sheet No. D-41.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-41.00

## RESIDENTIAL NIGHTTIME SAVERS RATE RPM

(Continued From Sheet No. D-40.00)

### Monthly Rate: (Contd)

#### Low Income Assistance Credit (LIAC):

Company selected Residential customers may receive LIAC for up to 12 consecutive months. The number of customers enrolled may be adjusted, at the Company's discretion, in order to dispense Commission-approved LIAC funding on an annual basis. Any shortfall in the dispensing of annual LIAC funds to qualified customers shall be carried over into the subsequent LIAC program year. LIAC customer selection will be based on highest need chosen from one or more of the following eligibility criteria:

1. Customers with an approved critical care certification where the total household income does not exceed 150% of the Federal Poverty level within the last 12 months, as verified by an authorized State, Federal or community agency.
2. Customers who are enrolled in the Company's Consumers Affordable Resources for Energy (CARE) program.
3. Customers who have received a Home Heating Credit in the previous 12 months.
4. Customers whose total household income does not exceed 150% of the Federal Poverty level as verified by an authorized State, Federal or community agency.

The monthly credit for LIAC shall be applied as follows:

Low Income Assistance Credit: \$(30.00) per meter per month

If a credit balance occurs, the credit shall apply to the customer's future electric utility charges. Re-enrollment, if applicable, and confirmation of qualification is required for each annual period of participation.

Customers selected for LIAC will not be eligible for the RIA Provision while enrolled in LIAC.

#### Senior Citizen Service Provision (RSC):

When service is supplied to the Principal Residence Customer who is 65 years of age or older and head of household, a credit shall be applied during all billing months.

The monthly credit for the residential Senior Citizen Service Provision shall be applied as follows:

**Delivery Charges:** These charges are applicable to Full Service Customers.

**Senior Citizen Credit:** \$(4.00) per customer per month

This credit shall not be taken in conjunction with a credit for the Income Assistance Service Provision (RIA).

#### Residential Plug-In Electric Vehicle Only Credit (REV):

When service is supplied for Level 2 Charging of a separately metered electric vehicle, a credit shall be applied during all billing months. Electric usage for the household will be billed under the Residential Summer On-Peak Basic Rate or the Residential Smart Hours Rate.

"Level 2 Charging" is defined as voltage connection of either 240 volts or 208 volts and a maximum load of 32 amperes or 7.7 kVA at 240 volts or 6.7 kVA at 208 volts.

Vehicles shall be registered and operable on public highways in the State of Michigan to qualify for this credit. Low-speed electric vehicles including golf carts are not eligible for this credit even if licensed to operate on public streets. The customer may be required to provide proof of registration of the electric vehicle to qualify for this credit.

**Delivery Charges:** These charges are applicable to Full Service Customers.

**Residential Plug-In Electric Vehicle Only Credit:** \$(8.00) per customer per month

#### Peak Power Savers:

Customers can elect to participate in the ~~Air Conditioning Peak~~ Device Cycling Program and the Peak Reward Program as described in this tariff. When a customer participates in both programs, the customer's incremental energy savings earned under the Peak Reward is compared to the ~~Peak Power Savers— Air Conditioning~~ total credit earned under the Peak Device Cycling Program ~~Credit~~. The greater of the two credits will be applied to the customer's invoice for that billing month. Both credits will not apply in a single billing month. Customers participating in the Peak Reward Program cannot participate in the Critical Peak Price Program. The Company reserves the right to call test events between October 1 and May 31 for customers participating in Peak Power Savers Programs.

(Continued on Sheet No. D-42.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-42.00

## RESIDENTIAL NIGHTTIME SAVERS RATE RPM

(Continued From Sheet No. D-41.00)

### Monthly Rate: (Contd)

#### Peak Power Savers: (Contd)

##### ~~Air Conditioner Peak~~ Device Cycling Program

A customer in a single family residence who is taking service from the Company may be eligible to participate in the Company's voluntary Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program for load management of eligible ~~electric central air conditioning, central heat pump, or other qualifying~~ electric equipment, including central air conditioning, water heaters, generators and other qualifying equipment. Customer eligibility to participate is determined solely by the Company. Device Cycling Program Credits may be taken in conjunction with one another. The Company will accept a customer's ~~central air conditioning, central heat pump, and other~~ qualifying electric equipment under this program only if it has the capability to be controlled by the Company. ~~Load Management of a customer's swimming pool pump is permitted under this program only if the customer is allowing Load Management of their air conditioner or heat pump unit.~~ The Company will install the required equipment at the customer's premises which will allow Load Management upon signal from the Company. When Load Management equipment is installed at a premises, future customers will be auto-enrolled into the Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program. Upon move-in, the customer will be notified confirming participation in the Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program and will have 30 days to opt out. Such equipment shall be furnished, installed, maintained and owned by the Company at the Company's expense. Equipment installations must conform to the Company's specifications.

The Company reserves the right to specify the term or duration of the program. The customer's enrollment shall be terminated if the voluntary program ceases, if the customer tampers with the control switch or the Company's equipment or any reasons as provided for in Rule C1.3, Use of Service.

Load Management may occur any day of the week including weekends between the hours of 7:00 AM and 8:00 PM for no more than an eight hour period in any one day. Load management may be implemented for, but not limited to, maintaining system integrity, making an emergency purchase, economic reasons, or when there is insufficient system generation available to meet anticipated system load. Load Management may only occur outside of the hours of 7:00 AM and 8:00 PM during a declared emergency event as directed by MISO.

The customer may contact the Company to request to override a Load Management event for one Load Management event during the June through September months in any one calendar year for the balance of the hours left in that Load Management event with no penalty. The request shall be granted at the discretion of the Company. If the override request was granted by the Company and the customer requests and is granted any additional overrides in the same calendar year, the Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Credit may be forfeited for that billing month.

Rule C1.1 Character of Service, Rule C3 Emergency Electrical Procedures and other rules and regulations contained in the Company's Electric Rate Book apply to customers taking service under this Peak Power Savers – ~~Air Conditioner Peak~~ Device Cycling Program.

The monthly credit(s) for the Peak Power Savers Program shall be applied as follows:

#### **Power Supply Charges: These charges are applicable to Full Service Customers.**

##### ~~Peak Power Savers –~~

Air Conditioner Peak Cycling Credit:	<del>\$(6.00 8.00)</del>	per customer per month during the billing months of June – September
<u>Water Heater Cycling Credit:</u>	<u>\$(1.60)</u>	<u>per customer per month for all billing months</u>
<u>Back-Up Generator Cycling Credit:</u>	<u>\$(11.20)</u>	<u>per customer per month for all billing months</u>

#### **Peak Reward:**

Participating customers are able to manage electric costs by reducing load during critical peak events. The Company may call up to fourteen critical peak events between June 1 and September 30 and up to five critical peak events between October 1 and May 31. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers on will be credited the Peak Reward per kWh of incremental energy reductions.

#### **Power Supply Charges: These charges are applicable to Full Service Customers.**

Peak Reward      \$(1.00)      per kWh of incremental energy reduction during a critical peak event

(Continued on Sheet No. D-43.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-43.00

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**RESIDENTIAL NIGHTTIME SAVERS RATE RPM**  
(Continued From Sheet No. D-42.00)

**Monthly Rate: (Contd)**

**Peak Power Savers: (Contd)**

**Critical Peak Price:**

Participating customers are able to manage electric costs by shifting load during critical peak events to a lower cost pricing period. The Company may call up to fourteen critical peak events between June 1 and September 30. Customers will be notified by 11:59 PM the day before a critical peak event is expected to occur. Receipt of such notice is the responsibility of the participating customer. Customers must have a transmitting meter to participate in Peak Power Savers.

During a critical peak event, customers on will be charged the Critical Peak Price per kWh consumed during the critical peak event.

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Critical Peak Price \$1.00 per kWh of energy consumed during a critical peak event between June 1 and September 30

Off-Peak Discount \$(0.015226 ~~0.018259~~) per kWh for Off-Peak kWh between June 1 and September 30

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

**Net Metering Program:**

The Net Metering Program is available to any eligible customer as described in Rule C 11.2., Net Metering Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.2.B., Net Metering Definitions.

A customer who participates in the Net Metering Program is subject to the provision contained in Rule C 11.2., Net Metering Program.

**Distributed Generation Program:**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Program:**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

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(Continued on Sheet No. D-44.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-44.10**

**RESIDENTIAL SERVICE SECONDARY NON-TRANSMITTING METER RATE RSM**

**Availability:**

Subject to any restrictions, this rate is available to any customer desiring electric service for any usual residential use in: (i) private family dwellings; (ii) tourist homes, rooming houses, dormitories, nursing homes and other similarly occupied buildings containing sleeping accommodations for up to six persons; or (iii) existing multifamily dwellings containing up to four households served through a single meter. Service for single-phase or three-phase equipment may be included under this rate, provided the individual capacity of such equipment does not exceed 3 hp or 3 kW, nor does the total connected load of the home exceed 10 kW, without the specific consent of the Company.

This rate is only available to customers electing a Non-Transmitting Meter in accordance with Rule C5.5, Non-Transmitting Meter Provision, customers with a Non-Communicating Advanced Metering Infrastructure (AMI) Meter, or customers determined to be eligible at the Company's sole discretion.

A Non-Communicating AMI meter is unable to consistently transmit interval data to the Company's billing system. Non-Communicating Meters are determined at the Company's sole discretion and are subject to a minimum of one communication review per calendar year. When the meter has been determined to successfully communicate interval data, the customer will be notified and transferred to Residential Service Secondary On-Peak Summer Basic Rate RSP. The transfer to Rate RSP shall not occur between June 1 and September 30.

This rate is not available for: (i) resale purposes; (ii) multifamily dwellings containing more than four living units served through a single meter; (iii) tourist homes, rooming houses, dormitories, nursing homes and similarly occupied buildings containing sleeping accommodations for more than six persons; or (iv) any other Non-Residential usage.

Residences in conjunction with commercial or industrial enterprises and mobile home parks may take service on this rate only under the Rules and Regulations contained in the Company's Electric Rate Book.

**Nature of Service:**

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

The Company will schedule meter readings on a monthly basis and attempt to obtain an actual meter reading for all tourist and/or occasional residence customers at intervals of not more than six months.

**Monthly Rate:**

**Power Supply Charges:** These charges are applicable to Full Service customers.

Energy Charge:

Non-Capacity	Capacity	Total	
\$ <u>0.048454</u> <del>0.060524</del>	\$ <u>0.055324</u> <del>0.044655</del>	\$ <u>0.103778</u> <del>0.105179</del>	per kWh for the first 600 kWh per month during the billing months of June - September
\$ <u>0.064301</u> <del>0.076229</del>	\$ <u>0.072513</u> <del>0.053239</del>	\$ <u>0.136814</u> <del>0.129468</del>	per kWh for all kWh over 600 kWh per month during the billing months of June - September
\$ <u>0.043964</u> <del>0.055841</del>	\$ <u>0.055324</u> <del>0.044655</del>	\$ <u>0.099288</u> <del>0.100496</del>	per kWh for all kWh during the billing months of October-May

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges:** These charges are applicable to Full Service and Retail Open Access customers.

System Access Charge:	\$8.00	per customer per month
Distribution Charge:	\$ <u>0.069121</u> <del>0.055826</del>	per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**(Continued on Sheet No. D-44.20)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-45.00

## GENERAL SERVICE SECONDARY RATE GS

### Availability:

Subject to any restrictions, this rate is available to any general use customer, political subdivision or agency of the State of Michigan, either acting separately or in combinations permitted under the laws of this state, desiring Secondary Voltage service for any of the following: (i) standard secondary service, (ii) public potable water pumping and/or waste water system(s), or (iii) resale purposes. This rate is also available for service to any Primary Rate Customer where the Company elects to provide one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer.

This rate is not available for: (i) private family dwellings, (ii) lighting service except for private streets, mobile home parks or service to temporary lighting installations, (iii) heating water for industrial processing, (iv) resale for lighting service, or (v) new or expanded service for resale to residential customers. Unmetered Billboard Service is not available to Retail Open Access service.

### Nature of Service:

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

Three-phase, 3-wire service requires that the customer furnishes all transformation facilities required for single-phase load and so arranges the load as to avoid excessive unbalance of the three-phase load. When the service is single-phase, or 4-wire, three-phase, the single-phase individual motor capacity shall not exceed 3 hp, nor the total single-phase motor capacity of 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the Primary side of the transformers, 3% shall be deducted for billing purposes from the energy measurements thus made. Where the Company elected to provide a Primary Rate Customer one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer, 3% shall not be deducted for billing purposes from the energy measurements thus made.

### Monthly Rate:

**Power Supply Charges:** These charges are applicable to Full Service customers.

Energy Charge:

Non-Capacity	Capacity	Total	
<del>\$0.046891</del>	<del>\$0.042934</del>	<del>\$0.089825</del>	per kWh for all kWh during the billing months of June-September
<del>0.055656</del>	<del>0.036610</del>	<del>0.092266</del>	
<del>\$0.047921</del>	<del>\$0.044657</del>	<del>\$0.092578</del>	per kWh for all kWh during the billing months of October-May
<del>0.053145</del>	<del>0.038079</del>	<del>0.091224</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges:** These charges are applicable to Full Service and Retail Open Access customers.

System Access Charge:	\$20.00	per customer per month
	<del>\$0.043502</del>	
Distribution Charge:	<del>0.047786</del>	per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

### Billboard Service Provision:

Monthly kWh shall be determined by multiplying the total connected load in kW (including the lamps, ballasts, transformers, amplifiers, and control devices) times 730 hours. The kWh for cyclical devices shall be adjusted for the average number of hours used.

(Continued on Sheet No. D-46.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-46.00

**GENERAL SERVICE SECONDARY RATE GS**  
(Continued From Sheet No. D-45.00)

**Monthly Rate: (Contd)**

**Resale Service Provision:**

Subject to any restrictions, this provision is available to customers desiring Secondary Voltage service for resale purposes in accordance with Rule C4.4, Resale.

**Educational Institution Service Provision (GEI):**

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, “school” shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. “College” or “University” shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

**Delivery Charges:                      These charges are applicable to Full Service and Retail Open Access Customers.**

Education Institution Credit:                      \$(~~0.000764~~ ~~0.000782~~)                      per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company’s system must meet the requirements described in Rule C 11.1., Self-Generation.

(Continued on Sheet No. D-47.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-48.00**

**GENERAL SERVICE SECONDARY TIME-OF-USE RATE GSTU**

**Availability**

Subject to any restrictions, General Service Secondary Time-of-Use Rate GSTU is available to any Full Service Customer taking service at the Company's Secondary Voltage level with advanced metering infrastructure and supporting critical systems. Standby service shall be provided on this rate for secondary customers with solar installations equal to or greater than 150 kW.

This rate is not available for: (i) private family dwellings, (ii) lighting service except for private streets, mobile home parks or service to temporary lighting installations, (iii) heating water for industrial processing, (iv) resale for lighting service, or (v) new or expanded service for resale to residential customers.

This rate shall not be taken in conjunction with any other Demand Response Program or Net Metering.

**Nature of Service**

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

Three-phase, 3-wire service requires that the customer furnishes all transformation facilities required for single-phase load and so arranges the load as to avoid excessive unbalance of the three-phase load. When the service is single-phase, or 4-wire, three-phase, the single-phase individual motor capacity shall not exceed 3 hp, nor the total single-phase motor capacity of 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the Primary side of the transformers, 3% shall be deducted for billing purposes from the energy measurements thus made. Where the Company elected to provide a Primary Rate Customer one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer, 3% shall not be deducted for billing purposes from the energy measurements thus made.

**Monthly Rate**

**Power Supply Charges: These charges are applicable to Full Service Customers.**

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak-Summer	<del>\$0.031466</del> <del>0.040202</del>	<del>\$0.026423</del> <del>0.027750</del>	<del>\$0.057889</del> <del>0.067952</del>	per kWh for all Off-Peak kWh during the billing months of June-September
Mid-Peak-Summer	<del>\$0.047279</del> <del>0.059788</del>	<del>\$0.040943</del> <del>0.043000</del>	<del>\$0.088222</del> <del>0.102788</del>	per kWh for all Mid-Peak kWh during the billing months of June-September
On-Peak-Summer	<del>\$0.060756</del> <del>0.076588</del>	<del>\$0.049279</del> <del>0.051753</del>	<del>\$0.110035</del> <del>0.128341</del>	per kWh for all On-Peak kWh during the billing months of June-September
Off-Peak-Winter	<del>\$0.040682</del> <del>0.048530</del>	<del>\$0.038544</del> <del>0.032419</del>	<del>\$0.079226</del> <del>0.080949</del>	per kWh for all Off-Peak kWh during the billing months of October-May
On-Peak -Winter	<del>\$0.051844</del> <del>0.061455</del>	<del>\$0.051591</del> <del>0.043392</del>	<del>\$0.103435</del> <del>0.104847</del>	per kWh for all On-Peak kWh during the billing months of October-May

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges: These charges are applicable to Full Service Customers.**

System Access Charge:	\$20.00	per customer per month
Distribution Charge:	<del>\$0.043502</del> 0.047786	per kWh for all kWh for a Full Service Customer

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**(Continued on Sheet No. D-49.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-49.00

## GENERAL SERVICE SECONDARY TIME-OF-USE RATE GSTU

(Continued From Sheet No. D-48.00)

### Monthly Rate (Contd)

#### Schedule of Hours

The following schedule shall apply Monday through Friday (except holidays designated by the Company). Weekends and holidays are off-peak. Holidays designated by the Company include: New Year's Day – January 1, Memorial Day – Last Monday in May, Independence Day – July 4, Labor Day – First Monday in September, Thanksgiving Day – Fourth Thursday in November and Christmas Day – December 25. Whenever January 1, July 4, or December 25 falls on Sunday, extended holiday periods such as Monday, January 2, Monday, July 5 and Monday, December 26 shall not be considered as holidays for application of off-peak hours.

Summer Billing Months of June through September:

- |                    |  |
|--------------------|--|
| (1) Off-Peak Hours | 12:00 AM to 7:00 AM and 11:00 PM to 12:00 AM |
| (2) Mid-Peak Hours | 7:00 AM to 2:00 PM and 6:00 PM to 11:00 PM   |
| (3) On-Peak Hours  | 2:00 PM to 6:00 PM                           |

Winter Billing Months of January through May and October through December:

- |                    |                     |
|--------------------|---------------------|
| (1) Off-Peak Hours | 11:00 PM to 7:00 AM |
| (2) On-Peak Hours  | 7:00 AM to 11:00 PM |

#### Resale Service Provision

Subject to any restrictions, the provision is available to customers desiring Secondary Voltage service for resale purposes in accordance with Rule C4.4, Resale.

#### Educational Institution Service Provision (GEI)

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, "school" shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. "College" or "University" shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

#### Delivery Charges - These charges are applicable to Full Service Customers.

Education Institution Credit: \$(0.000764 ~~0.000782~~) per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

#### General Service Secondary Interruptible (GSI) Provision:

This provision is available to no more than 200 Full Service Customers desiring interruptible service in conjunction with service taken under General Service Secondary Demand Rate GSD or General Service Secondary Time-of-Use Rate GSTU. Service to interruptible load shall be taken through separately metered circuits and permanently wired. The design and method of installation for application of this rate shall be subject to the approval of the Company.

Any load designated as interruptible by the customer is subject to Midcontinent Independent System Operator's, Inc. (MISO) requirements for Load Modifying Resources and the Company shall inform the Customer of such MISO requirements. Interruption under this provision may occur if MISO issues a Maximum Generation Emergency Event Step 2b order or NERC Emergency Event Alert 2 notice indicating that MISO is experiencing or expects to experience a shortage of economic resources and the Company has declared Emergency Status.

(Continued on Sheet No. D-50.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-50.00

**GENERAL SERVICE SECONDARY TIME-OF-USE RATE GSTU**  
(Continued From Sheet No. D-49.00)

**Monthly Rate: (Contd)**

**General Service Secondary Interruptible (GSI) Provision: (Contd)**

Under this provision, the customer shall be interrupted at any time the Company deems it necessary to maintain system integrity. Service to interruptible load shall not be transferred to firm service circuits to avoid interruption. The Company shall provide the Customer at least 30 minutes notice in advance of a required interruption. Failure to acknowledge receipt of such notice shall not relieve the Customer of the obligation for interruption under the GSI provision. Failure by a customer to comply with a system integrity interruption order of the Company shall be considered unauthorized use and billed at (i) the higher of the actual damages incurred by the Company or (ii) the rate of \$25.00 per kW for the highest 15-minute kW of demand created during the interruption period in addition to the prescribed monthly rate.

This rate is not available for loads that are primarily off-peak, for example parking lot lighting. Participation requires a minimum term of one year.

The monthly credit for the Interruptible Service Provision shall be applied as follows:

**Power Supply Charges – These charges are applicable to Full Service Customers.**

Capacity Credit: These charges are applicable to Full Service Customers.

Interruptible Credit: \$(0.017094 ~~0.017518~~) per kWh for all kWh

**Self-Generation (SG)**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

**Distributed Generation Program:**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Program:**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provision contained in Rule C 10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

(Continued on Sheet No. D-50.10)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-51.00

## GENERAL SERVICE SECONDARY DEMAND RATE GSD

### Availability:

Subject to any restrictions, this rate is available to any customer desiring Secondary Voltage service, either for general use or resale purposes, where the Peak Demand is 5 kW or more. This rate is also available for service to any Primary Rate Customer where the Company elects to provide one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer.

This rate is not available for: (i) private family dwellings, (ii) lighting service, (iii) resale for lighting service, or (iv) new or expanded service for resale to residential customers.

### Nature of Service:

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Secondary Voltage service. The Company will determine the particular nature of the voltage in each case.

Three-phase, 3-wire service requires that the customer furnishes all transformation facilities required for single-phase load and so arranges the load as to avoid excessive unbalance of the three-phase load. When the service is single-phase, or 4-wire, three-phase, the single-phase individual motor capacity shall not exceed 3 hp, nor the total single-phase motor capacity of 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the Primary side of the transformers, 3% shall be deducted for billing purposes from the demand and energy measurements thus made. Where the Company elected to provide a Primary Rate Customer one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer, 3% shall not be deducted for billing purposes from the energy measurements thus made.

### Monthly Rate:

#### Power Supply Charges: These Charges are applicable to Full Service customers.

##### Peak Demand Charge:

Non-Capacity	Capacity	Total	
<del>\$8.87</del>	<del>\$16.02</del>	<del>\$24.89</del>	per kW for all kW of Peak Demand during the
<del>8.18</del>	<del>13.58</del>	<del>21.76</del>	billing months of June-September
<del>\$6.47</del>	<del>\$14.27</del>	<del>\$20.74</del>	per kW for all kW of Peak Demand during the
<del>6.08</del>	<del>12.10</del>	<del>18.18</del>	billing months of October-May

##### Energy Charge:

Non-Capacity	
<del>\$0.027586</del>	per kWh for all kWh during the billing months of June-September
<del>0.036126</del>	
<del>\$0.027941</del>	per kWh for all kWh during the billing months of October-May
<del>0.033377</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factors shown on Sheet No. D-6.00.

#### Delivery Charges: These Charges are applicable to Full Service and Retail Open Access (ROA) customers.

System Access Charge:	\$30.00	per customer per month
Capacity Charge:	<del>\$1.15</del> <del>0.22</del>	per kW for all kW of Peak Demand
	<del>\$0.033256</del>	
Distribution Charge:	<del>0.035027</del>	per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

(Continued on Sheet No. D-52.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-53.00

## GENERAL SERVICE SECONDARY DEMAND RATE GSD

(Continued From Sheet No. D-52.00)

### Monthly Rate: (Contd)

#### Educational Institution Service Provision (GEI):

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, “school” shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. “College” or “University” shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

#### Delivery Charges: These charges are applicable to Full Service and Retail Open Access Customers.

Education Institution Credit: \$ (0.000630) ~~0.000628~~ per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

#### General Service Secondary Interruptible (GSI) Provision:

This provision is available to no more than 200 Full Service Customers desiring interruptible service in conjunction with service taken under General Service Secondary Demand Rate GSD or General Service Secondary Time-of-Use Rate GSTU. Service to interruptible load shall be taken through separately metered circuits and permanently wired. The design and method of installation for application of this rate shall be subject to the approval of the Company.

Any load designated as interruptible by the customer is subject to Midcontinent Independent System Operator’s, Inc. (MISO) requirements for Load Modifying Resources and the Company shall inform the Customer of such MISO requirements. Interruption under this provision may occur if MISO issues a Maximum Generation Emergency Event Step 2b order or NERC Emergency Event Alert 2 notice indicating that MISO is experiencing or expects to experience a shortage of economic resources and the Company has declared Emergency Status.

Under this provision, the customer shall be interrupted at any time the Company deems it necessary to maintain system integrity. Service to interruptible load shall not be transferred to firm service circuits to avoid interruption. The Company shall provide the Customer at least 30 minutes notice in advance of a required interruption. Failure to acknowledge receipt of such notice shall not relieve the Customer of the obligation for interruption under the GSI provision. Failure by a customer to comply with a system integrity interruption order of the Company shall be considered unauthorized use and billed at (i) the higher of the actual damages incurred by the Company or (ii) the rate of \$25.00 per kW for the highest 15-minute kW of demand created during the interruption period in addition to the prescribed monthly rate.

This rate is not available for loads that are primarily off-peak, for example parking lot lighting. Participation requires a minimum term of one year.

The monthly credit for the Interruptible Service Provision shall be applied as follows:

#### Power Supply Charges – These charges are applicable to Full Service Customers.

Capacity Credit: These charges are applicable to Full Service Customers.

Interruptible Credit: \$(7.00) per kW for all kW of Peak Demand during the billing months of June - September

\$(6.00) per kW for all kW of Peak Demand during the billing months of October - May

#### Self-Generation (SG):

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company’s system, must meet the requirements described in Rule C 11.1., Self-Generation.

(Continued on Sheet No. D-54.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-55.00

## GENERAL SERVICE PRIMARY RATE GP

### Availability:

As of January 1, 2021, this rate is closed to new business other than for service to DCFC fast charging stations. Subject to any restrictions, this rate is available to any customer, political subdivision or agency of the State of Michigan, either acting separately or in combinations permitted under the laws of this state, desiring Primary Voltage service for general use or for public potable water pumping and/or waste water system(s).

This rate is available to existing Full Service Customers with an electric generating facility interconnected at a primary voltage level utilizing General Service Primary Rate GP for standby service on or before June 7, 2012. The amount of retail usage shall be determined on an hourly basis. Customers with a generating installation are required to have an Interval Data Meter.

This rate is not available to a Primary Rate Customer where the Company elects to provide one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer.

This rate is not available for lighting service, except for temporary service for lighting installations.

### Nature of Service:

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Primary Voltage service. The Company will determine the particular nature of the voltage in each case.

Where service is supplied at a nominal voltage of 25,000 Volts or less, the customer shall furnish, install and maintain all necessary transforming, controlling and protective equipment.

Where the Company elects to measure the service at a nominal voltage above 25,000 Volts, 1% shall be deducted for billing purposes, from the energy measurements thus made.

Where the Company elects to measure the service at a nominal voltage of less than 2,400 Volts, 3% shall be added for billing purposes, to the energy measurements thus made.

### Monthly Rate:

**Power Supply Charges:** These charges are applicable to Full Service customers.

#### Charges for Customer Voltage Level 3 (CVL3)

##### Energy Charge:

Non-Capacity	Capacity	Total	
<del>\$0.046791</del>	<del>\$0.038096</del>	<del>\$0.084887</del>	per kWh for all kWh during the billing months of June-September
<del>0.050736</del>	<del>0.033805</del>	<del>0.084541</del>	
<del>\$0.047792</del>	<del>\$0.039604</del>	<del>\$0.087396</del>	per kWh for all kWh during the billing months of October-May
<del>0.048540</del>	<del>0.035143</del>	<del>0.083683</del>	

#### Charges for Customer Voltage Level 2 (CVL2)

##### Energy Charge:

Non-Capacity	Capacity	Total	
<del>\$0.046349</del>	<del>\$0.037629</del>	<del>\$0.083978</del>	per kWh for all kWh during the billing months of June-September
<del>0.049699</del>	<del>0.033015</del>	<del>0.082714</del>	
<del>\$0.047339</del>	<del>\$0.039119</del>	<del>\$0.086458</del>	per kWh for all kWh during the billing months of October-May
<del>0.047543</del>	<del>0.034323</del>	<del>0.081866</del>	

#### Charges for Customer Voltage Level 1 (CVL1)

##### Energy Charge:

Non-Capacity	Capacity	Total	
<del>\$0.045731</del>	<del>\$0.037055</del>	<del>\$0.082786</del>	per kWh for all kWh during the billing months of June-September
<del>0.049045</del>	<del>0.032495</del>	<del>0.081540</del>	
<del>\$0.046707</del>	<del>\$0.038522</del>	<del>\$0.085229</del>	per kWh for all kWh during the billing months of October-May
<del>0.046913</del>	<del>0.033782</del>	<del>0.080695</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

(Continued on Sheet No. D-56.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-56.00

**GENERAL SERVICE PRIMARY RATE GP**  
(Continued From Sheet No. D-55.00)

**Monthly Rate (Contd)**

**Delivery Charges:** These charges are applicable to Full Service and Retail Open Access (ROA) customers.

System Access Charge: \$100.00 per customer per month

Charges for Customer Voltage Level 3 (CVL3)

~~\$0.014478~~

Distribution Charge: ~~0.015276~~ per kWh for all kWh

Charges for Customer Voltage Level 2 (CVL2)

~~\$0.006845~~

Distribution Charge: ~~0.010098~~ per kWh for all kWh

Charges for Customer Voltage Level 1 (CVL1)

~~\$0.002645~~

Distribution Charge: ~~0.006039~~ per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Adjustment for Power Factor**

This rate requires a determination of the average Power Factor maintained by the customer during the billing period. Such average Power Factor shall be determined through metering of lagging Kilovar-hours and Kilowatt-hours during the billing period. The calculated ratio of lagging Kilovar-hours to Kilowatt-hours shall then be converted to the average Power Factor for the billing period by using the appropriate conversion factor. Whenever the average Power Factor during the billing period is above .899 or below .850, the customer bill shall be adjusted as follows:

- (a) If the average Power Factor during the billing period is .900 or higher, a 0.50% credit will be applied to all metered-based charges, excluding surcharges. This credit shall not in any case be used to reduce the prescribed Minimum Charge.
- (b) If the average Power Factor during the billing period is less than .850, a penalty will be applied to all metered-based charges, excluding surcharges, in accordance with the following table:

Power Factor	Penalty
0.800 to 0.849	0.50%
0.750 to 0.799	1.00%
0.700 to 0.749	2.00%
Below 0.700	3% first 2 months

- (c) A Power Factor less than 0.700 is not permitted and necessary corrective equipment must be installed by the customer. A 15% penalty will be applied to any metered-based charges, excluding surcharges, after two consecutive months below 0.700 Power Factor and will continue as long as the Power Factor remains below 0.700. Once the customer's Power Factor exceeds 0.700, it is necessary to complete two consecutive months below 0.700 before the 15% penalty applies again.

**Resale Service Provision**

Subject to any restrictions, this provision is available to customers desiring Primary Voltage service for resale purposes in accordance with Rule C4.4, Resale.

(Continued on Sheet No. D-57.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-57.00

**GENERAL SERVICE PRIMARY RATE GP**  
(Continued From Sheet No. D-56.00)

**Monthly Rate (Contd)**

**Substation Ownership Credit**

Where service is supplied at a nominal voltage of more than 25,000 volts, and the customer provides all of the necessary transforming, controlling and protective equipment for all of the service there shall be deducted from the bill a monthly credit.

The monthly credit for the substation ownership shall be applied as follows:

**Delivery Charges - These charges are applicable to Full Service and Retail Open Access customers.**

Charges for Customer Voltage Level 2 (CVL 2)

Substation Ownership Credit: \$ (0.001445) ~~0.002230~~ per kWh for all kWh

Charges for Customer Voltage Level 1 (CVL 1)

Substation Ownership Credit: \$ (0.001113) ~~0.000785~~ per kWh for all kWh

For those customers served by more than one substation where one or more of the substations is owned by the customer, the credit will be applied to the customer's coincident Maximum Demand for those substations owned by the customer. This credit shall not operate to reduce the customer's billing below the prescribed minimum charges included in the rate. The credit shall be based on the kW after the 1% deduction or 3% addition has been applied to the metered kWh.

**Educational Institution Service Provision (GEI)**

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, "school" shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. "College" or "University" shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

**Delivery Charges - These charges are applicable to Full Service and Retail Open Access Customers.**

Educational Institution Credit: \$(0.000501 ~~0.000495~~) per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

(Continued on Sheet No. D-58.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-58.00

**GENERAL SERVICE PRIMARY RATE GP**  
(Continued From Sheet No. D-57.00)

**Monthly Rate (Contd)**

**Net Metering Program:**

The Net Metering Program is available to any eligible customer as described in Rule C11.2., Net Metering Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C11.2.B., Net Metering Definitions.

A customer who participates in the Net Metering Program is subject to the provisions contained in Rule C11.2., Net Metering Program.

**Distributed Generation Program:**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Program:**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

**General Terms:**

This rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Minimum Charge:**

The System Access charge included in the rate and any applicable non-consumption based surcharges.

**Due Date and Late Payment Charge**

The due date of the customer bill shall be 21 days from the date of mailing. A late payment charge of 2% of the unpaid balance, net of taxes, shall be assessed to any bill which is not paid on or before the due date shown thereon.

**Term and Form of Contract**

For customers with monthly demands of 300 kW or more, all service under this rate ~~may shall~~ require a written contract with a minimum term of one year.

For customers with monthly demands of less than 300 kW, service under this rate shall not require a written contract except for: (i) service under the Green Generation Program, (ii) service under the Educational Institution provision, (iii) service under the Resale Service Provision, (iv) service under the Net Metering Program, or (v) at the option of the Company. If a contract is deemed necessary by the Company, the appropriate contract form shall be used and the contract shall require a minimum term of one year.

A new contract will not be required for existing customers who increase their demand requirements after initiating service, unless new or additional facilities are required or service provisions deem it necessary.

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-59.00**

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**

**Availability**

Subject to any restrictions, this rate is available to any customer desiring Primary Voltage service, either for general use or resale purposes, where the On-Peak Billing Demand is 25 kW or more. This rate is also available to any political subdivision or agency of the State of Michigan, either acting separately or in combinations permitted under the laws of this state, for Primary Voltage service for potable water pumping and/or waste water system(s).

This rate is not available to a Primary Rate Customer where the Company elects to provide one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer.

This rate is also not available for lighting service, for resale for lighting service, or for new or expanded service for resale to residential customers.

**Nature of Service**

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Primary Voltage service. The Company will determine the particular nature of the voltage in each case.

Where service is supplied at a nominal voltage of 25,000 Volts or less, the customer shall furnish, install and maintain all necessary transforming, controlling and protective equipment.

Where the Company elects to measure the service at a nominal voltage above 25,000 Volts, 1% shall be deducted for billing purposes, from the demand and energy measurements thus made.

Where the Company elects to measure the service at a nominal voltage of less than 2,400 Volts, 3% shall be added for billing purposes, to the demand and energy measurements thus made.

Interval Data Meters are required for service under this rate. Meter reading will be accomplished electronically through telecommunication links or other electronic data methods able to provide the Company with the metering data / billing determinants necessary for billing purposes.

**Monthly Rate:**

**Power Supply Charges:**

**These charges are applicable to Full Service customers.**

Charges for Customer Voltage Level 3 (CVL3)

Demand Charge:

Capacity	Non-Capacity	Total	
<del>\$16.10</del>	<del>\$6.57</del>	<del>\$22.67</del>	per kW of On-Peak Billing Demand during the billing months of June-September
<del>14.18</del>	<del>6.48</del>	<del>20.66</del>	
<del>\$14.96</del>	<del>\$5.44</del>	<del>\$20.40</del>	per kW of On-Peak Billing Demand during the billing months of October-May
<del>13.19</del>	<del>5.50</del>	<del>18.69</del>	

Transmission Charge:

Capacity	
<del>\$7.62</del> <del>7.34</del>	per kW of On-Peak Billing Demand during the billing months of June-September
<del>\$7.09</del> <del>6.84</del>	per kW of On-Peak Billing Demand during the billing months of October-May

Energy Charge:

Non-Capacity	
<del>\$0.032169</del>	per kWh for all On-Peak kWh during the billing months of June-September
<del>0.031072</del>	
<del>\$0.020496</del>	per kWh for all Off-Peak kWh during the billing months of June-September
<del>0.020011</del>	
<del>\$0.025934</del>	per kWh for all On-Peak kWh during the billing months of October-May
<del>0.025448</del>	
<del>\$0.023990</del>	per kWh for all Off-Peak kWh during the billing months of October-May
<del>0.023663</del>	

**(Continued on Sheet No. D-60.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-60.00

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**  
(Continued From Sheet No. D-59.00)

**Monthly Rate: (Contd)**

**Power Supply Charges: These charges are applicable to Full Service customers. (Contd)**

Charges for Customer Voltage Level 2 (CVL2)

Demand Charge:

Capacity	Non-Capacity	Total	
<del>\$15.90</del>	<del>\$6.52</del>	<del>\$22.42</del>	per kW of On-Peak Billing Demand during the billing months of June-September
<del>13.85</del>	<del>6.36</del>	<del>20.21</del>	
<del>\$14.78</del>	<del>\$5.40</del>	<del>\$20.18</del>	per kW of On-Peak Billing Demand during the billing months of October-May
<del>12.88</del>	<del>5.40</del>	<del>18.28</del>	

Transmission Charge:

Capacity	
<del>\$7.52</del> 7.14	per kW of On-Peak Billing Demand during the billing months of June-September
<del>\$7.01</del> 6.65	per kW of On-Peak Billing Demand during the billing months of October-May

Energy Charge:

Non-Capacity	
<del>\$0.031907</del>	per kWh for all On-Peak kWh during the billing months of June-September
<del>0.030473</del>	
<del>\$0.020329</del>	per kWh for all Off-Peak kWh during the billing months of June-September
<del>0.019625</del>	
<del>\$0.025723</del>	per kWh for all On-Peak kWh during the billing months of October-May
<del>0.024957</del>	
<del>\$0.023795</del>	per kWh for all Off-Peak kWh during the billing months of October-May
<del>0.023207</del>	

Charges for Customer Voltage Level 1 (CVL1)

Demand Charge:

Capacity	Non-Capacity	Total	
<del>\$15.66</del>	<del>\$6.44</del>	<del>\$22.10</del>	per kW of On-Peak Billing Demand during the billing months of June-September
<del>13.63</del>	<del>6.28</del>	<del>19.91</del>	
<del>\$14.55</del>	\$5.33	<del>\$19.88</del>	per kW of On-Peak Billing Demand during the billing months of October-May
<del>12.68</del>		<del>18.01</del>	

Transmission Charge:

Capacity	
<del>\$7.41</del> 7.03	per kW of On-Peak Billing Demand during the billing months of June-September
<del>\$6.90</del> 6.55	per kW of On-Peak Billing Demand during the billing months of October-May

Energy Charge:

Non-Capacity	
<del>\$0.031510</del>	per kWh for all On-Peak kWh during the billing months of June-September
<del>0.030103</del>	
<del>\$0.020076</del>	per kWh for all Off-Peak kWh during the billing months of June-September
<del>0.019387</del>	
<del>\$0.025403</del>	per kWh for all On-Peak kWh during the billing months of October-May
<del>0.024654</del>	
<del>\$0.023499</del>	per kWh for all Off-Peak kWh during the billing months of October-May
<del>0.022925</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

(Continued on Sheet No. D-61.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-61.00

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**  
(Continued From Sheet No. D-60.00)

**Monthly Rate: (Contd)**

**Delivery Charges:** These charges are applicable to Full Service and Retail Open Access (ROA) customers.

System Access Charge: \$200.00 per customer per month

Charges for Customer Voltage Level 3 (CVL3)

Capacity Charge: \$~~4.81~~ 4.49 per kW of Maximum Demand

Charges for Customer Voltage Level 2 (CVL2)

Capacity Charge: \$~~2.37~~ 2.40 per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL1)

Capacity Charge: \$~~0.62~~ 0.64 per kW of Maximum Demand

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Adjustment for Power Factor:**

This rate requires a determination of the average Power Factor maintained by the customer during the billing period. Such average Power Factor shall be determined through metering of lagging Kilovar-hours and Kilowatt-hours during the billing period. The calculated ratio of lagging Kilovar-hours to Kilowatt-hours shall then be converted to the average Power Factor for the billing period by using the appropriate conversion factor. Whenever the average Power Factor during the billing period is above .899 or below .850, the customer bill shall be adjusted as follows:

- (a) If the average Power Factor during the billing period is .900 or higher, a 0.50% credit will be applied to all metered-based charges, excluding surcharges. This credit shall not in any case be used to reduce the prescribed Minimum Charge.
- (b) If the average Power Factor during the billing period is less than .850, a penalty will be applied to all metered-based charges, excluding surcharges, in accordance with the following table:

Power Factor	Penalty
0.800 to 0.849	0.50%
0.750 to 0.799	1.00%
0.700 to 0.749	2.00%
Below 0.700	3% first 2 months

Adjustment for Power Factor shall not be applied when the On-Peak Billing Demand is based on 60% of the highest On-Peak Billing Demand created during the preceding bill months of June through September or on a Minimum On-Peak Billing Demand.

- (c) A Power Factor less than 0.700 is not permitted and necessary corrective equipment must be installed by the customer. A 15% penalty will be applied to any metered-based charges, excluding surcharges, after two consecutive months below 0.700 Power Factor and will continue as long as the Power Factor remains below 0.700. Once the customer's Power Factor exceeds 0.700, it is necessary to complete two consecutive months below 0.700 before the 15% penalty applies again.

(Continued on Sheet No. D-62.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-62.00

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**  
(Continued From Sheet No. D-61.00)

**Monthly Rate: (Contd)**

**Maximum Demand:**

The Maximum Demand shall be the highest 15-minute demand created during the current month or previous 11 months.

**On-Peak Billing Demand:**

The On-Peak Billing Demand shall be based on the highest on-peak demand created during the current billing month, but never less than 60% of the highest on-peak billing demand of the four preceding summer billing months (June through September), nor less than 25 kW.

The On-Peak Billing Demand shall be the Kilowatts (kW) supplied during the 15-minute period of maximum use during on-peak hours, as described in Rule C14., Provisions Governing the Application of On-Peak and Off-Peak Rates.

The Company reserves the right to make special determination of the On-Peak Billing Demand, and/or the Minimum Charge, should the equipment which creates momentary high demands be included in the customer's installation.

**Transmission On-Peak Billing Demand:**

The Transmission On-Peak Billing Demand for each billing month shall be the Kilowatts (kW) supplied during the 15-minute period of maximum use during on-peak hours, as described in Rule C14., Provisions Governing the Application of On-Peak and Off-Peak Rates.

**Resale Service Provision:**

Subject to any restrictions, this provision is available to customers desiring Primary Voltage service for resale purposes in accordance with Rule C4.4, Resale.

**Substation Ownership Credit:**

Where service is supplied at a nominal voltage of more than 25,000 Volts, energy is measured through an Interval Data Meter, and the customer provides all of the necessary transforming, controlling and protective equipment for all of the service there shall be deducted from the bill a monthly credit. For those customers, part of whose load is served through customer-owned equipment, the credit shall be based on the Maximum Demand.

The monthly credit for the substation ownership shall be applied as follows:

**Delivery Charges: These charges are applicable to Full Service and Retail Open Access Customers.**

Charges for Customer Voltage Level 2 (CVL 2)

Substation Ownership Credit: \$(0.60 ~~0.98~~) per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL 1)

Substation Ownership Credit: \$(0.45 ~~0.35~~) per kW of Maximum Demand

For those customers served by more than one substation where one or more of the substations is owned by the customer, the credit will be applied to the customer's coincident Maximum Demand for those substations owned by the customer. This credit shall not operate to reduce the customer's billing below the prescribed minimum charges included in the rate. The credit shall be based on the kW after the 1% deduction or 3% addition has been applied to the metered kW.

(Continued on Sheet No. D-63.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-63.00

## LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD

(Continued From Sheet No. D-62.00)

### Monthly Rate: (Contd)

#### Aggregate Peak Demand Service Provision (GAP):

This provision is available to any customer with 7 accounts or more who desire to aggregate their On-Peak Billing Demands for power supply billing purposes. To be eligible, each account must have a minimum average On-Peak Billing Demand of 250 kW and be located within the same billing district. The customer's aggregated accounts shall be billed under the same rate schedule and service provisions. The aggregate maximum capacity of all customers served under this provision shall be limited to 200,000 kW.

This provision commences with service rendered on and after June 20, 2008 and remains in effect until terminated by a Commission Order.

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

Interval Data Meters are required for service under this provision.

The aggregated accounts shall be summarized for each interval time period registered and a comparison shall be performed to determine the on-peak time at which the summarized value of the aggregated accounts reached a maximum for the billing month. The individual aggregated accounts shall be billed for their corresponding On-Peak Billing Demand occurring at that point in time.

#### Educational Institution Service Provision (GEI):

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, "school" shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. "College" or "University" shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

**Delivery Charges:** These charges are applicable to Full Service and Retail Open Access Customers.

Educational Institution Credit: \$(0.000254 ~~0.000253~~) per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

#### Self-Generation (SG):

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

#### Interruptible Service Provision (GI):

This provision is available to any customer account willing to contract for at least 500 kW of On-Peak Billing Demand as interruptible. The Company reserves the right to limit the amount of load contracted as interruptible, but in no case shall it exceed 300,000 kW per customer. Customers served under Rate GPD shall have no more than 50% of their annual On-Peak Billing Demand contracted as interruptible when contracting for more than 50,000 kW of interruptible load. The aggregate amount of monthly On-Peak Billing Demand subscribed under this provision shall be limited to 400,000 kW.

Consumers Energy may require the Customer to monitor and provide real-time, Internet-enabled power monitoring. If such monitoring is required, Consumers Energy will provide the metering or monitoring devices necessary, which shall be owned by Consumers Energy and provided to the Customer at the Company's expense. The Customer may be required to provide suitable space for such monitoring equipment and either a static or non-static, as applicable, Internet Protocol (IP) address and Local Area Network (LAN) access that allows for Internet-based communication of the Customer's site electricity consumption and interruption event performance.

(Continued on Sheet No. D-64.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-64.00

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**  
(Continued From Sheet No. D-63.00)

**Monthly Rate: (Contd)**

**Interruptible Service Provision (GI): (Contd)**

For billing purposes, the monthly interruptible On-Peak Billing Demand shall be billed first and discounted under this interruptible service provision. The actual On-Peak Billing Demand for the interruptible load supplied shall be credited by the amount specified under the Power Supply Charges - Interruptible Credit listed below. Subsequently all firm service used during the billing period in excess of the contracted interruptible shall be billed at the appropriate firm rate. All contracts under this provision shall be negotiated on an annual basis for the following capacity planning year (June 1 through May 31) and the Customer must notify the Company by December 10<sup>th</sup> of each year of their desire to renew the GI Provision, unless the Customer chooses to lengthen the term of their commitment (up to five years). Annual changes to the amount of interruptible kW for long term contracts are open to adjustment through December 10<sup>th</sup> of each year. Within 30 minutes of receiving an interruption notice, the customer shall reduce their total load level by the amount of contracted interruptible capacity.

~~The minimum On-Peak Billing Demand that shall be billed for the interruptible portion of a customer's bill is the contracted interruptible amount.~~ At the Company's discretion, the customer may adjust ~~reduce~~ the contracted amount one time within the annual contract period.

Any load designated as interruptible by the customer is also subject to Midcontinent Independent System Operator's Inc. (MISO) requirements for Load Modifying Resources and the Company shall inform the Customer of such MISO requirements. Interruption under this provision may occur if MISO issues a Maximum Generation Emergency Event Step 2b order or NERC Emergency Event Alert 2 notice indicating that MISO is experiencing or expects to experience a shortage of economic resources and the Company has declared Emergency Status. Participation in the GI provision does not limit the Company's ability to implement emergency electrical procedures as described in the Company's Electric Rate Book including interruption of service as required to maintain system integrity.

Conditions of Interruption

Under this provision, the customer shall be interrupted at any time, on-peak or off-peak, the Company deems it necessary to maintain system integrity. The Company shall provide the Customer at least thirty minutes advance notice of a required interruption, and if possible, a second notice. The notice will be communicated by telephone to the contact numbers provided by the Customer. The Customer shall confirm the receipt of such notice through the automated response process. Failure to acknowledge receipt of such notice shall not relieve the customer of the obligation for interruption under the GI Provision. The customer shall be informed, when possible, of the estimated duration of the interruption at the time of interruption.

The Company shall not be liable for any loss or damage caused by or resulting from any interruption of service under this provision.

Interruptions beyond the Company's control, described in Rules C1.1, Character of Service, and C3., Emergency Electrical Procedures, of the Company's Electric Rate Book, shall not be considered as interruptions for purposes of this provision.

Should the Company be ordered by Governmental authority during a national emergency to supply firm instead of interruptible service, billing shall be made on an applicable firm power schedule.

(Continued on Sheet No. D-65.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-66.00**

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**

(Continued From Sheet No. D-65.00)

**Monthly Rate: (Contd)**

**Interruptible Service Provision – Market-Price Option (GI2) (Contd)**

**Monthly Billing**

For billing purposes, the Contracted Firm Capacity will be billed first on Rate GPD, with the load in excess of contracted firm being billed on the GI2 charges specified in this rate schedule.

**Power Supply Charges - These charges are applicable to contracted interruptible capacity.**

The customer shall be responsible for the MISO Real-Time Locational Market Price (LMP) for the Company's load node (designated as "CONS.CETR" as the date of this Rate Schedule), multiplied by the customer's consumption (kWh), plus the Market Settlement Fee of \$0.002/kWh.

Charges for Customer Voltage Level 3 (CVL 3)

LMP Energy Charge: MISO Real-Time LMP per kWh for all kWh

Capacity & Transmission Charge: \$0.032096

~~0.029140~~ per kWh for all kWh during the billing months of June-September

\$0.031728

~~0.029175~~ per kWh for all kWh during the billing months of October-May

Charges for Customer Voltage Level 2 (CVL 2)

LMP Energy Charge: MISO Real-Time LMP per kWh for all kWh

Capacity & Transmission Charge: \$0.030559

~~0.025518~~ per kWh for all kWh during the billing months of June-September

\$0.029418

~~0.024578~~ per kWh for all kWh during the billing months of October-May

Charges for Customer Voltage Level 1 (CVL 1)

LMP Energy Charge: MISO Real-Time LMP per kWh for all kWh

Capacity & Transmission Charge: \$0.027403

~~0.023745~~ per kWh for all kWh during the billing months of June-September

\$0.025991

~~0.022748~~ per kWh for all kWh during the billing months of October-May

The MISO Real-Time LMP per kWh shall be adjusted for losses based on the customer's point of metering as shown below:

	Meter Point	
	High Side	Low Side
Customer Voltage Level 1	0.000%	<u>0.999</u> <del>0.728</del> %
Customer Voltage Level 2	<u>1.324</u> <del>1.325</del> %	<u>2.338</u> <del>2.189</del> %
Customer Voltage Level 3	<u>3.175</u> <del>3.329</del> %	<u>7.605</u> <del>8.082</del> %

**Delivery Charges – These charges are applicable to contract capacity**

Rate GPD Delivery Charges will apply to all Delivery service, including contracted capacity designated as GI2 interruptible service.

System Access Charge:

If contracted capacity is separately metered: \$100.00 per additional meter installation per month

This provision is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00 as well as the System Access Charge, Delivery Charges, General Terms, Adjustment for Power Factor, Substation Ownership Credit, Minimum Charge and the Due Date and Late Payment Charge applicable to Rate GPD.

(Continued on Sheet No. D-67.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-69.00

**LARGE GENERAL SERVICE PRIMARY DEMAND RATE GPD**  
(Continued From Sheet No. D-68.00)

**Monthly Rate: (Contd)**

**General Terms:**

This rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Minimum Charge:**

The System Access Charge included in the rate, and applicable any non-consumption based surcharges.

**Due Date and Late Payment Charge:**

The due date of the customer bill shall be 21 days from the date of mailing. A late payment charge of 2% of the unpaid balance, net of taxes, shall be assessed to any bill which is not paid on or before the due date shown thereon.

**Term and Form of Contract:**

For customers with monthly demands of 300 kW or more, all service under this rate ~~shall~~ may require a written contract with a minimum term of one year.

For customers with monthly demands of less than 300 kW, service under this rate shall not require a written contract except for: (i) service under the Resale Service Provision, (ii) service under the Green Generation Program, (iii) service under the Educational Institution Service Provision, (iv) service under the Aggregate Peak Demand Service Provision, (v) service under the Interruptible Service Provision, or (vi) at the option of the Company. If a contract is deemed necessary by the Company, the appropriate contract form shall be used and the contract shall require a minimum term of one year.

A new contract will not be required for existing customers who increase their demand requirements after initiating service, unless new or additional facilities are required or service provisions deem it necessary.

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-71.00

**GENERAL SERVICE PRIMARY TIME-OF-USE RATE GPTU**  
(Continued from Sheet No. D-70.00)

**Monthly Rate:**

**Power Supply Charges:**

Charges for Customer Voltage Level 3 (CVL3)

Energy Charge:

	Non-Capacity	Capacity	Total	
	<u>\$0.034780</u>	<u>\$0.031516</u>	<u>\$0.066296</u>	per kWh during the calendar months of June-September
Off-Peak-Summer	<del>0.039533</del>	<del>0.027341</del>	<del>0.066874</del>	
	<u>\$0.049430</u>	<u>\$0.046658</u>	<u>\$0.096088</u>	per kWh during the calendar months of June-September
Low-Peak-Summer	<del>0.055607</del>	<del>0.040477</del>	<del>0.096084</del>	
	<u>\$0.063065</u>	<u>\$0.058096</u>	<u>\$0.121161</u>	per kWh during the calendar months of June-September
Mid-Peak-Summer	<del>0.070746</del>	<del>0.050399</del>	<del>0.121145</del>	
	<u>\$0.069942</u>	<u>\$0.060857</u>	<u>\$0.130799</u>	per kWh during the calendar months of June-September
High-Peak-Summer	<del>0.078955</del>	<del>0.052795</del>	<del>0.131750</del>	
	<u>\$0.042035</u>	<u>\$0.028302</u>	<u>\$0.070337</u>	per kWh during the calendar months of October-May
Off-Peak - Winter	<del>0.048906</del>	<del>0.024553</del>	<del>0.073459</del>	
	<u>\$0.046182</u>	<u>\$0.032884</u>	<u>\$0.079066</u>	per kWh during the calendar months of October-May
Mid-Peak - Winter	<del>0.053635</del>	<del>0.028528</del>	<del>0.082163</del>	
	<u>\$0.048276</u>	<u>\$0.032898</u>	<u>\$0.081174</u>	per kWh during the calendar months of October-May
High-Peak - Winter	<del>0.055972</del>	<del>0.028541</del>	<del>0.084513</del>	

Charges for Customer Voltage Level 2 (CVL2)

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak-Summer	<u>\$0.034443</u>	<u>\$0.031130</u>	<u>\$0.065573</u>	per kWh during the calendar months of June-September
	<del>0.038719</del>	<del>0.026703</del>	<del>0.065422</del>	
Low-Peak-Summer	<u>\$0.048948</u>	<u>\$0.046086</u>	<u>\$0.095034</u>	per kWh during the calendar months of June-September
	<del>0.054458</del>	<del>0.039532</del>	<del>0.093990</del>	
Mid-Peak-Summer	<u>\$0.062453</u>	<u>\$0.057384</u>	<u>\$0.119837</u>	per kWh during the calendar months of June-September
	<del>0.069286</del>	<del>0.049222</del>	<del>0.118508</del>	
High-Peak-Summer	<u>\$0.069270</u>	<u>\$0.060112</u>	<u>\$0.129382</u>	per kWh during the calendar months of June-September
	<del>0.077332</del>	<del>0.051562</del>	<del>0.128894</del>	
Off-Peak - Winter	<u>\$0.041645</u>	<u>\$0.027955</u>	<u>\$0.069600</u>	per kWh during the calendar months of October-May
	<del>0.047916</del>	<del>0.023980</del>	<del>0.071896</del>	
Mid-Peak - Winter	<u>\$0.045750</u>	<u>\$0.032481</u>	<u>\$0.078231</u>	per kWh during the calendar months of October-May
	<del>0.052546</del>	<del>0.027862</del>	<del>0.080408</del>	
High-Peak - Winter	<u>\$0.047827</u>	<u>\$0.032495</u>	<u>\$0.080322</u>	per kWh during the calendar months of October-May
	<del>0.054839</del>	<del>0.027874</del>	<del>0.082713</del>	

Charges for Customer Voltage Level 1 (CVL1)

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak-Summer	<u>\$0.033978</u>	<u>\$0.030655</u>	<u>\$0.064633</u>	per kWh during the calendar months of June-September
	<del>0.038204</del>	<del>0.026282</del>	<del>0.064486</del>	
Low-Peak-Summer	<u>\$0.048285</u>	<u>\$0.045383</u>	<u>\$0.093668</u>	per kWh during the calendar months of June-September
	<del>0.053730</del>	<del>0.038909</del>	<del>0.092639</del>	
Mid-Peak-Summer	<u>\$0.061609</u>	<u>\$0.056508</u>	<u>\$0.118117</u>	per kWh during the calendar months of June-September
	<del>0.068361</del>	<del>0.048447</del>	<del>0.116808</del>	
High-Peak-Summer	<u>\$0.068338</u>	<u>\$0.059194</u>	<u>\$0.127532</u>	per kWh during the calendar months of June-September
	<del>0.076306</del>	<del>0.050750</del>	<del>0.127056</del>	
Off-Peak - Winter	<u>\$0.041094</u>	<u>\$0.027528</u>	<u>\$0.068622</u>	per kWh during the calendar months of October-May
	<del>0.047294</del>	<del>0.023602</del>	<del>0.070896</del>	
Mid-Peak - Winter	<u>\$0.045143</u>	<u>\$0.031985</u>	<u>\$0.077128</u>	per kWh during the calendar months of October-May
	<del>0.051861</del>	<del>0.027423</del>	<del>0.079284</del>	
High-Peak - Winter	<u>\$0.047194</u>	<u>\$0.031999</u>	<u>\$0.079193</u>	per kWh during the calendar months of October-May
	<del>0.054126</del>	<del>0.027435</del>	<del>0.081561</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges:**

System Access Charge:	\$200.00	per customer per month
<u>Charges for Customer Voltage Level 3 (CVL3)</u>		
Capacity Charge:	<del>\$4.81</del> 4.40	per kW of Maximum Demand
<u>Charges for Customer Voltage Level 2 (CVL2)</u>		
Capacity Charge:	<del>\$2.37</del> 2.40	per kW of Maximum Demand
<u>Charges for Customer Voltage Level 1 (CVL1)</u>		
Capacity Charge:	<del>\$0.62</del> 0.61	per kW of Maximum Demand

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Adjustment for Power Factor**

This rate requires a determination of the average Power Factor maintained by the customer during the billing period. Such average Power Factor shall be determined through metering of lagging Kilovar-hours and Kilowatt-hours during the billing period. The calculated ratio of lagging Kilovar-hours to Kilowatt-hours shall then be converted to the average Power Factor for the billing period by using the appropriate conversion factor. Whenever the average Power Factor during the billing period is above .899 or below .850, the customer bill shall be adjusted as follows:

(Continued on Sheet No. D-72.00)

See Barnes Testimony, Page 2, Lines 21-22; Exhibit A-17 (RLB-1) Item #8; Exhibit A-16 (HWM-3) Pages 14-16

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-72.00

## GENERAL SERVICE PRIMARY TIME-OF-USE RATE GPTU

(Continued from Sheet No. D-71.00)

### Monthly Rate (Contd)

#### Adjustment for Power Factor (Contd)

- (a) If the average Power Factor during the billing period is .900 or higher, a 0.50% credit will be applied to all metered-based charges, excluding surcharges. This credit shall not in any case be used to reduce the prescribed Minimum Charge.
- (b) If the average Power Factor during the billing period is less than .850, a penalty will be applied to all metered-based charges, excluding surcharges, in accordance with the following table:

Power Factor	Penalty
0.800 to 0.849	0.50%
0.750 to 0.799	1.00%
0.700 to 0.749	2.00%
Below 0.700	3% first 2 months

- (c) A Power Factor less than 0.700 is not permitted and necessary corrective equipment must be installed by the customer. A 15% penalty will be applied to any metered-based charges, excluding surcharges, after two consecutive months below 0.700 Power Factor and will continue as long as the Power Factor remains below 0.700. Once the customer's Power Factor exceeds 0.700, it is necessary to complete two consecutive months below 0.700 before the 15% penalty applies again.

#### Maximum Demand

The Maximum Demand shall be the highest 15-minute demand created during the current month or previous 11 months.

#### Resale Service Provision

Subject to any restrictions, this provision is available to customers desiring Primary Voltage service for resale purposes in accordance with Rule C4.4, Resale.

#### Substation Ownership Credit

Where service is supplied at a nominal voltage of more than 25,000 volts, energy is measured through an Interval Data Meter, and the customer provides all the necessary transforming, controlling and protective equipment for all the service there shall be deducted from the bill a monthly credit. For those customers, part of whose load is served through customer-owned equipment, the credit shall be based on the Maximum Demand.

The monthly substation ownership credit shall be applied as follows:

#### Delivery Charges - These charges are applicable to Full Service Customers.

##### Charges for Customer Voltage Level 2 (CVL 2)

Substation Ownership Credit: \$(0.60 ~~0.98~~) per kW of Maximum Demand

##### Charges for Customer Voltage Level 1 (CVL 1)

Substation Ownership Credit: \$(0.45 ~~0.35~~) per kW of Maximum Demand

For those customers served by more than one substation where one or more of the substations is owned by the customer, the credit will be applied to the customer's coincident Maximum Demand for those substations owned by the customer. This credit shall not operate to reduce the customer's billing below the prescribed minimum charges included in the rate. The credit shall be based on the kW after the 1% deduction or 3% addition has been applied to the metered kW.

#### Educational Institution Service Provision (GEI)

When service is supplied to a school, college or university, a credit shall be applied during all billing months. As used in this provision, "school" shall mean buildings, facilities, playing fields, or property directly or indirectly used for school purposes for children in grades kindergarten through twelve, when provided by a public or nonpublic school. School does not include instruction provided in a private residence or proprietary trade, vocational, training, or occupational school. "College" or "University" shall mean buildings located on the same campus and used to impart instruction, including all adjacent and appurtenant buildings owned by the same customer which are located on the same campus and which constitute an integral part of such college or university facilities.

The monthly credit for the Educational Institution Service Provision shall be applied as follows:

#### Delivery Charges - These charges are applicable to Full Service Customers.

Educational Institution Credit: \$ (0.000254 ~~0.000253~~) per kWh for all kWh

Customers on this provision shall require a written contract, with a minimum term of one year, and shall be evaluated annually to determine whether or not the accounts shall remain on the service provision.

(Continued on Sheet No. D-73.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-73.00

**GENERAL SERVICE PRIMARY TIME-OF-USE RATE GPTU**  
(Continued from Sheet No. D-72.00)

**Self-Generation (SG)**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

**Distributed Generation Program**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Program**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

**General Terms**

The rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Minimum Charge**

The System Access Charge included in the rate, and any applicable non-consumption based surcharges.

**Due Date and Late Payment Charge**

The due date of the customer bill shall be 21 days from the date of mailing. A late payment charge of 2% of the unpaid balance, net of taxes, shall be assessed to any bill which is not paid on or before the due date shown thereon.

**Term and Form of Contract**

Service under this rate may ~~shall~~ require a written contract with a minimum term of one year.

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-74.00**

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**ENERGY INTENSIVE PRIMARY RATE EIP**

**Availability**

Subject to any restrictions, the Energy Intensive Primary Rate EIP is available to any Full Service electric metal melting customer taking service at the Company's Primary Voltage levels, where the electric load on this rate is utilized for industrial metal melting processes such as electric arc or induction furnaces or to any Full Service electric industrial customer who qualified as energy intensive as defined herein. For metal melting customers, only electric load that directly supports the process of melting metal using electricity as the main melting source qualifies as load to be served under this rate. Ancillary equipment required for the metal melting process is not intended to be served on this rate.

Existing or former metal melting customers taking service under the Company's Metal Melting Primary Pilot as of November 30, 2015 are eligible for service on Rate EIP. An additional 200 MW of Maximum Demand capacity will be available on a first-come, first-served basis to Full Service customers with new electric metal melting or energy intensive industrial load not previously served by the Company. To qualify as energy intensive load, the customer must demonstrate viable options to site the production outside of the state and the customer's incremental load must exceed 2 MW at a single site with an annual load factor that exceeds 70% or the customer's incremental load must exceed 15 MW with a minimum of 75% of their total consumption occurring during Off-Peak Hours. New electric metal melting load must be separately metered. The customer must provide a special circuit or circuits in order for the Company to install separate metering.

**Nature of Service**

Service under the rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Primary Voltage service. The Company will determine the particular nature of the voltage in each case.

Where service is supplied at a nominal voltage of 25,000 Volts or less, the customer shall furnish, install and maintain all necessary transforming, controlling and protective equipment.

Where the Company elects to measure the service at a nominal voltage above 25,000 Volts, 1% shall be deducted for billing purposes, from the demand and energy measurements thus made.

Where the Company elects to measure the service at a nominal voltage of less than 2,400 Volts, 3% shall be added for billing purposes, to the demand and energy measurements thus made.

Interval Data Meters are required for service under this rate. Meter reading will be accomplished electronically through telecommunication links or other electronic measuring equipment available to provide the Company with the metering data necessary for billing purposes.

The Company may elect to install devices that can enable direct load management, power metering, data collection, near real-time data communication and internet based monitoring. There shall be no cost to the customer associated with the system equipment or installation of the system equipment. The Company reserves the right to remove the system equipment if the customer moves from Rate EIP to another primary rate.

For purposes of this rate, the appropriate measure of market price is the Real-Time LMP for the Company's retail aggregating node CONS.CETR established by the Midcontinent Independent System Operator Inc. (MISO).

**Critical Peak Event Determination**

The Company shall call a Critical Peak Event to signal either the market price has exceeded an Economic Trigger Price or a system integrity event is enacted.

A System Integrity Event is enacted when MISO declares that a Maximum Generation Emergency Event has occurred and MISO has instructed the Company to implement Load Management Measures using Load Modifying Resources and Load Management Measures - Stage 1. A System Integrity Event shall occur at any time for any duration. A Critical Peak Event caused by a System Integrity Event shall be billed at the greater of 150% of the High Peak Energy Charge or the average market price during the duration of the event.

The Summer Economic Trigger Price is the greater of 150% of the High Peak Energy Charge, Customer Voltage Level 1 or the average market price during the hours of 3:00 PM to 5:00 PM for the period of June 1 through September 30 of the previous year. The Summer Economic Trigger Price will be set on January 30 of each year by the Company.

The Winter Economic Trigger Price is the greater of 150% of the High Peak Energy Charge, Customer Voltage Level 1 or the average market price during the hours of 5:00 PM to 7:00 PM for the period of October 1 through May 31 of the previous year. The Winter Economic Trigger Price will be set on July 31 of each year by the Company.

Energy Intensive Primary Rate customers will be notified after the Summer and Winter Economic Trigger Prices are set. The Company shall endeavor to provide notice in advance of a probable System Integrity Event.

**(Continued on Sheet No. D-75.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-75.00

**ENERGY INTENSIVE PRIMARY RATE EIP**  
(Continued from Sheet No. D-74.00)

**Schedule of Hours:**

The following schedule shall apply Monday through Friday (except holidays designated by the Company):

Summer:

Off-Peak Hours: 12:00 AM to 6:00 AM and 11:00 PM to 12:00 AM  
Low-Peak Hours: 6:00 AM to 2:00 PM and 6:00 PM to 11:00 PM  
Mid-Peak Hours: 2:00 PM to 3:00 PM and 5:00 PM to 6:00 PM  
High-Peak Hours: 3:00 PM to 5:00 PM  
Critical Peak Hours: All hours during a Critical Peak Event

Winter:

Off-Peak Hours: 12:00 AM to 4:00 PM and 8:00 PM to 12:00 AM  
Mid-Peak Hours: 4:00 PM to 5:00 PM and 7:00 PM to 8:00 PM  
High-Peak Hours: 5:00 PM to 7:00 PM  
Critical Peak Hours: All hours during a Critical Peak Event

Weekends and holidays are off-peak. Designated Company holidays are: New Year's Day - January 1; Memorial Day - Last Monday in May; Independence Day - July 4; Labor Day - First Monday in September; Thanksgiving Day - Fourth Thursday in November; and Christmas Day - December 25. Whenever January 1, July 4, or December 25 fall on Sunday, extended holiday periods such as Monday, January 2, Monday, July 5 and Monday, December 26 shall not be considered as holidays for application of off-peak hours.

**Monthly Rate:**

**Power Supply Charges:**

Charges for Customer Voltage Level 3 (CVL3)

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak-Summer	<del>\$0.042716</del> <del>0.039141</del>	<del>\$0.007979</del> <del>0.008228</del>	<del>\$0.050695</del> <del>0.047369</del>	per kWh during the calendar months of June-September
Low-Peak-Summer	<del>\$0.064304</del> <del>0.058545</del>	<del>\$0.012469</del> <del>0.012857</del>	<del>\$0.076773</del> <del>0.071402</del>	per kWh during the calendar months of June-September
Mid-Peak-Summer	<del>\$0.080432</del> <del>0.072665</del>	<del>\$0.015159</del> <del>0.015633</del>	<del>\$0.095591</del> <del>0.088298</del>	per kWh during the calendar months of June-September
High-Peak-Summer	<del>\$0.088023</del> <del>0.079597</del>	<del>\$0.015509</del> <del>0.015993</del>	<del>\$0.103532</del> <del>0.095590</del>	per kWh during the calendar months of June-September
Critical Peak-Summer				the greater of either 150% of the High-Peak - Summer Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of June - September
Off-Peak - Winter	<del>\$0.052461</del> <del>0.047920</del>	<del>\$0.006724</del> <del>0.006934</del>	<del>\$0.059185</del> <del>0.054854</del>	per kWh during the calendar months of October-May
Mid-Peak - Winter	<del>\$0.059232</del> <del>0.054263</del>	<del>\$0.007673</del> <del>0.007913</del>	<del>\$0.066905</del> <del>0.062176</del>	per kWh during the calendar months of October-May
High-Peak - Winter	<del>\$0.062157</del> <del>0.056542</del>	<del>\$0.007778</del> <del>0.008020</del>	<del>\$0.069935</del> <del>0.064562</del>	per kWh during the calendar months of October-May
Critical Peak-Winter				the greater of either 150% of the High-Peak Winter Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of October - May

(Continued on Sheet No. D-76.00)

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-76.00**

**ENERGY INTENSIVE PRIMARY RATE EIP  
(Continued from Sheet No. D-75.00)**

**Monthly Rate (Contd):**

**Power Supply Charges: (Contd)**

Charges for Customer Voltage Level 2 (CVL2)

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak - Summer	<del>\$0.042314</del> <del>0.038334</del>	<del>\$0.007881</del> <del>0.008036</del>	<del>\$0.050195</del> <del>0.046370</del>	per kWh during the calendar months of June-September
Low-Peak - Summer	<del>\$0.063696</del> <del>0.057337</del>	<del>\$0.012316</del> <del>0.012557</del>	<del>\$0.076012</del> <del>0.069894</del>	per kWh during the calendar months of June-September
Mid-Peak - Summer	<del>\$0.079675</del> <del>0.071168</del>	<del>\$0.014974</del> <del>0.015267</del>	<del>\$0.094649</del> <del>0.086435</del>	per kWh during the calendar months of June-September
High-Peak - Summer	<del>\$0.087202</del> <del>0.077964</del>	<del>\$0.015319</del> <del>0.015619</del>	<del>\$0.102521</del> <del>0.093583</del>	per kWh during the calendar months of June-September
Critical Peak - Summer				the greater of either 150% of the High-Peak-Summer Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of June-September
Off-Peak - Winter	<del>\$0.051988</del> <del>0.046953</del>	<del>\$0.006641</del> <del>0.006772</del>	<del>\$0.058629</del> <del>0.053725</del>	per kWh during the calendar months of October - May
Mid-Peak - Winter	<del>\$0.058698</del> <del>0.053168</del>	<del>\$0.007579</del> <del>0.007728</del>	<del>\$0.066277</del> <del>0.060896</del>	per kWh during the calendar months of October - May
High-Peak - Winter	<del>\$0.061600</del> <del>0.055403</del>	<del>\$0.007682</del> <del>0.007832</del>	<del>\$0.069282</del> <del>0.063235</del>	per kWh during the calendar months of October - May
Critical Peak-Winter				the greater of either 150% of the High-Peak Winter Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of October - May

Charges for Customer Voltage Level 1(CVL1)

Energy Charge:

	Non-Capacity	Capacity	Total	
Off-Peak-Summer	<del>\$0.041751</del> <del>0.037825</del>	<del>\$0.007761</del> <del>0.007909</del>	<del>\$0.049512</del> <del>0.045734</del>	per kWh during the calendar months of June-September
Low-Peak-Summer	<del>\$0.062846</del> <del>0.056571</del>	<del>\$0.012128</del> <del>0.012359</del>	<del>\$0.074974</del> <del>0.068930</del>	per kWh during the calendar months of June-September
Mid-Peak-Summer	<del>\$0.078613</del> <del>0.070219</del>	<del>\$0.014745</del> <del>0.015027</del>	<del>\$0.093358</del> <del>0.085246</del>	per kWh during the calendar months of June-September
High-Peak-Summer	<del>\$0.086046</del> <del>0.076931</del>	<del>\$0.015085</del> <del>0.015373</del>	<del>\$0.101131</del> <del>0.092304</del>	per kWh during the calendar months of June-September
Critical Peak-Summer				the greater of either 150% of the High-Peak-Summer Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of June-September
Off-Peak - Winter	<del>\$0.051310</del> <del>0.046346</del>	<del>\$0.006540</del> <del>0.006665</del>	<del>\$0.057850</del> <del>0.053011</del>	per kWh during the calendar months of October - May
Mid-Peak - Winter	<del>\$0.057932</del> <del>0.052480</del>	<del>\$0.007463</del> <del>0.007606</del>	<del>\$0.065395</del> <del>0.060086</del>	per kWh during the calendar months of October - May
High-Peak - Winter	<del>\$0.060797</del> <del>0.054687</del>	<del>\$0.007565</del> <del>0.007709</del>	<del>\$0.068362</del> <del>0.062396</del>	per kWh during the calendar months of October - May
Critical Peak-Winter				the greater of either 150% of the High-Peak Winter Energy Charge or the average Market price per kWh for a Critical Peak Event during the calendar months of October - May

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Delivery Charges:**

System Access Charge: \$200.00 per customer per month

Charges for Customer Voltage Level 3 (CVL3)

Capacity Charge: \$~~4.19~~ 4.81 per kW of Maximum Demand

Charges for Customer Voltage Level 2 (CVL2)

Capacity Charge: \$~~2.49~~ 2.37 per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL1)

Capacity Charge: \$~~0.64~~ 0.62 per kW of Maximum Demand

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

(Continued on Sheet No. D-77.00)

See Barnes Testimony, Page 2, Lines 21-22; Exhibit A-17 (RLB-1) Item #8; Exhibit A-16 (HWM-3) Pages 17-19

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-77.00

**ENERGY INTENSIVE PRIMARY RATE EIP**  
(Continued from Sheet No. D-76.00)

**Adjustment for Power Factor:**

This rate requires a determination of the average Power Factor maintained by the customer during the billing period. Such average Power Factor shall be determined through metering of lagging Kilovar-hours and Kilowatt-hours during the billing period. The calculated ratio of lagging Kilovar-hours to Kilowatt-hours shall then be converted to the average Power Factor for the billing period by using the appropriate conversion factor. Whenever the average Power Factor during the billing period is above .899 or below .850, the customer bill shall be adjusted as follows:

- (a) If the average Power Factor during the billing period is .900 or higher, a 0.50% credit will be applied to all metered-based charges, excluding surcharges. This credit shall not in any case be used to reduce the prescribed Minimum Charge.
- (b) If the average Power Factor during the billing period is less than .850, a penalty will be applied to all metered-based charges, excluding surcharges, in accordance with the following table:

Power Factor	Penalty
0.800 to 0.849	0.50%
0.750 to 0.799	1.00%
0.700 to 0.749	2.00%
Below 0.700	3% first 2 months

- (c) A Power Factor less than 0.700 is not permitted and necessary corrective equipment must be installed by the customer. A 15% penalty will be applied to any metered-based charges, excluding surcharges, after two consecutive months below 0.700 Power Factor and will continue as long as the Power Factor remains below 0.700. Once the customer's Power Factor exceeds 0.700, it is necessary to complete two consecutive months below 0.700 before the 15% penalty applies again.

**Maximum Demand:**

The Maximum Demand shall be the highest 15-minute demand created during the current month or previous 11 months.

**Substation Ownership Credit:**

Where service is supplied at a nominal voltage of more than 25,000 volts, energy is measured through an Interval Data Meter, and the customer provides all the necessary transforming, controlling and protective equipment for all the service there shall be deducted from the bill a monthly credit. For those customers, part of whose load is served through customer-owned equipment, the credit shall be based on the Maximum Demand.

The monthly substation ownership credit shall be applied as follows:

**Delivery Charges - These charges are applicable to Full Service and Retail Open Access Customers.**

Charges for Customer Voltage Level 2 (CVL 2)

Substation Ownership Credit: \$(~~0.60~~ ~~0.98~~) per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL 1)

Substation Ownership Credit: \$(~~0.45~~ ~~0.35~~) per kW of Maximum Demand

For those customers served by more than one substation where one or more of the substations is owned by the customer, the credit will be applied to the customer's coincident Maximum Demand for those substations owned by the customer. This credit shall not operate to reduce the customer's billing below the prescribed minimum charges included in the rate. The credit shall be based on the kW after the 1% deduction or 3% addition has been applied to the metered kW.

**Self-Generation (SG):**

To be eligible for Self-Generation, a Customer with a generating installation operating in parallel with the Company's system, must meet the requirements described in Rule C 11.1., Self-Generation.

(Continued on Sheet No. D-78.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-78.00

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**ENERGY INTENSIVE PRIMARY RATE EIP**  
(Continued from Sheet No. D-77.00)

**Distributed Generation Program:**

The Distributed Generation Program is available to any eligible customer as described in Rule C 11.3., Distributed Generation Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C 11.3.B., Distributed Generation Definitions.

A customer who participates in the Distributed Generation Program is subject to the provisions contained in Rule C 11.3., Distributed Generation Program.

**Green Generation Programs:**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

**General Terms:**

The rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Minimum Charge:**

The System Access Charge included in the rate and any applicable non-consumption based surcharges.

**Due Date and Late Payment Charge:**

The due date of the customer bill shall be 21 days from the date of mailing. A late payment charge of 2% of the unpaid balance, net of taxes, shall be assessed to any bill which is not paid on or before the due date shown thereon.

**Term and Form of Contract:**

Service under this rate may ~~shall~~ require a written contract with a minimum term of one year.

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-82.00

**GENERAL SERVICE SELF GENERATION RATE GSG-2**  
(Continued From Sheet No. D-81.00)

**Nature of Service (Contd)**

Where service is supplied at a nominal voltage equal to or greater than 2,400 volts and the Company elects to measure the service at a nominal voltage above 25,000 volts, 1% shall be deducted for billing purposes, from the demand and energy measurements thus made.

Where service is supplied at a nominal voltage equal to or greater than 2,400 volts and the Company elects to measure the service at a nominal voltage of less than 2,400 volts, 3% shall be added for billing purposes, to the demand and energy measurements thus made.

Where service is supplied at a nominal voltage less than 2,400 volts and the Company elects to measure the service at a nominal voltage equal to or greater than 2,400 volts, 3% shall be deducted for billing purposes from the energy measurements thus made.

There shall be no double billing of demand under the base rate and Rate GSG-2.

**Monthly Rate**

**Standby Charges**

**Power Supply Standby Charges**

For all standby energy supplied by the Company, the customer shall be responsible for the MISO Real-Time Locational Market Price (LMP) for the Company's load node (designated as "CONS.CETR" as of the date of this Rate Schedule), multiplied by the customer's consumption (kWh), plus the Market Settlement Fee of \$0.002/kWh. In addition capacity charges will be assessed monthly, calculated using the highest 15 minute kW demand associated with Standby Service occurring during the Company's On-Peak billing hours will be multiplied by the highest contracted capacity purchased by the Company in that month, plus allocated transmission and ancillaries. The capacity charges will be prorated based on the number of On-Peak days that Standby Service was used during the billing month.

A customer with a generator(s) nameplate rating more than 550 kW must provide written notice to the Company by December 1 if they desire standby service in the succeeding calendar months of June through September. Written notice shall be submitted on Company Form 500. If the customer fails to meet this written notice requirement, the LMP shall be increased by applying a 10% adder.

**Real Power Losses**

Real Power Losses shall be measured based on the transmission loss factor of 1.92 ~~2.49~~% plus the associated meter point as listed below:

	Meter Point	
	High Side	Low Side
Customer Voltage Level 1	0.000%	<u>0.999</u> <del>0.728</del> %
Customer Voltage Level 2	<u>1.324</u> <del>1.325</del> %	<u>2.338</u> <del>2.189</del> %
Customer Voltage Level 3	<u>3.175</u> <del>3.329</del> %	<u>7.605</u> <del>8.082</del> %

**Delivery Standby Charges**

System Access Charge:

Generator that does not meet or exceed load:	\$100.00	per generator installation per month
Generator that meets or exceeds load:	\$200.00	per generator installation per month

Charges for Customer Voltage Level 3 (CVL 3)

Capacity Charge: \$4.81 ~~4.40~~ per kW of Maximum Demand

Charges for Customer Voltage Level 2 (CVL 2)

Capacity Charge: \$2.37 ~~2.40~~ per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL 1)

Capacity Charge: \$0.62 ~~0.64~~ per kW of Maximum Demand

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

(Continued on Sheet No. D-83.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-83.00

**GENERAL SERVICE SELF GENERATION RATE GSG-2**  
(Continued From Sheet No. D-82.00)

**Monthly Rate (Contd)**

**Standby Charges (Contd)**

**Adjustment for Power Factor**

This rate requires a determination of the average Power Factor maintained by the customer during the billing period. Such average Power Factor shall be determined through metering of lagging Kilovar -hours and Kilowatt-hours during the billing period. The calculated ratio of lagging Kilovar-hours to Kilowatt-hours shall then be converted to the average Power Factor for the billing period by using the appropriate conversion factor. Whenever the average Power Factor during the billing period is above .899 or below .850, the customer bill shall be adjusted as follows:

- (a) If the average Power Factor during the billing period is .900 or higher, a 0.50% credit will be applied to all metered-based charges, excluding surcharges. This credit shall not in any case be used to reduce the prescribed Minimum Charge.
- (b) If the average Power Factor during the billing period is less than .850, a penalty will be applied to all metered-based charges, excluding surcharges, in accordance with the following table:

**Power Factor    Penalty**

0.800 to 0.849	0.50%
0.750 to 0.799	1.00%
0.700 to 0.749	2.00%
Below 0.700	3% first 2 months

- (c) A Power Factor less than 0.700 is not permitted and necessary corrective equipment must be installed by the customer. A 15% penalty will be applied to any metered-based charges, excluding surcharges, after two consecutive months below 0.700 Power Factor and will continue as long as the Power Factor remains below 0.700. Once the customer's Power Factor exceeds 0.700, it is necessary to complete two consecutive months below 0.700 before the 15% penalty applies again.

**Substation Ownership Credit**

Where service is supplied at a nominal voltage of more than 25,000 volts, energy is measured through an Interval Data Meter, and the customer provides all of the necessary transforming, controlling and protective equipment for all of the service there shall be deducted from the bill a monthly credit. For those customers, part of whose load is served through customer-owned equipment, the credit shall be based on the billed Standby Demand.

The monthly credit for the substation ownership shall be applied as follows:

**Delivery Charges**

Charges for Customer Voltage Level 2 (CVL 2)

Substation Ownership Credit: \$(~~0.60~~ ~~0.98~~) per kW of Maximum Demand

Charges for Customer Voltage Level 1 (CVL 1)

Substation Ownership Credit: \$(~~0.45~~ ~~0.35~~) per kW of Maximum Demand

For those customers served by more than one substation where one or more of the substations is owned by the customer, the credit will be applied to the customer's coincident Maximum Demand for those substations owned by the customer. This credit shall not operate to reduce the customer's billing below the prescribed minimum charges included in the rate. The credit shall be based on the kW after the 1% deduction or 3% addition has been applied to the metered kW.

(Continued on Sheet No. D-84.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-84.00

**GENERAL SERVICE SELF GENERATION RATE GSG-2**  
(Continued From Sheet No. D-83.00)

**Monthly Rate (Contd)**

**Standby Charges (Contd)**

**Transmission Interconnect Credit**

Where standby service is provided to a non-utility electric generator located within the Company's service territory and taking power through its transmission interconnect, where the Company has no owned infrastructure other than metering, including billing grade current transformers and potential transformers, telemetry facilities and associated wiring, the following monthly credit shall be applied to the bill:

**Delivery Charges**

Transmission Interconnect Credit: \$ (0.62 0.61) per kW of Maximum Demand

This credit shall be based on the kW after the 1% deduction has been applied to the metered kW. The credit supersedes any applicable substation ownership credit.

**Sales of Energy to the Company**

**Administrative Cost Charge**

Generation installation with a capacity of over 550 kW but less than or equal to 2,000 kW

As negotiated or \$0.0010 per kWh purchased, at the option of the customer

Generation installation with a capacity of over 2,000 kW

As negotiated

**Energy Purchase:**

An energy purchase by the Company shall be bought at the Midcontinent Independent System Operator's Inc. (MISO) real-time Locational Marginal Price (LMP) for the Company's load node (designated as "CONS.CETR" as of the date of this Rate Schedule).

**General Terms**

This rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Green Generation Program**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

**Minimum Charge**

The System Access Charge included in this Rate Schedule in addition to the customer's contracted Standby Capacity multiplied by the net of any Substation Ownership Credit and Delivery Capacity Charges of this Rate Schedule.

**Due Date and Late Payment Charge**

The due date of the customer bill shall be 21 days from the date of mailing. A late payment charge of 2% of the unpaid balance, net of taxes, shall be assessed to any bill which is not paid on or before the due date shown thereon.

**Term and Form of Contract**

Standby service and/or sales of energy to the Company under this rate shall require a written contract with a minimum term of one year.

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-85.00**

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**GENERAL SERVICE METERED LIGHTING RATE GML**

**Availability**

Subject to any restrictions, this rate is available to any political subdivision or agency of the State of Michigan having jurisdiction over public streets or roadways, for Primary or Secondary Voltage energy-only metered lighting service where the Company has existing distribution lines available for supplying energy for such service. Luminaires which are served under the Company's unmetered lighting rates shall not be intermixed with luminaires served under this metered lighting rate. Luminaire types in addition to those served on Rate Schedule GUL, such as light-emitting diode (LED) streetlights, may receive service under this Rate Schedule.

This rate is not available for resale purposes or for Retail Open Access Service.

**Nature of Service**

**Secondary Voltage**

Service under this rate shall be alternating current, 60-hertz, single-phase or three-phase (at the Company's option), 120/240 nominal Volt service for a minimum of ten luminaires located within a clearly defined area. Control equipment shall be furnished, owned and maintained by the Company. The customer shall furnish, install, own and maintain the rest of the equipment comprising the metered lighting system including, but not limited to, the overhead wires or underground cables between the luminaires, protective equipment, and the supply circuits extending to the point of attachment with the Company's distribution system. The Company shall connect the customer's equipment to the Company's lines and supply the energy for its operation. All of the customer's equipment shall be subject to the Company's approval. The customer shall not change the capacity requirements of the equipment owned by it without first notifying the Company in writing of such changes and the date that they shall be made.

**Dusk to Midnight Service**

Dusk to midnight service shall be the same as Secondary service except:

The customer shall pay the difference between the cost of the control equipment necessary for dusk to midnight service and control equipment normally installed for Secondary service. Circuits shall be arranged approximating minimum loads of 3 kW.

**Primary Voltage**

Service under this rate shall be alternating current, 60-hertz, single-phase or three-phase (at the Company's option), Primary Voltage service for actual kW demands of not less than 100 kW for each point of delivery and where the customer guarantees a minimum of 4,000 annual hours' use of the actual demand. The Company will determine the particular nature of the voltage in each case. The customer shall furnish, install, own and maintain all equipment comprising the metered lighting system including, but not limited to, controls, protective equipment, transformers and overhead or underground metered lighting circuits extending to the point of attachment with the Company's distribution system. The Company shall furnish, install, own and maintain the metering equipment and connect the customer's metered lighting circuit to its distribution system and supply the energy for operation of the customer's metered lighting system.

**Monthly Rate**

**Secondary Power Supply Charge**

Energy Charge:

Non-Capacity	Capacity	Total	
<del>\$0.052276</del>	\$0.000000	<del>\$0.052276</del>	per kWh for all kWh
<del>0.050412</del>		<del>0.050412</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**(Continued on Sheet No. D-86.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-86.00

**GENERAL SERVICE METERED LIGHTING RATE GML**  
(Continued From Sheet No. D-85.00)

**Monthly Rate (Contd)**

**Secondary Delivery Charge**

System Access Charge: \$10.00 per customer per month

Distribution Charge: \$0.046162 ~~0.057472~~ per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Primary Power Supply Charge**

Energy Charge:

Non-Capacity	Capacity	Total	
\$ <u>0.025655</u>	\$0.000000	\$ <u>0.025655</u>	per kWh for all kWh
<del>0.024740</del>		<del>0.024740</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

**Primary Delivery Charge**

System Access Charge: \$20.00 per customer per month

Distribution Charge: \$0.035179  
~~0.043798~~ per kWh for all kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**Net Metering Program**

The Net Metering Program is available to any eligible customer as described in Rule C11.2., Net Metering Program, who desires to generate a portion or all of their own retail electricity requirements using a Renewable Energy Resource as defined in Rule C11.2.B., Net Metering Program.

A customer who participates in the Net Metering Program is subject to the provisions contained in Rule C11.2., Net Metering Program.

**Green Generation Program**

Customer contracts for participation in the Green Generation Program shall be available to any eligible customer as described in Rule C10.2, Green Generation Program.

A customer who participates in the Green Generation Program is subject to the provisions contained in Rule C10.2, Green Generation Program.

**Renewable Energy Credit (REC) Programs:**

These programs provide customers with the opportunity to subscribe to the environmental attribute of renewable energy by offering customers the ability to utilize renewable energy credits to match up to 100% of their total annual energy.

A customer that participates in one of the Renewable Energy Credit (REC) Programs is subject to the provisions contained in Rule C10.7., Renewable Energy Credits (REC) Programs.

(Continued on Sheet No. D-87.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-90.00

**GENERAL SERVICE UNMETERED LIGHTING RATE GUL**  
(Continued From Sheet No. D-89.00)

**Monthly Rate**

Transitional Rates, effective January 1, 2022 through June 30, 2022:

The charge per luminaire per month shall be

Type of Luminaire	Nominal Rating of Lamps (One Lamp per Luminaire) (1)			Service Charge per Luminaire (4)		Total	Fixture Charge per Luminaire (4)
	Watts	Watts Including Ballast (2)	Lumens	Non-Capacity	Capacity		
				<del>\$7.57</del>		<del>\$7.57</del>	<del>\$3.00</del>
Mercury Vapor (3)	100	128	3,500	<del>10.39</del>	\$0.00	<del>10.39</del>	<del>5.00</del>
				<u>10.52</u>		<u>10.52</u>	<u>\$3.00</u>
Mercury Vapor (3)	175	209	7,500	<del>16.96</del>	0.00	<del>16.96</del>	<del>5.00</del>
				<u>13.14</u>		<u>13.14</u>	<u>\$3.00</u>
Mercury Vapor (3)	250	281	10,000	<del>22.80</del>	0.00	<del>22.80</del>	<del>5.00</del>
				<u>19.58</u>		<u>19.58</u>	<u>\$3.00</u>
Mercury Vapor (3)	400	458	20,000	<del>37.16</del>	0.00	<del>37.16</del>	<del>5.00</del>
				<u>30.94</u>		<u>30.94</u>	<u>\$3.00</u>
Mercury Vapor (3)	700	770	35,000	<del>62.48</del>	0.00	<del>62.48</del>	<del>5.00</del>
				<u>42.23</u>		<u>42.23</u>	<u>\$3.00</u>
Mercury Vapor (3)	1,000	1,080	50,000	<del>87.64</del>	0.00	<del>87.64</del>	<del>5.00</del>
				<u>5.93</u>		<u>5.93</u>	<u>\$3.00</u>
High-Pressure Sodium (3)	70	83	5,000	<del>6.74</del>	0.00	<del>6.74</del>	<del>5.00</del>
				<u>7.17</u>		<u>7.17</u>	<u>\$3.00</u>
High-Pressure Sodium	100	117	8,500	<del>9.49</del>	0.00	<del>9.49</del>	<del>5.00</del>
				<u>9.13</u>		<u>9.13</u>	<u>\$3.00</u>
High-Pressure Sodium	150	171	14,000	<del>13.88</del>	0.00	<del>13.88</del>	<del>5.00</del>
				<u>11.90</u>		<u>11.90</u>	<u>\$3.00</u>
High-Pressure Sodium (3)	200	247	20,000	<del>20.04</del>	0.00	<del>20.04</del>	<del>5.00</del>
				<u>14.48</u>		<u>14.48</u>	<u>\$3.00</u>
High-Pressure Sodium	250	318	24,000	<del>25.80</del>	0.00	<del>25.80</del>	<del>5.00</del>
				<u>20.39</u>		<u>20.39</u>	<u>\$3.00</u>
High-Pressure Sodium	400	480	45,000	<del>38.95</del>	0.00	<del>38.95</del>	<del>5.00</del>
				<u>20.02</u>		<u>20.02</u>	<u>\$3.00</u>
Fluorescent (3)	380	470	20,000	<del>38.14</del>	0.00	<del>38.14</del>	<del>5.00</del>
				<u>10.26</u>		<u>10.26</u>	<u>\$3.00</u>
Incandescent (3)	202	202	2,500	<del>16.39</del>	0.00	<del>16.39</del>	<del>5.00</del>
				<u>14.01</u>		<u>14.01</u>	<u>\$3.00</u>
Incandescent (3)	305	305	4,000	<del>24.75</del>	0.00	<del>24.75</del>	<del>5.00</del>
				<u>17.66</u>		<u>17.66</u>	<u>\$3.00</u>
Incandescent (3)	405	405	6,000	<del>32.86</del>	0.00	<del>32.86</del>	<del>5.00</del>
				<u>28.03</u>		<u>28.03</u>	<u>\$3.00</u>
Incandescent (3)	690	690	10,000	<del>55.99</del>	0.00	<del>55.99</del>	<del>5.00</del>
				<u>9.10</u>		<u>9.10</u>	<u>\$3.00</u>
Metal Halide (3)	150	170	9,750	<del>13.79</del>	0.00	<del>13.79</del>	<del>5.00</del>
				<u>10.55</u>		<u>10.55</u>	<u>\$3.00</u>
Metal Halide (3)	175	210	10,500	<del>17.04</del>	0.00	<del>17.04</del>	<del>5.00</del>
				<u>13.47</u>		<u>13.47</u>	<u>\$3.00</u>
Metal Halide (3)	250	290	15,500	<del>25.53</del>	0.00	<del>25.53</del>	<del>5.00</del>
				<u>19.65</u>		<u>19.65</u>	<u>\$3.00</u>
Metal Halide (3)	400	460	24,000	<del>37.33</del>	0.00	<del>37.33</del>	<del>5.00</del>

- (1) Ratings for fluorescent lighting apply to all lamps in one luminaire.
- (2) Watts including ballast used for monthly billing of the Power Supply Cost Recovery (PSCR) Factor, the Power Plant Securitization Charges and surcharges.
- (3) Rates apply to existing luminaires only and are not open to new business.

- (4) For Customer-Owned lighting fixtures that are assessed a Service Charge (but not a Fixture Charge), the charge per luminaire represents a 26.6 ~~21.0~~% Power Supply Charge and a 73.4 ~~79.0~~% Distribution Charge.

For Company-Owned lighting fixtures that are assessed both a Service Charge and a Fixture Charge, the charge per luminaire represents a 17.8 ~~15.1~~% Power Supply Charge and a 82.2 ~~84.9~~% Distribution Charge.

For energy conservation purposes, customers may, at their option, elect to have any or all luminaires served under this rate disconnected for a period of six months or more. The charge per luminaire per month, for each disconnected luminaire, shall be 40% of the monthly rate set forth above. However, should any such disconnected luminaire be reconnected at the customer's request after having been disconnected for less than six months, the monthly rate set forth above shall apply to the period of disconnection. An \$8.00 per luminaire disconnect/reconnect charge shall be made at the time of disconnection except that when the estimated disconnect/reconnect cost is significantly higher than \$8.00, the estimated cost per luminaire shall be charged.

For 24-hour mercury-vapor service, the charge per luminaire shall be 125% of the foregoing rates.

(Continued on Sheet No. D-90.10 ~~91.00~~)

See Miller Testimony, Page 20, Lines 3-13; Exhibit A-17 (RLB-1) Item #8; Exhibit A-16 (HWM-3) Page 21

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-90.10

**GENERAL SERVICE UNMETERED LIGHTING RATE GUL**  
**(Continued From Sheet No. D-90.00)**

**Monthly Rate (Contd)**

**Universal Unmetered Streetlighting Rates, effective for service rendered on and after July 1, 2022:**

<u>Company-Owned Equipment</u>		<u>Energy Charges</u>			<u>Delivery</u>	<u>Monthly Cost</u>
		<u>Non-Capacity</u>	<u>Capacity</u>	<u>Total</u>		
<u>15-24 W</u>	<u>Per Light</u>	<u>\$0.34</u>	<u>\$0.00</u>	<u>\$0.34</u>	<u>\$6.82</u>	<u>\$7.16</u>
<u>25-34 W</u>	<u>Per Light</u>	<u>\$0.51</u>	<u>\$0.00</u>	<u>\$0.51</u>	<u>\$7.10</u>	<u>\$7.61</u>
<u>35-44 W</u>	<u>Per Light</u>	<u>\$0.68</u>	<u>\$0.00</u>	<u>\$0.68</u>	<u>\$7.39</u>	<u>\$8.07</u>
<u>45-54 W</u>	<u>Per Light</u>	<u>\$0.86</u>	<u>\$0.00</u>	<u>\$0.86</u>	<u>\$7.68</u>	<u>\$8.54</u>
<u>55-64 W</u>	<u>Per Light</u>	<u>\$1.03</u>	<u>\$0.00</u>	<u>\$1.03</u>	<u>\$7.96</u>	<u>\$8.99</u>
<u>65-74 W</u>	<u>Per Light</u>	<u>\$1.21</u>	<u>\$0.00</u>	<u>\$1.21</u>	<u>\$8.25</u>	<u>\$9.46</u>
<u>75-84 W</u>	<u>Per Light</u>	<u>\$1.38</u>	<u>\$0.00</u>	<u>\$1.38</u>	<u>\$8.54</u>	<u>\$9.92</u>
<u>85-94 W</u>	<u>Per Light</u>	<u>\$1.55</u>	<u>\$0.00</u>	<u>\$1.55</u>	<u>\$8.82</u>	<u>\$10.37</u>
<u>95-104 W</u>	<u>Per Light</u>	<u>\$1.73</u>	<u>\$0.00</u>	<u>\$1.73</u>	<u>\$9.11</u>	<u>\$10.84</u>
<u>105-114 W</u>	<u>Per Light</u>	<u>\$1.90</u>	<u>\$0.00</u>	<u>\$1.90</u>	<u>\$9.40</u>	<u>\$11.30</u>
<u>115-124 W</u>	<u>Per Light</u>	<u>\$2.07</u>	<u>\$0.00</u>	<u>\$2.07</u>	<u>\$9.68</u>	<u>\$11.75</u>
<u>125-134 W</u>	<u>Per Light</u>	<u>\$2.25</u>	<u>\$0.00</u>	<u>\$2.25</u>	<u>\$9.97</u>	<u>\$12.22</u>
<u>135-144 W</u>	<u>Per Light</u>	<u>\$2.42</u>	<u>\$0.00</u>	<u>\$2.42</u>	<u>\$10.26</u>	<u>\$12.68</u>
<u>145-154 W</u>	<u>Per Light</u>	<u>\$2.59</u>	<u>\$0.00</u>	<u>\$2.59</u>	<u>\$10.54</u>	<u>\$13.13</u>
<u>155-164 W</u>	<u>Per Light</u>	<u>\$2.77</u>	<u>\$0.00</u>	<u>\$2.77</u>	<u>\$10.83</u>	<u>\$13.60</u>
<u>165-174 W</u>	<u>Per Light</u>	<u>\$2.94</u>	<u>\$0.00</u>	<u>\$2.94</u>	<u>\$11.12</u>	<u>\$14.06</u>
<u>175-184 W</u>	<u>Per Light</u>	<u>\$3.11</u>	<u>\$0.00</u>	<u>\$3.11</u>	<u>\$11.40</u>	<u>\$14.51</u>
<u>185-194 W</u>	<u>Per Light</u>	<u>\$3.29</u>	<u>\$0.00</u>	<u>\$3.29</u>	<u>\$11.69</u>	<u>\$14.98</u>
<u>195-204 W</u>	<u>Per Light</u>	<u>\$3.46</u>	<u>\$0.00</u>	<u>\$3.46</u>	<u>\$11.97</u>	<u>\$15.43</u>
<u>205-214 W</u>	<u>Per Light</u>	<u>\$3.63</u>	<u>\$0.00</u>	<u>\$3.63</u>	<u>\$12.26</u>	<u>\$15.89</u>
<u>215-224 W</u>	<u>Per Light</u>	<u>\$3.81</u>	<u>\$0.00</u>	<u>\$3.81</u>	<u>\$12.55</u>	<u>\$16.36</u>
<u>225-234 W</u>	<u>Per Light</u>	<u>\$3.98</u>	<u>\$0.00</u>	<u>\$3.98</u>	<u>\$12.83</u>	<u>\$16.81</u>
<u>235-244 W</u>	<u>Per Light</u>	<u>\$4.15</u>	<u>\$0.00</u>	<u>\$4.15</u>	<u>\$13.12</u>	<u>\$17.27</u>
<u>245-254 W</u>	<u>Per Light</u>	<u>\$4.33</u>	<u>\$0.00</u>	<u>\$4.33</u>	<u>\$13.41</u>	<u>\$17.74</u>
<u>255-264 W</u>	<u>Per Light</u>	<u>\$4.50</u>	<u>\$0.00</u>	<u>\$4.50</u>	<u>\$13.69</u>	<u>\$18.19</u>
<u>265-274 W</u>	<u>Per Light</u>	<u>\$4.67</u>	<u>\$0.00</u>	<u>\$4.67</u>	<u>\$13.98</u>	<u>\$18.65</u>
<u>275-284 W</u>	<u>Per Light</u>	<u>\$4.85</u>	<u>\$0.00</u>	<u>\$4.85</u>	<u>\$14.27</u>	<u>\$19.12</u>
<u>285-294 W</u>	<u>Per Light</u>	<u>\$5.02</u>	<u>\$0.00</u>	<u>\$5.02</u>	<u>\$14.55</u>	<u>\$19.57</u>
<u>295-304 W</u>	<u>Per Light</u>	<u>\$5.19</u>	<u>\$0.00</u>	<u>\$5.19</u>	<u>\$14.84</u>	<u>\$20.03</u>
<u>305-314 W</u>	<u>Per Light</u>	<u>\$5.37</u>	<u>\$0.00</u>	<u>\$5.37</u>	<u>\$15.13</u>	<u>\$20.50</u>
<u>315-324 W</u>	<u>Per Light</u>	<u>\$5.54</u>	<u>\$0.00</u>	<u>\$5.54</u>	<u>\$15.41</u>	<u>\$20.95</u>
<u>325-334 W</u>	<u>Per Light</u>	<u>\$5.71</u>	<u>\$0.00</u>	<u>\$5.71</u>	<u>\$15.70</u>	<u>\$21.41</u>
<u>335-344 W</u>	<u>Per Light</u>	<u>\$5.89</u>	<u>\$0.00</u>	<u>\$5.89</u>	<u>\$15.98</u>	<u>\$21.87</u>
<u>345-354 W</u>	<u>Per Light</u>	<u>\$6.06</u>	<u>\$0.00</u>	<u>\$6.06</u>	<u>\$16.27</u>	<u>\$22.33</u>
<u>355-364 W</u>	<u>Per Light</u>	<u>\$6.23</u>	<u>\$0.00</u>	<u>\$6.23</u>	<u>\$16.56</u>	<u>\$22.79</u>
<u>365-374 W</u>	<u>Per Light</u>	<u>\$6.41</u>	<u>\$0.00</u>	<u>\$6.41</u>	<u>\$16.84</u>	<u>\$23.25</u>
<u>375-384 W</u>	<u>Per Light</u>	<u>\$6.58</u>	<u>\$0.00</u>	<u>\$6.58</u>	<u>\$17.13</u>	<u>\$23.71</u>
<u>385-394 W</u>	<u>Per Light</u>	<u>\$6.75</u>	<u>\$0.00</u>	<u>\$6.75</u>	<u>\$17.42</u>	<u>\$24.17</u>
<u>395-404 W</u>	<u>Per Light</u>	<u>\$6.93</u>	<u>\$0.00</u>	<u>\$6.93</u>	<u>\$17.70</u>	<u>\$24.63</u>
<u>405-414 W</u>	<u>Per Light</u>	<u>\$7.10</u>	<u>\$0.00</u>	<u>\$7.10</u>	<u>\$17.99</u>	<u>\$25.09</u>
<u>415-424 W</u>	<u>Per Light</u>	<u>\$7.27</u>	<u>\$0.00</u>	<u>\$7.27</u>	<u>\$18.28</u>	<u>\$25.55</u>
<u>425-434 W</u>	<u>Per Light</u>	<u>\$7.45</u>	<u>\$0.00</u>	<u>\$7.45</u>	<u>\$18.56</u>	<u>\$26.01</u>
<u>435-444 W</u>	<u>Per Light</u>	<u>\$7.62</u>	<u>\$0.00</u>	<u>\$7.62</u>	<u>\$18.85</u>	<u>\$26.47</u>
<u>445-454 W</u>	<u>Per Light</u>	<u>\$7.79</u>	<u>\$0.00</u>	<u>\$7.79</u>	<u>\$19.14</u>	<u>\$26.93</u>
<u>455-464 W</u>	<u>Per Light</u>	<u>\$7.97</u>	<u>\$0.00</u>	<u>\$7.97</u>	<u>\$19.42</u>	<u>\$27.39</u>
<u>465-474 W</u>	<u>Per Light</u>	<u>\$8.14</u>	<u>\$0.00</u>	<u>\$8.14</u>	<u>\$19.71</u>	<u>\$27.85</u>
<u>475-484 W</u>	<u>Per Light</u>	<u>\$8.31</u>	<u>\$0.00</u>	<u>\$8.31</u>	<u>\$19.99</u>	<u>\$28.30</u>

**(Continued on Sheet No. D-94.20)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-90.20

**GENERAL SERVICE UNMETERED LIGHTING RATE GUL**

*(Continued From Sheet No. D-90.10)*

*Monthly Rate (Contd)*

*Universal Unmetered Streetlighting Rates, effective for service rendered on and after July 1, 2022:*

<u>Customer-Owned Equipment</u>		<u>Energy Charges</u>			<u>Delivery</u>	<u>Monthly Cost Per Light</u>
		<u>Non-Capacity</u>	<u>Capacity</u>	<u>Total</u>		
<u>15-24 W</u>	<u>Per Light</u>	<u>\$0.34</u>	<u>\$0.00</u>	<u>\$0.34</u>	<u>\$3.82</u>	<u>\$4.16</u>
<u>25-34 W</u>	<u>Per Light</u>	<u>\$0.51</u>	<u>\$0.00</u>	<u>\$0.51</u>	<u>\$4.10</u>	<u>\$4.61</u>
<u>35-44 W</u>	<u>Per Light</u>	<u>\$0.68</u>	<u>\$0.00</u>	<u>\$0.68</u>	<u>\$4.39</u>	<u>\$5.07</u>
<u>45-54 W</u>	<u>Per Light</u>	<u>\$0.86</u>	<u>\$0.00</u>	<u>\$0.86</u>	<u>\$4.68</u>	<u>\$5.54</u>
<u>55-64 W</u>	<u>Per Light</u>	<u>\$1.03</u>	<u>\$0.00</u>	<u>\$1.03</u>	<u>\$4.96</u>	<u>\$5.99</u>
<u>65-74 W</u>	<u>Per Light</u>	<u>\$1.21</u>	<u>\$0.00</u>	<u>\$1.21</u>	<u>\$5.25</u>	<u>\$6.46</u>
<u>75-84 W</u>	<u>Per Light</u>	<u>\$1.38</u>	<u>\$0.00</u>	<u>\$1.38</u>	<u>\$5.54</u>	<u>\$6.92</u>
<u>85-94 W</u>	<u>Per Light</u>	<u>\$1.55</u>	<u>\$0.00</u>	<u>\$1.55</u>	<u>\$5.82</u>	<u>\$7.37</u>
<u>95-104 W</u>	<u>Per Light</u>	<u>\$1.73</u>	<u>\$0.00</u>	<u>\$1.73</u>	<u>\$6.11</u>	<u>\$7.84</u>
<u>105-114 W</u>	<u>Per Light</u>	<u>\$1.90</u>	<u>\$0.00</u>	<u>\$1.90</u>	<u>\$6.40</u>	<u>\$8.30</u>
<u>115-124 W</u>	<u>Per Light</u>	<u>\$2.07</u>	<u>\$0.00</u>	<u>\$2.07</u>	<u>\$6.68</u>	<u>\$8.75</u>
<u>125-134 W</u>	<u>Per Light</u>	<u>\$2.25</u>	<u>\$0.00</u>	<u>\$2.25</u>	<u>\$6.97</u>	<u>\$9.22</u>
<u>135-144 W</u>	<u>Per Light</u>	<u>\$2.42</u>	<u>\$0.00</u>	<u>\$2.42</u>	<u>\$7.26</u>	<u>\$9.68</u>
<u>145-154 W</u>	<u>Per Light</u>	<u>\$2.59</u>	<u>\$0.00</u>	<u>\$2.59</u>	<u>\$7.54</u>	<u>\$10.13</u>
<u>155-164 W</u>	<u>Per Light</u>	<u>\$2.77</u>	<u>\$0.00</u>	<u>\$2.77</u>	<u>\$7.83</u>	<u>\$10.60</u>
<u>165-174 W</u>	<u>Per Light</u>	<u>\$2.94</u>	<u>\$0.00</u>	<u>\$2.94</u>	<u>\$8.12</u>	<u>\$11.06</u>
<u>175-184 W</u>	<u>Per Light</u>	<u>\$3.11</u>	<u>\$0.00</u>	<u>\$3.11</u>	<u>\$8.40</u>	<u>\$11.51</u>
<u>185-194 W</u>	<u>Per Light</u>	<u>\$3.29</u>	<u>\$0.00</u>	<u>\$3.29</u>	<u>\$8.69</u>	<u>\$11.98</u>
<u>195-204 W</u>	<u>Per Light</u>	<u>\$3.46</u>	<u>\$0.00</u>	<u>\$3.46</u>	<u>\$8.97</u>	<u>\$12.43</u>
<u>205-214 W</u>	<u>Per Light</u>	<u>\$3.63</u>	<u>\$0.00</u>	<u>\$3.63</u>	<u>\$9.26</u>	<u>\$12.89</u>
<u>215-224 W</u>	<u>Per Light</u>	<u>\$3.81</u>	<u>\$0.00</u>	<u>\$3.81</u>	<u>\$9.55</u>	<u>\$13.36</u>
<u>225-234 W</u>	<u>Per Light</u>	<u>\$3.98</u>	<u>\$0.00</u>	<u>\$3.98</u>	<u>\$9.83</u>	<u>\$13.81</u>
<u>235-244 W</u>	<u>Per Light</u>	<u>\$4.15</u>	<u>\$0.00</u>	<u>\$4.15</u>	<u>\$10.12</u>	<u>\$14.27</u>
<u>245-254 W</u>	<u>Per Light</u>	<u>\$4.33</u>	<u>\$0.00</u>	<u>\$4.33</u>	<u>\$10.41</u>	<u>\$14.74</u>
<u>255-264 W</u>	<u>Per Light</u>	<u>\$4.50</u>	<u>\$0.00</u>	<u>\$4.50</u>	<u>\$10.69</u>	<u>\$15.19</u>
<u>265-274 W</u>	<u>Per Light</u>	<u>\$4.67</u>	<u>\$0.00</u>	<u>\$4.67</u>	<u>\$10.98</u>	<u>\$15.65</u>
<u>275-284 W</u>	<u>Per Light</u>	<u>\$4.85</u>	<u>\$0.00</u>	<u>\$4.85</u>	<u>\$11.27</u>	<u>\$16.12</u>
<u>285-294 W</u>	<u>Per Light</u>	<u>\$5.02</u>	<u>\$0.00</u>	<u>\$5.02</u>	<u>\$11.55</u>	<u>\$16.57</u>
<u>295-304 W</u>	<u>Per Light</u>	<u>\$5.19</u>	<u>\$0.00</u>	<u>\$5.19</u>	<u>\$11.84</u>	<u>\$17.03</u>
<u>305-314 W</u>	<u>Per Light</u>	<u>\$5.37</u>	<u>\$0.00</u>	<u>\$5.37</u>	<u>\$12.13</u>	<u>\$17.50</u>
<u>315-324 W</u>	<u>Per Light</u>	<u>\$5.54</u>	<u>\$0.00</u>	<u>\$5.54</u>	<u>\$12.41</u>	<u>\$17.95</u>
<u>325-334 W</u>	<u>Per Light</u>	<u>\$5.71</u>	<u>\$0.00</u>	<u>\$5.71</u>	<u>\$12.70</u>	<u>\$18.41</u>
<u>335-344 W</u>	<u>Per Light</u>	<u>\$5.89</u>	<u>\$0.00</u>	<u>\$5.89</u>	<u>\$12.98</u>	<u>\$18.87</u>
<u>345-354 W</u>	<u>Per Light</u>	<u>\$6.06</u>	<u>\$0.00</u>	<u>\$6.06</u>	<u>\$13.27</u>	<u>\$19.33</u>
<u>355-364 W</u>	<u>Per Light</u>	<u>\$6.23</u>	<u>\$0.00</u>	<u>\$6.23</u>	<u>\$13.56</u>	<u>\$19.79</u>
<u>365-374 W</u>	<u>Per Light</u>	<u>\$6.41</u>	<u>\$0.00</u>	<u>\$6.41</u>	<u>\$13.84</u>	<u>\$20.25</u>
<u>375-384 W</u>	<u>Per Light</u>	<u>\$6.58</u>	<u>\$0.00</u>	<u>\$6.58</u>	<u>\$14.13</u>	<u>\$20.71</u>
<u>385-394 W</u>	<u>Per Light</u>	<u>\$6.75</u>	<u>\$0.00</u>	<u>\$6.75</u>	<u>\$14.42</u>	<u>\$21.17</u>
<u>395-404 W</u>	<u>Per Light</u>	<u>\$6.93</u>	<u>\$0.00</u>	<u>\$6.93</u>	<u>\$14.70</u>	<u>\$21.63</u>
<u>405-414 W</u>	<u>Per Light</u>	<u>\$7.10</u>	<u>\$0.00</u>	<u>\$7.10</u>	<u>\$14.99</u>	<u>\$22.09</u>
<u>415-424 W</u>	<u>Per Light</u>	<u>\$7.27</u>	<u>\$0.00</u>	<u>\$7.27</u>	<u>\$15.28</u>	<u>\$22.55</u>
<u>425-434 W</u>	<u>Per Light</u>	<u>\$7.45</u>	<u>\$0.00</u>	<u>\$7.45</u>	<u>\$15.56</u>	<u>\$23.01</u>
<u>435-444 W</u>	<u>Per Light</u>	<u>\$7.62</u>	<u>\$0.00</u>	<u>\$7.62</u>	<u>\$15.85</u>	<u>\$23.47</u>
<u>445-454 W</u>	<u>Per Light</u>	<u>\$7.79</u>	<u>\$0.00</u>	<u>\$7.79</u>	<u>\$16.14</u>	<u>\$23.93</u>
<u>455-464 W</u>	<u>Per Light</u>	<u>\$7.97</u>	<u>\$0.00</u>	<u>\$7.97</u>	<u>\$16.42</u>	<u>\$24.39</u>
<u>465-474 W</u>	<u>Per Light</u>	<u>\$8.14</u>	<u>\$0.00</u>	<u>\$8.14</u>	<u>\$16.71</u>	<u>\$24.85</u>
<u>475-484 W</u>	<u>Per Light</u>	<u>\$8.31</u>	<u>\$0.00</u>	<u>\$8.31</u>	<u>\$16.99</u>	<u>\$25.30</u>

*This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.*

*(Continued on Sheet No. D-91.00)*

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-94.00

**GENERAL UNMETERED LIGHT EMITTING DIODE LIGHTING RATE GU-LED**  
(Continued From Sheet No. D-93.00)

**Facilities Policy (Contd)**

**Company-Owned Option (Contd)**

- D. The Company will determine LED lighting fixtures to be offered under this rate. The list of approved fixtures is subject to modification at the sole discretion of the Company to accommodate new product development and advances in technology. Upon customer request, the Company shall provide a list of LED lighting available under this rate.
- E. For customer requested material requiring special order, an additional per luminaire per month charge may apply for procurement and material handling. The Company and the Customer shall mutually agree to the monthly charge prior to procurement and installation of the special order material.
- F. The Company shall determine all associated equipment necessary to provide service under the Company-Owned Unmetered LED Lighting option.
- G. Any charges, deposits or contributions may be required in advance of commencement of construction.
- H. At the Company's discretion, any fixture may be converted to LED at no cost to the customer. The replaced fixture will be moved to General Unmetered Light Emitting Diode Lighting Rate GU-LED upon completion of the installation and reconciliation of the community's streetlighting inventory for billing accuracy.

**Customer-Owned Option**

If it is necessary for the Company to install distribution facilities to serve a customer-owned system, contributions and/or deposits for such additional facilities shall be calculated in accordance with the Company's general service line extension policy. Any charges, deposits or contributions may be required in advance of commencement of construction.

**Monthly Rate**

**~~Transitional Power Supply Charges, effective January 1, 2021 through June 30, 2021:~~**

**~~Power Supply Charges~~**

**~~Energy Charge:~~**

<del>Non-Capacity</del>	<del>Capacity</del>	<del>Total</del>	
<del>\$0.037264</del>	<del>\$0.000000</del>	<del>\$0.037264</del>	<del>per kWh for all kWh</del>

~~This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.~~

**~~Delivery Charges Customer-Owned Option~~**

~~Distribution Charge: \$0.087332 per kWh for all kWh~~

**~~Delivery Charges Company-Owned Option~~**

~~Distribution Charge: \$0.107117 per kWh for all kWh~~

~~Fixture Charge per Luminaire: \$5.00 per month~~

~~This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.~~

**Company-Owned Conversion Credit:**

A conversion credit may be available to Customers who converted to LED municipal streetlighting.

Customers who converted to LED streetlighting before April 1, 2018 are eligible for the following Conversion Credit per billing month beginning with the January 2021 billing month through the December 2024 billing month:

Fixture Credit per Luminaire: \$(5.15 ~~3.52~~) per month

(Continued on Sheet No. D-94.10)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-94.10

**GENERAL UNMETERED LIGHT EMITTING DIODE LIGHTING RATE GU-LED**  
(Continued From Sheet No. D-94.00)

Monthly Rate (Contd)

Transitional Unmetered Lighting Rate GU-LED Charges, effective January 1, 2022 through June 30, 2022:

Company-Owned Equipment		Energy Charges			Delivery	Monthly Cost
		Non-Capacity	Capacity	Total		
15-24 W	Per Light	\$0.34	\$0.00	\$0.34	<del>\$7.93</del> <del>5.08</del>	<del>\$8.27</del> <del>5.42</del>
25-34 W	Per Light	\$0.51	\$0.00	\$0.51	<del>\$8.54</del> <del>5.62</del>	<del>\$9.05</del> <del>6.13</del>
35-44 W	Per Light	<del>\$0.68</del> <del>0.67</del>	\$0.00	<del>\$0.68</del> <del>0.67</del>	<del>\$9.16</del> <del>6.15</del>	<del>\$9.84</del> <del>6.82</del>
45-54 W	Per Light	<del>\$0.85</del> <del>0.84</del>	\$0.00	<del>\$0.85</del> <del>0.84</del>	<del>\$9.77</del> <del>6.70</del>	<del>\$10.62</del> <del>7.54</del>
55-64 W	Per Light	<del>\$1.02</del> <del>1.01</del>	\$0.00	<del>\$1.02</del> <del>1.01</del>	<del>\$10.39</del> <del>7.23</del>	<del>\$11.41</del> <del>8.24</del>
65-74 W	Per Light	<del>\$1.19</del> <del>1.18</del>	\$0.00	<del>\$1.19</del> <del>1.18</del>	<del>\$11.00</del> <del>7.77</del>	<del>\$12.19</del> <del>8.95</del>
75-84 W	Per Light	<del>\$1.36</del> <del>1.35</del>	\$0.00	<del>\$1.36</del> <del>1.35</del>	<del>\$11.62</del> <del>8.32</del>	<del>\$12.98</del> <del>9.67</del>
85-94 W	Per Light	<del>\$1.53</del> <del>1.52</del>	\$0.00	<del>\$1.53</del> <del>1.52</del>	<del>\$12.23</del> <del>8.85</del>	<del>\$13.76</del> <del>10.37</del>
95-104 W	Per Light	<del>\$1.70</del> <del>1.69</del>	\$0.00	<del>\$1.70</del> <del>1.69</del>	<del>\$12.85</del> <del>9.39</del>	<del>\$14.55</del> <del>11.08</del>
105-114 W	Per Light	<del>\$1.87</del> <del>1.86</del>	\$0.00	<del>\$1.87</del> <del>1.86</del>	<del>\$13.46</del> <del>9.92</del>	<del>\$15.33</del> <del>11.78</del>
115-124 W	Per Light	<del>\$2.04</del> <del>2.02</del>	\$0.00	<del>\$2.04</del> <del>2.02</del>	<del>\$14.08</del> <del>10.47</del>	<del>\$16.12</del> <del>12.49</del>
125-134 W	Per Light	<del>\$2.21</del> <del>2.19</del>	\$0.00	<del>\$2.21</del> <del>2.19</del>	<del>\$14.69</del> <del>11.01</del>	<del>\$16.90</del> <del>13.20</del>
135-144 W	Per Light	<del>\$2.38</del> <del>2.36</del>	\$0.00	<del>\$2.38</del> <del>2.36</del>	<del>\$15.31</del> <del>11.54</del>	<del>\$17.69</del> <del>13.90</del>
145-154 W	Per Light	<del>\$2.55</del> <del>2.53</del>	\$0.00	<del>\$2.55</del> <del>2.53</del>	<del>\$15.92</del> <del>12.09</del>	<del>\$18.47</del> <del>14.62</del>
155-164 W	Per Light	<del>\$2.72</del> <del>2.70</del>	\$0.00	<del>\$2.72</del> <del>2.70</del>	<del>\$16.54</del> <del>12.62</del>	<del>\$19.26</del> <del>15.32</del>
165-174 W	Per Light	<del>\$2.89</del> <del>2.87</del>	\$0.00	<del>\$2.89</del> <del>2.87</del>	<del>\$17.15</del> <del>13.16</del>	<del>\$20.04</del> <del>16.03</del>
175-184 W	Per Light	<del>\$3.06</del> <del>3.04</del>	\$0.00	<del>\$3.06</del> <del>3.04</del>	<del>\$17.77</del> <del>13.70</del>	<del>\$20.83</del> <del>16.74</del>
185-194 W	Per Light	<del>\$3.23</del> <del>3.21</del>	\$0.00	<del>\$3.23</del> <del>3.21</del>	<del>\$18.38</del> <del>14.24</del>	<del>\$21.61</del> <del>17.45</del>
195-204 W	Per Light	<del>\$3.40</del> <del>3.37</del>	\$0.00	<del>\$3.40</del> <del>3.37</del>	<del>\$19.00</del> <del>14.78</del>	<del>\$22.40</del> <del>18.15</del>
205-214 W	Per Light	<del>\$3.57</del> <del>3.54</del>	\$0.00	<del>\$3.57</del> <del>3.54</del>	<del>\$19.61</del> <del>15.32</del>	<del>\$23.18</del> <del>18.86</del>
Customer-Owned Equipment		Energy Charges			Delivery	Monthly Cost Per Light
		Non-Capacity	Capacity	Total		
15-24 W	Per Light	\$0.34	\$0.00	\$0.34	<del>\$4.93</del> <del>3.46</del>	<del>\$5.27</del> <del>3.80</del>
25-34 W	Per Light	\$0.51	\$0.00	\$0.51	<del>\$5.54</del> <del>3.86</del>	<del>\$6.05</del> <del>4.37</del>
35-44 W	Per Light	<del>\$0.68</del> <del>0.67</del>	\$0.00	<del>\$0.68</del> <del>0.67</del>	<del>\$6.16</del> <del>4.26</del>	<del>\$6.84</del> <del>4.93</del>
45-54 W	Per Light	<del>\$0.85</del> <del>0.84</del>	\$0.00	<del>\$0.85</del> <del>0.84</del>	<del>\$6.77</del> <del>4.67</del>	<del>\$7.62</del> <del>5.51</del>
55-64 W	Per Light	<del>\$1.02</del>	\$0.00	<del>\$1.02</del>	<del>\$7.39</del>	<del>\$8.41</del>

		<del>1.01</del>		<del>1.01</del>	<del>5.06</del>	<del>6.07</del>
65-74 W	Per Light	\$ <del>1.19</del> <del>1.18</del>	\$0.00	\$ <del>1.19</del> <del>1.18</del>	\$ <del>8.00</del> <del>5.46</del>	\$ <del>9.19</del> <del>6.64</del>
75-84 W	Per Light	\$ <del>1.36</del> <del>1.35</del>	\$0.00	\$ <del>1.36</del> <del>1.35</del>	\$ <del>8.62</del> <del>5.87</del>	\$ <del>9.98</del> <del>7.22</del>
85-94 W	Per Light	\$ <del>1.53</del> <del>1.52</del>	\$0.00	\$ <del>1.53</del> <del>1.52</del>	\$ <del>9.23</del> <del>6.27</del>	\$ <del>10.76</del> <del>7.79</del>
95-104 W	Per Light	\$ <del>1.70</del> <del>1.69</del>	\$0.00	\$ <del>1.70</del> <del>1.69</del>	\$ <del>9.85</del> <del>6.66</del>	\$ <del>11.55</del> <del>8.35</del>
105-114 W	Per Light	\$ <del>1.87</del> <del>1.86</del>	\$0.00	\$ <del>1.87</del> <del>1.86</del>	\$ <del>10.46</del> <del>7.06</del>	\$ <del>12.33</del> <del>8.92</del>
115-124 W	Per Light	\$ <del>2.04</del> <del>2.02</del>	\$0.00	\$ <del>2.04</del> <del>2.02</del>	\$ <del>11.08</del> <del>7.47</del>	\$ <del>13.12</del> <del>9.49</del>
125-134 W	Per Light	\$ <del>2.21</del> <del>2.19</del>	\$0.00	\$ <del>2.21</del> <del>2.19</del>	\$ <del>11.69</del> <del>7.87</del>	\$ <del>13.90</del> <del>10.06</del>
135-144 W	Per Light	\$ <del>2.38</del> <del>2.36</del>	\$0.00	\$ <del>2.38</del> <del>2.36</del>	\$ <del>12.31</del> <del>8.26</del>	\$ <del>14.69</del> <del>10.62</del>
145-154 W	Per Light	\$ <del>2.55</del> <del>2.53</del>	\$0.00	\$ <del>2.55</del> <del>2.53</del>	\$ <del>12.92</del> <del>8.67</del>	\$ <del>15.47</del> <del>11.20</del>
155-164 W	Per Light	\$ <del>2.72</del> <del>2.70</del>	\$0.00	\$ <del>2.72</del> <del>2.70</del>	\$ <del>13.54</del> <del>9.07</del>	\$ <del>16.26</del> <del>11.77</del>
165-174 W	Per Light	\$ <del>2.89</del> <del>2.87</del>	\$0.00	\$ <del>2.89</del> <del>2.87</del>	\$ <del>14.15</del> <del>9.47</del>	\$ <del>17.04</del> <del>12.34</del>
175-184 W	Per Light	\$ <del>3.06</del> <del>3.04</del>	\$0.00	\$ <del>3.06</del> <del>3.04</del>	\$ <del>14.77</del> <del>9.87</del>	\$ <del>17.83</del> <del>12.91</del>
185-194 W	Per Light	\$ <del>3.23</del> <del>3.21</del>	\$0.00	\$ <del>3.23</del> <del>3.21</del>	\$ <del>15.38</del> <del>10.27</del>	\$ <del>18.61</del> <del>13.48</del>
195-204 W	Per Light	\$ <del>3.40</del> <del>3.37</del>	\$0.00	\$ <del>3.40</del> <del>3.37</del>	\$ <del>16.00</del> <del>10.67</del>	\$ <del>19.40</del> <del>14.04</del>
205-214 W	Per Light	\$ <del>3.57</del> <del>3.54</del>	\$0.00	\$ <del>3.57</del> <del>3.54</del>	\$ <del>16.61</del> <del>11.08</del>	\$ <del>20.18</del> <del>14.62</del>

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00

(Continued on Sheet No. D-~~94.20~~ ~~95.00~~)

See Miller Testimony, Page 20, Lines 3-13; Exhibit A-17 (RLB-1) Item #8; Exhibit A-16 (HWM-3) Page 22

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-94.20

**GENERAL UNMETERED LIGHT EMITTING DIODE LIGHTING RATE GU-LED**

**(Continued From Sheet No. D-94.10)**

**Monthly Rate (Contd)**

**Universal Unmetered Streetlighting Rates, effective for service rendered on and after July 1, 2022:**

<b><u>Company-Owned Equipment</u></b>		<b><u>Energy Charges</u></b>			<b><u>Delivery</u></b>	<b><u>Monthly Cost</u></b>
		<b><u>Non-Capacity</u></b>	<b><u>Capacity</u></b>	<b><u>Total</u></b>		
<u>15-24 W</u>	<u>Per Light</u>	<u>\$0.34</u>	<u>\$0.00</u>	<u>\$0.34</u>	<u>\$6.82</u>	<u>\$7.16</u>
<u>25-34 W</u>	<u>Per Light</u>	<u>\$0.51</u>	<u>\$0.00</u>	<u>\$0.51</u>	<u>\$7.10</u>	<u>\$7.61</u>
<u>35-44 W</u>	<u>Per Light</u>	<u>\$0.68</u>	<u>\$0.00</u>	<u>\$0.68</u>	<u>\$7.39</u>	<u>\$8.07</u>
<u>45-54 W</u>	<u>Per Light</u>	<u>\$0.86</u>	<u>\$0.00</u>	<u>\$0.86</u>	<u>\$7.68</u>	<u>\$8.54</u>
<u>55-64 W</u>	<u>Per Light</u>	<u>\$1.03</u>	<u>\$0.00</u>	<u>\$1.03</u>	<u>\$7.96</u>	<u>\$8.99</u>
<u>65-74 W</u>	<u>Per Light</u>	<u>\$1.21</u>	<u>\$0.00</u>	<u>\$1.21</u>	<u>\$8.25</u>	<u>\$9.46</u>
<u>75-84 W</u>	<u>Per Light</u>	<u>\$1.38</u>	<u>\$0.00</u>	<u>\$1.38</u>	<u>\$8.54</u>	<u>\$9.92</u>
<u>85-94 W</u>	<u>Per Light</u>	<u>\$1.55</u>	<u>\$0.00</u>	<u>\$1.55</u>	<u>\$8.82</u>	<u>\$10.37</u>
<u>95-104 W</u>	<u>Per Light</u>	<u>\$1.73</u>	<u>\$0.00</u>	<u>\$1.73</u>	<u>\$9.11</u>	<u>\$10.84</u>
<u>105-114 W</u>	<u>Per Light</u>	<u>\$1.90</u>	<u>\$0.00</u>	<u>\$1.90</u>	<u>\$9.40</u>	<u>\$11.30</u>
<u>115-124 W</u>	<u>Per Light</u>	<u>\$2.07</u>	<u>\$0.00</u>	<u>\$2.07</u>	<u>\$9.68</u>	<u>\$11.75</u>
<u>125-134 W</u>	<u>Per Light</u>	<u>\$2.25</u>	<u>\$0.00</u>	<u>\$2.25</u>	<u>\$9.97</u>	<u>\$12.22</u>
<u>135-144 W</u>	<u>Per Light</u>	<u>\$2.42</u>	<u>\$0.00</u>	<u>\$2.42</u>	<u>\$10.26</u>	<u>\$12.68</u>
<u>145-154 W</u>	<u>Per Light</u>	<u>\$2.59</u>	<u>\$0.00</u>	<u>\$2.59</u>	<u>\$10.54</u>	<u>\$13.13</u>
<u>155-164 W</u>	<u>Per Light</u>	<u>\$2.77</u>	<u>\$0.00</u>	<u>\$2.77</u>	<u>\$10.83</u>	<u>\$13.60</u>
<u>165-174 W</u>	<u>Per Light</u>	<u>\$2.94</u>	<u>\$0.00</u>	<u>\$2.94</u>	<u>\$11.12</u>	<u>\$14.06</u>
<u>175-184 W</u>	<u>Per Light</u>	<u>\$3.11</u>	<u>\$0.00</u>	<u>\$3.11</u>	<u>\$11.40</u>	<u>\$14.51</u>
<u>185-194 W</u>	<u>Per Light</u>	<u>\$3.29</u>	<u>\$0.00</u>	<u>\$3.29</u>	<u>\$11.69</u>	<u>\$14.98</u>
<u>195-204 W</u>	<u>Per Light</u>	<u>\$3.46</u>	<u>\$0.00</u>	<u>\$3.46</u>	<u>\$11.97</u>	<u>\$15.43</u>
<u>205-214 W</u>	<u>Per Light</u>	<u>\$3.63</u>	<u>\$0.00</u>	<u>\$3.63</u>	<u>\$12.26</u>	<u>\$15.89</u>
<u>215-224 W</u>	<u>Per Light</u>	<u>\$3.81</u>	<u>\$0.00</u>	<u>\$3.81</u>	<u>\$12.55</u>	<u>\$16.36</u>
<u>225-234 W</u>	<u>Per Light</u>	<u>\$3.98</u>	<u>\$0.00</u>	<u>\$3.98</u>	<u>\$12.83</u>	<u>\$16.81</u>
<u>235-244 W</u>	<u>Per Light</u>	<u>\$4.15</u>	<u>\$0.00</u>	<u>\$4.15</u>	<u>\$13.12</u>	<u>\$17.27</u>
<u>245-254 W</u>	<u>Per Light</u>	<u>\$4.33</u>	<u>\$0.00</u>	<u>\$4.33</u>	<u>\$13.41</u>	<u>\$17.74</u>
<u>255-264 W</u>	<u>Per Light</u>	<u>\$4.50</u>	<u>\$0.00</u>	<u>\$4.50</u>	<u>\$13.69</u>	<u>\$18.19</u>
<u>265-274 W</u>	<u>Per Light</u>	<u>\$4.67</u>	<u>\$0.00</u>	<u>\$4.67</u>	<u>\$13.98</u>	<u>\$18.65</u>
<u>275-284 W</u>	<u>Per Light</u>	<u>\$4.85</u>	<u>\$0.00</u>	<u>\$4.85</u>	<u>\$14.27</u>	<u>\$19.12</u>
<u>285-294 W</u>	<u>Per Light</u>	<u>\$5.02</u>	<u>\$0.00</u>	<u>\$5.02</u>	<u>\$14.55</u>	<u>\$19.57</u>
<u>295-304 W</u>	<u>Per Light</u>	<u>\$5.19</u>	<u>\$0.00</u>	<u>\$5.19</u>	<u>\$14.84</u>	<u>\$20.03</u>
<u>305-314 W</u>	<u>Per Light</u>	<u>\$5.37</u>	<u>\$0.00</u>	<u>\$5.37</u>	<u>\$15.13</u>	<u>\$20.50</u>
<u>315-324 W</u>	<u>Per Light</u>	<u>\$5.54</u>	<u>\$0.00</u>	<u>\$5.54</u>	<u>\$15.41</u>	<u>\$20.95</u>
<u>325-334 W</u>	<u>Per Light</u>	<u>\$5.71</u>	<u>\$0.00</u>	<u>\$5.71</u>	<u>\$15.70</u>	<u>\$21.41</u>
<u>335-344 W</u>	<u>Per Light</u>	<u>\$5.89</u>	<u>\$0.00</u>	<u>\$5.89</u>	<u>\$15.98</u>	<u>\$21.87</u>
<u>345-354 W</u>	<u>Per Light</u>	<u>\$6.06</u>	<u>\$0.00</u>	<u>\$6.06</u>	<u>\$16.27</u>	<u>\$22.33</u>
<u>355-364 W</u>	<u>Per Light</u>	<u>\$6.23</u>	<u>\$0.00</u>	<u>\$6.23</u>	<u>\$16.56</u>	<u>\$22.79</u>
<u>365-374 W</u>	<u>Per Light</u>	<u>\$6.41</u>	<u>\$0.00</u>	<u>\$6.41</u>	<u>\$16.84</u>	<u>\$23.25</u>
<u>375-384 W</u>	<u>Per Light</u>	<u>\$6.58</u>	<u>\$0.00</u>	<u>\$6.58</u>	<u>\$17.13</u>	<u>\$23.71</u>
<u>385-394 W</u>	<u>Per Light</u>	<u>\$6.75</u>	<u>\$0.00</u>	<u>\$6.75</u>	<u>\$17.42</u>	<u>\$24.17</u>
<u>395-404 W</u>	<u>Per Light</u>	<u>\$6.93</u>	<u>\$0.00</u>	<u>\$6.93</u>	<u>\$17.70</u>	<u>\$24.63</u>
<u>405-414 W</u>	<u>Per Light</u>	<u>\$7.10</u>	<u>\$0.00</u>	<u>\$7.10</u>	<u>\$17.99</u>	<u>\$25.09</u>
<u>415-424 W</u>	<u>Per Light</u>	<u>\$7.27</u>	<u>\$0.00</u>	<u>\$7.27</u>	<u>\$18.28</u>	<u>\$25.55</u>
<u>425-434 W</u>	<u>Per Light</u>	<u>\$7.45</u>	<u>\$0.00</u>	<u>\$7.45</u>	<u>\$18.56</u>	<u>\$26.01</u>
<u>435-444 W</u>	<u>Per Light</u>	<u>\$7.62</u>	<u>\$0.00</u>	<u>\$7.62</u>	<u>\$18.85</u>	<u>\$26.47</u>
<u>445-454 W</u>	<u>Per Light</u>	<u>\$7.79</u>	<u>\$0.00</u>	<u>\$7.79</u>	<u>\$19.14</u>	<u>\$26.93</u>
<u>455-464 W</u>	<u>Per Light</u>	<u>\$7.97</u>	<u>\$0.00</u>	<u>\$7.97</u>	<u>\$19.42</u>	<u>\$27.39</u>
<u>465-474 W</u>	<u>Per Light</u>	<u>\$8.14</u>	<u>\$0.00</u>	<u>\$8.14</u>	<u>\$19.71</u>	<u>\$27.85</u>
<u>475-484 W</u>	<u>Per Light</u>	<u>\$8.31</u>	<u>\$0.00</u>	<u>\$8.31</u>	<u>\$19.99</u>	<u>\$28.30</u>

**(Continued on Sheet No. D-94.30)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. D-94.30

**GENERAL UNMETERED LIGHT EMITTING DIODE LIGHTING RATE GU-LED**

**(Continued From Sheet No. D-94.20)**

**Monthly Rate (Contd)**

**Universal Unmetered Streetlighting Rates, effective for service rendered on and after July 1, 2022:**

<b><u>Customer-Owned Equipment</u></b>		<b><u>Energy Charges</u></b>			<b><u>Delivery</u></b>	<b><u>Monthly Cost Per Light</u></b>
		<b><u>Non-Capacity</u></b>	<b><u>Capacity</u></b>	<b><u>Total</u></b>		
15-24 W	Per Light	\$0.34	\$0.00	\$0.34	\$3.82	\$4.16
25-34 W	Per Light	\$0.51	\$0.00	\$0.51	\$4.10	\$4.61
35-44 W	Per Light	\$0.68	\$0.00	\$0.68	\$4.39	\$5.07
45-54 W	Per Light	\$0.86	\$0.00	\$0.86	\$4.68	\$5.54
55-64 W	Per Light	\$1.03	\$0.00	\$1.03	\$4.96	\$5.99
65-74 W	Per Light	\$1.21	\$0.00	\$1.21	\$5.25	\$6.46
75-84 W	Per Light	\$1.38	\$0.00	\$1.38	\$5.54	\$6.92
85-94 W	Per Light	\$1.55	\$0.00	\$1.55	\$5.82	\$7.37
95-104 W	Per Light	\$1.73	\$0.00	\$1.73	\$6.11	\$7.84
105-114 W	Per Light	\$1.90	\$0.00	\$1.90	\$6.40	\$8.30
115-124 W	Per Light	\$2.07	\$0.00	\$2.07	\$6.68	\$8.75
125-134 W	Per Light	\$2.25	\$0.00	\$2.25	\$6.97	\$9.22
135-144 W	Per Light	\$2.42	\$0.00	\$2.42	\$7.26	\$9.68
145-154 W	Per Light	\$2.59	\$0.00	\$2.59	\$7.54	\$10.13
155-164 W	Per Light	\$2.77	\$0.00	\$2.77	\$7.83	\$10.60
165-174 W	Per Light	\$2.94	\$0.00	\$2.94	\$8.12	\$11.06
175-184 W	Per Light	\$3.11	\$0.00	\$3.11	\$8.40	\$11.51
185-194 W	Per Light	\$3.29	\$0.00	\$3.29	\$8.69	\$11.98
195-204 W	Per Light	\$3.46	\$0.00	\$3.46	\$8.97	\$12.43
205-214 W	Per Light	\$3.63	\$0.00	\$3.63	\$9.26	\$12.89
215-224 W	Per Light	\$3.81	\$0.00	\$3.81	\$9.55	\$13.36
225-234 W	Per Light	\$3.98	\$0.00	\$3.98	\$9.83	\$13.81
235-244 W	Per Light	\$4.15	\$0.00	\$4.15	\$10.12	\$14.27
245-254 W	Per Light	\$4.33	\$0.00	\$4.33	\$10.41	\$14.74
255-264 W	Per Light	\$4.50	\$0.00	\$4.50	\$10.69	\$15.19
265-274 W	Per Light	\$4.67	\$0.00	\$4.67	\$10.98	\$15.65
275-284 W	Per Light	\$4.85	\$0.00	\$4.85	\$11.27	\$16.12
285-294 W	Per Light	\$5.02	\$0.00	\$5.02	\$11.55	\$16.57
295-304 W	Per Light	\$5.19	\$0.00	\$5.19	\$11.84	\$17.03
305-314 W	Per Light	\$5.37	\$0.00	\$5.37	\$12.13	\$17.50
315-324 W	Per Light	\$5.54	\$0.00	\$5.54	\$12.41	\$17.95
325-334 W	Per Light	\$5.71	\$0.00	\$5.71	\$12.70	\$18.41
335-344 W	Per Light	\$5.89	\$0.00	\$5.89	\$12.98	\$18.87
345-354 W	Per Light	\$6.06	\$0.00	\$6.06	\$13.27	\$19.33
355-364 W	Per Light	\$6.23	\$0.00	\$6.23	\$13.56	\$19.79
365-374 W	Per Light	\$6.41	\$0.00	\$6.41	\$13.84	\$20.25
375-384 W	Per Light	\$6.58	\$0.00	\$6.58	\$14.13	\$20.71
385-394 W	Per Light	\$6.75	\$0.00	\$6.75	\$14.42	\$21.17
395-404 W	Per Light	\$6.93	\$0.00	\$6.93	\$14.70	\$21.63
405-414 W	Per Light	\$7.10	\$0.00	\$7.10	\$14.99	\$22.09
415-424 W	Per Light	\$7.27	\$0.00	\$7.27	\$15.28	\$22.55
425-434 W	Per Light	\$7.45	\$0.00	\$7.45	\$15.56	\$23.01
435-444 W	Per Light	\$7.62	\$0.00	\$7.62	\$15.85	\$23.47
445-454 W	Per Light	\$7.79	\$0.00	\$7.79	\$16.14	\$23.93
455-464 W	Per Light	\$7.97	\$0.00	\$7.97	\$16.42	\$24.39
465-474 W	Per Light	\$8.14	\$0.00	\$8.14	\$16.71	\$24.85
475-484 W	Per Light	\$8.31	\$0.00	\$8.31	\$16.99	\$25.30

**This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00**

**(Continued on Sheet No. D-95.00)**

**M.P.S.C. No. 14 – Electric  
Consumers Energy Company**

**Sheet No. D-96.00**

## GENERAL SERVICE UNMETERED RATE GU

### Availability:

Subject to any restrictions, this rate is available to the US Government, any political subdivision or agency of the State of Michigan, and any public or private school district for filament and/or gaseous discharge lamp installations maintained for traffic regulation or guidance, as distinguished from street illumination and police signal systems. Lighting for traffic regulation may use experimental lighting technology including light-emitting diode (LED). This rate is also available to Community Antenna Television Service Companies (CATV), Wireless Access Companies or Security Camera Companies for unmetered Power Supply Units. Where the Company's total investment to serve an individual location exceeds three times the annual revenue to be derived from such location, a contribution to the Company shall be required for the excess.

This rate is not available for resale purposes, new roadway lighting or for Retail Open Access Service.

### Nature of Service:

Customer furnishes and installs all fixtures, lamps, ballasts, controls, amplifiers and other equipment, including wiring to point of connection with Company's overhead or underground system, as directed by the Company. Company furnishes and installs, where required for center suspended overhead traffic light signals, messenger cable and supporting wood poles and also makes final connections to its lines. If, in the Company's opinion, the installation of wood poles for traffic lights is not practical, the customer shall furnish, install and maintain suitable supports other than wood poles. The customer shall maintain the equipment, including lamp renewals, and the Company shall supply the energy for the operation of the equipment. Conversion and/or relocation costs of existing facilities shall be paid for by the customer except when initiated by the Company.

The capacity requirements of the lamp(s), associated ballast(s) and control equipment for each luminaire shall be determined by the Company from the specifications furnished by the manufacturers of such equipment, provided that the Company shall have the right to test such capacity requirements from time to time. In the event that said tests shall show capacity requirements different from those indicated by the manufacturers' specifications, the capacity requirements shown by said tests shall control. The customer shall not change the capacity requirements of the equipment owned by it without first notifying the Company in writing of such changes and the date that they shall be made.

### Monthly Rate:

#### Power Supply Charges:

Energy Charge:

Non-Capacity	Capacity	Total	
<u>\$0.047703</u>	<u>\$0.026708</u>	<u>\$0.074411</u>	per kWh for all kWh
<del>0.050905</del>	<del>0.023287</del>	<del>0.074192</del>	

This rate is subject to the Power Supply Cost Recovery (PSCR) Factor shown on Sheet No. D-6.00.

#### Delivery Charges:

System Access Charge:	\$2.00	per customer per month
Distribution Charge:	<u>\$0.024941</u> <del>0.021003</del>	per kWh

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00.

**(Continued on Sheet No. D-97.00)**

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. E-16.00

(Continued From Sheet No. E-15.00)

**E3. RETAILER SECTION (Contd)**

**E3.3 Electronic Business Transactions**

Unless otherwise specified by the Company in a Commission-approved tariff, Retailers shall transact all business with the Company electronically.

Unless otherwise specified by the Company in a Commission-approved tariff, all payments made to the Company by the Retailer will be made by electronic funds transfer to the Company's account.

**E3.4 Rates and Charges**

Rates and charges will be in accordance with the applicable ROA Rate Schedule and the Applicable FERC Open Access Tariff.

*For Retailer requested services that require modification to the Company's existing systems, the costs of fulfilling any special request shall be borne solely by the Retailer. Such requests are granted at the Company's sole discretion.*

**E3.5 Billing, Payment, Shutoff, and Disenrollment of a Delinquent ROA Customer**

**A. Retailer Billing**

The Company shall bill the Retailer monthly for ROA Service.

**B. ROA Customer Billing and Payment to Retailer/Company**

The Company shall bill the ROA Customer monthly for ROA Service. The Retailer's charges to the ROA Customer may be billed as part of the Company's bill or may be billed separately by the Retailer at the option of the Retailer.

*A Retailer utilizing a MV90 system prior to (insert effective date of order here) may request meter data and/or access for billing purposes. Such requests are fulfilled at the discretion of the Company within the parameters of Rule C17., Customer Data Privacy.*

When the Retailer purchases billing services from the Company, the following conditions apply:

- (1) The Retailer shall provide its pricing structure detail and a rate table, in a mutually agreeable format, at least one calendar week prior to the first day of the applicable billing month. If this information is not received by this time frame, the Company has no obligation to bill on behalf of the Retailer.
- (2) ROA Customer payments for the Retailer charges billed by the Company will be transferred electronically to the Retailer within six business days after the ROA Customer payments are received and reconciled. Any discrepancies in charges collected and remitted will be corrected and reflected in the next billing cycle.

(Continued on Sheet No. E-17.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. E-22.00

## RETAIL OPEN ACCESS RESIDENTIAL SECONDARY RATE ROA-R

(Continued From Sheet No. E-21.00)

### RETAILER

#### Monthly Rate - Retailer:

##### Transmission Service:

Subject to Rule E1.5, Transmission Service must be obtained from the appropriate transmission service providers and the charges for such service shall be as specified in the Applicable FERC Open Access Tariff.

##### Real Power Losses:

The Retailer is responsible for replacing Real Power Losses of ~~8.082~~ 7.605% on the Company's Distribution System associated with the movement of Power and for compensation for losses.

##### General Terms and Conditions:

This rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

#### Term and Form of Contract - Retailer:

All service under this rate shall require a written ROA Service Contract between the Company and a Retailer.

### ROA CUSTOMER

#### Monthly Rate – ROA Customer:

##### ROA System Access Charge, Distribution Charge, General Terms, Minimum Charge and Due Date and Late Payment Charge:

The System Access Charge, Distribution Charge, General Terms, Minimum Charge and the Due Date and Late Payment Charge shall be as provided for under the ROA Customer's otherwise applicable Company Full Service rate.

This rate is subject to the Surcharges shown on Sheet Nos. D-2.00 through D-5.00 and the Power Plant Securitization Charges shown on Sheet No. D-7.00. Customers taking ROA service on December 6, 2013 are excluded from the Power Plant Securitization Charges. This exclusion does not apply to customers first taking ROA service after December 6, 2013 or to customers taking service on December 6, 2013 who discontinue taking ROA service any time after December 6, 2013. Customers who discontinue taking ROA service any time after December 6, 2013 and who return to ROA service shall pay the Power Plant Securitization Charges applicable to the customer's otherwise applicable Company Full Service Rate Schedule.

#### State Reliability Mechanism for ROA:

Beginning June 1, 2018 all ROA customers may be subject to a State Reliability Mechanism Capacity Charge. This charge shall not apply to ROA customers for any planning year in which their Alternative Electric Supplier can demonstrate to the Commission that it can meet its capacity obligations by the seventh business day of February each year starting in 2018.

If a capacity charge is required to be paid in the planning year beginning June 1, 2018, or any of the three subsequent planning years, due to the Alternative Electric Supplier not meeting its capacity obligations, then the capacity charge is applicable for each of those planning years. Any capacity charged required to be paid any time after the first initial four-year period shall be applicable for a single year. The planning year is defined as being June 1 through the following May 31 of each year. The capacity charge paid by ROA customers will be the same amount as a Full Service Customer on the otherwise applicable Rate Schedule. Non-capacity charges shall not apply.

#### ROA Customer Switching Service Charge:

A \$5.00 switching fee shall be charged the ROA Customer each time a ROA Customer switches (i) from one Retailer to another or (ii) from ROA to a Company Full Service rate. The ROA Customer may switch Retailers at the end of any billing month by having their new Retailer give the Company at least 30 days' written notice. The Company will notify the ROA Customer's previous Retailer and new Retailer electronically of the effective date of the switch. The ROA Customer may choose to return to Company Full Service at the end of any billing month in compliance with Rule E2.5 D., Return to Company Full Service - Residential ROA Customers. The ROA Customer Switching Service Charge shall not be applied (i) for the initial switch to ROA Service or (ii) at the time the ROA Customer returns to Company Full Service or another Retailer because the ROA Customer was Slammed by the Retailer.

#### Term and Form of Contract - ROA Customer:

Service under this rate shall not require a ROA Service Contract between the Company and a ROA Customer.

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. E-24.00

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**RETAIL OPEN ACCESS SECONDARY RATE ROA-S**  
(Continued From Sheet No. E-23.00)

**Metering Requirements:**

The ROA Customer with a Maximum Demand of less than 20 kW shall be separately metered by a Wireless Under Glass Meter or an Energy Registering Meter, with or without maximum demand registers, of billing quality. Such metering equipment shall be furnished, installed, maintained and owned by the Company.

The ROA Customer with a Maximum Demand of less than 20 kW may elect to install an Interval Data Meter. Such metering equipment shall be furnished, installed, maintained and owned by the Company. The requesting ROA Customer shall be required to pay the System Access Charge, as provided for under the ROA Customer's otherwise applicable Company Full Service rate, for all such metering equipment.

The ROA Customer with a Maximum Demand of 20 kW or more shall be separately metered by a Wireless Under Glass Meter or an Interval Data Meter of billing quality. Such metering equipment shall be furnished, installed, maintained and owned by the Company. The ROA Customer shall be required to pay the System Access Charge, as provided for under the ROA Customer's otherwise applicable Company Full Service rate, for all such metering equipment.

The ROA Customer with an Interval Data Meter shall be responsible for (i) the communication links that allow access to the meter data by the Company and are compatible with the Company's metering and billing systems, and (ii) all associated costs relating to the communication links including other accompanying equipment and monthly fees.

**RETAILER:**

**Monthly Rate - Retailer:**

**Transmission Service:**

Subject to Rule E1.5, Transmission Service must be obtained from the appropriate transmission service providers and the charges for such service shall be as specified in the Applicable FERC Open Access Tariff.

**Real Power Losses:**

The Retailer is responsible for replacing Real Power Losses of 7.605 ~~8.082~~% on the Company's Distribution System associated with the movement of Power and for compensation for losses.

**General Terms and Conditions:**

This rate is subject to all general terms and conditions shown on Sheet No. D-1.00.

**Term and Form of Contract - Retailer:**

All service under this rate shall require a written ROA Service Contract between the Company and a Retailer.

(Continued on Sheet No. E-25.00)

M.P.S.C. No. 14 – Electric  
Consumers Energy Company

Sheet No. E-26.00

## RETAIL OPEN ACCESS PRIMARY RATE ROA-P

### Availability:

Subject to any restrictions, this rate is available to any customer receiving service at a Primary Voltage for the delivery of Power from the Point of Receipt to the Point of Delivery and for resale service in accordance with Rule C4.4, Resale.

This rate is not available to a ROA-P Customer where the Company elects to provide one transformation from the available Primary Voltage to another available Primary Voltage desired by the customer. This ROA Customer must take service under Retail Open Access Secondary Rate ROA-S.

This rate is not available for unmetered general service or for any unmetered or metered lighting service.

Service under this rate shall be separately metered. The Retailer shall deliver a flat, fixed amount of power every hour of every day.

Any ROA Customer whose monthly minimum Maximum Demand is less than 1,000 kW must utilize an Aggregator.

### Nature of Service:

Service under this rate shall be alternating current, 60-Hertz, single-phase or three-phase (at the Company's option) Primary Voltage service. The Company will determine the particular nature of the voltage in each case.

The Company shall not be required to, but may expand its existing facilities to make deliveries under this tariff. The ROA Customer and/or Retailer shall be liable for any and all costs incurred as a result of an expansion of facilities made to make deliveries under this tariff.

### Metering Requirements:

The load under this tariff shall be separately metered by a Wireless Under Glass Meter or an Interval Data Meter of billing quality. Such metering equipment shall be furnished, installed, maintained and owned by the Company. The ROA customer shall be required to pay the System Access Charge, as provided for under the ROA customer's otherwise applicable Company Full Service rate, for all such metering equipment.

The ROA Customer with an Interval Data Meter shall be responsible for (i) the communication links that allow access to the meter data by the Company and are compatible with the Company's metering and billing systems, and (ii) all associated costs relating to the communication links including other accompanying equipment and monthly fees.

## RETAILER

### Monthly Rate - Retailer:

#### Transmission Service:

Subject to Rule E1.5, Transmission Service must be obtained from the appropriate transmission service providers and the charges for such service shall be as specified in the Applicable FERC Open Access Tariff.

#### Real Power Losses:

The Retailer is responsible for replacing Real Power Losses as shown below on the Company's Distribution System associated with the movement of Power and for compensation for losses.

	Meter Point	
	High Side	Low Side
Customer Voltage Level 1	0.000%	<u>0.999</u> <del>0.728</del> %
Customer Voltage Level 2	<u>1.324</u> <del>1.325</del> %	<u>2.338</u> <del>2.189</del> %
Customer Voltage Level 3	<u>3.175</u> <del>3.329</del> %	<u>7.605</u> <del>8.082</del> %

(Continued on Sheet No. E-27.00)

1. Tariff Sheet No. C-4.00 – Rule C1 – **Characteristics of Service** – Updated Contribution in Aid of Construction Allowance Sheet.
2. Tariff Sheet No. C-10.00 – Rule C4.1 – **Classes of Service** – Added language to authorize a renewable energy generation facility spanning multiple parcels to transmit service off the premises to which it is delivered.
3. Tariff Sheet Nos. C-13.00 and C-14.00 – Rule C4 – **Application of Rates** – No changes are proposed to these tariffs, they are referenced in direct testimony.
4. Tariff Sheet No. C-15.00 – Rule C4.4 – **Resale** – Revised all inclusive rate per kWh for resale.
5. Tariff Sheet No. C-36.00 – Rule C8 – **Power Supply Cost Recovery (PSCR) Clause** – Updated the PSCR adjustment factor.
6. Tariff Sheet Nos. C-54.00, C-76.00, D-66.00, D-82.00, E-22.00, E-24.00 and E-26.00 – **Line Loss Factors** – Updated line loss factors.
7. Tariff Sheet No. C-64.10 and C-64.30 through C-64.50 – Rule C11.3 – **Distributed Generation Program** – Added definitions for Outflow Demand for Secondary Rate Customers and Outflow Demand for Primary Rate Customers and revised Full Service Customers Outflow Credit.
8. Tariff Sheet Nos. D-2.10, D-14.00, D-16.00, D-17.00, D-36.00, D-38.00, D-40.00, D-42.00, D-43.00, D-44.10, D-45.00, D-46.00, D-48.00, D-49.00, D-50.00, D-51.00, D-53.00, D-55.00, D-56.00, D-57.00, D-59.00 through D-63.00, D-66.00, D-71.00, D-72.00, D-75.00, D-76.00, D-77.00, D-82.00, D-83.00, D-84.00, D-85.00, D-86.00, D-90.00, D-94.00, D-94.10, D-96.00 – **Rate Schedules** – Revised prices.
9. Tariff Sheet No. D-4.00 – **Surcharges** – Added Demand Response Reconciliation Surcharge.
10. Tariff Sheet Nos. D-9.00, D-16.00, D-37.00, D-38.00, D-41.00 and D-42.00 – **Peak Power Savers – Device Cycling Program** – Revised name of program to Device Cycling Program and added the Water Heater Cycling Credit and the Back-Up Generator Cycling Credit.
11. Tariff Sheet Nos. D-58.00, D-64.00, D-69.00, D-73.00, D-74.00, D-78.00 – **Term and Form of Contract** – modified to eliminate the written contract requirement for standard service on Large General Service Primary Demand Rate GPD, General Service Primary Time-of-Use Rate GPTU and Energy Intensive Primary Rate EIP.
12. Tariff Sheet No. D-64.00 – **Interruptible Service Provision (GI)** – removed language stating that the minimum On-Peak Billing Demand billed for the interruptible portion of the bill is the contracted interruptible amount and modified language to adjust the contracted amount within the annual contract period.
13. Tariff Sheet Nos. D-90.10, D-90.20, D-94.20 and D-94.30 – **Universal Unmetered Streetlighting Rates** – added final Universal Unmetered Streetlighting Rates, effective for service rendered on and after July 1, 2022 to General Service Unmetered Lighting Rate GUL and General Unmetered Lighting Emitting Diode Lighting Rate GU-LED.
14. Tariff Sheet No. E-16.00 – **Rule E3. Retailer Section** – added language to accommodate retailer specific requests that require modification to the Company’s billing system and existing metering arrangements between the Company and eligible retailers.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**SCOTT J. BARTHOLOMEW**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**Schedule: B-5.5**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Capital Expenditures

Operations Support

Summary of Actual and Projected Capital Expenditures

(\$000)

Case No.: U-20963  
Exhibit No.: A-12 (SJB-1)  
Schedule: B-5.5  
Page: 1 of 1  
Witness: SJBartholomew  
Date: March 2021

Line No	(a) Description	(b) Historical Year 12 Mos Ended 12/31/2019	(c) Projected Bridge Year			(e) 24 Mos Ending 12/31/2021	(f) Projected Test Year 12 Mos Ending 12/31/2022
			(d)				
			12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	12 Mos Ended 12/31/2021		
1	<b>Asset Preservation</b>	<b>20,492</b>	<b>33,139</b>	<b>24,339</b>	<b>57,478</b>	<b>83,439</b>	
	Contractor	15,369	26,776	19,666	46,442	67,419	
	Labor	1,844	2,253	1,655	3,908	5,674	
	Materials	2,049	2,320	1,704	4,024	5,841	
	Business Expenses	205	332	243	575	834	
	Contingency	-	-	-	-	-	
	Other (Loadings, Chargebacks)	1,025	1,458	1,071	2,529	3,671	
2	<b>Other Equipment</b>	<b>474</b>	<b>433</b>	<b>266</b>	<b>699</b>	<b>266</b>	
	Contractor	28	26	16	42	16	
	Labor	-	-	-	-	-	
	Materials	446	407	250	657	250	
	Business Expenses	-	-	-	-	-	
	Contingency	-	-	-	-	-	
	Other (Loadings, Chargebacks)	-	-	-	-	-	
3	<b>Total Capital</b>	<b>20,966</b>	<b>33,572</b>	<b>24,605</b>	<b>58,177</b>	<b>83,705</b>	

**MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Summary of Actual & Projected Operations Support O&M Expenses  
For the Year 2019 and Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-18 (SJB-2)  
Page: 1 of 2  
Witness: SJBartholomew  
Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
1	<b>Facilities</b>	<b>12,823</b>	<b>12,740</b>
	Labor	3,317	3,707
	Non-Labor Other	9,506	9,033
2	<b>Real Estate</b>	<b>1,825</b>	<b>2,310</b>
	Labor	978	1,450
	Non-Labor Other	847	860
2	<b>Administrative Operations</b>	<b>1,672</b>	<b>1,504</b>
	Labor	683	489
	Non-Labor Other	990	1,015
3	<b>Total Operations Support O&amp;M Expenses</b>	<b>\$ 16,321</b>	<b>\$ 16,554</b>
	Labor	4,977	5,646
	Non-Labor Other	11,343	10,908

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Description	2019 Actual	Base O&M for Inflation 12 Mos Ending Dec 31, 2019	Inflation 12 Mos Ending Dec 31, 2020	Base O&M for Inflation 12 Mos Ending Dec 31, 2020	Inflation 12 Mos Ending Dec 31, 2021	Base O&M for Inflation 12 Mos Ending Dec 31, 2021	Inflation for the 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
				(c) * Inflation Rate		(e) * Inflation Rate		(g) * Inflation Rate		(b) + (d) + (f) + (h) + (i)
1	Facilities	12,823	1,659	53	11,629	54	12,812	58	-248	12,740
	Labor	3,317	1,659	53	1,692	54	1,819	58	225	3,707
	Non-Labor Other	9,506	0	0	0	0	0	0	-473	9,033
2	Real Estate	1,825	978	31	2,077	36	2,261	45	373	2,310
	Labor	978	978	31	1,113	36	1,405	45	360	1,450
	Non-Labor Other	847	0	0	0	0	0	0	13	860
3	Administrative Operations	1,672	683	22	1,608	22	1,490	15	-228	1,504
	Labor	683	683	22	697	22	474	15	-253	489
	Non-Labor Other	990	0	0	0	0	0	0	25	1,015
4	Total Operations Support O&M Expenses	\$ 16,321	\$ 3,319	\$ 106	\$ 15,314	\$ 112	\$ 16,563	\$ 118	\$ (103)	\$ 16,554
	Labor	4,977	3,319	106	3,501	112	3,698	118	332	5,646
	Non-Labor Other	11,343	0	0	0	0	0	0	-435	10,908

## Michigan Public Service Commission

Consumers Energy Company

Detailed List of Projected Electric &amp; Common Capital Expenditures

For the Years 12 months ending 12/31/2021 and 12 months ending 12/31/2022

(\$000)

Case No: U-20963

Exhibit No: A-19 (SJB-3)

Page: 1 of 1

Witness: SJBartholomew

Date: March 2021

Line No.	Program Description	12 months ending 12/31/2021 Projected	12 months ending 12/31/2022 Projected
1	Wellness Equip	\$ 51	\$ 51
2	Computer Equipment	\$ 18	\$ 18
3	Print Equipment	\$ 43	\$ 43
4	Real Estate Survey Equip	\$ 10	\$ 10
5	Supply Chain Equip	\$ 101	\$ 101
6	Facilities Tools	\$ 43	\$ 43
7	Asset Preservation - FIIB	\$ 1,719	\$ 967
8	Statewide Paving	\$ 2,871	\$ 714
9	Statewide Roofing	\$ 4,860	\$ 5,561
10	Statewide Mechanical/Electrical	\$ 1,946	\$ 3,188
11	Statewide Elevators	\$ 1,105	\$ 1,464
12	Furniture	\$ 624	\$ 624
13	Unified Control Center	\$ 840	\$ 24,162
14	Lansing Service Center	\$ 2,169	\$ 13,555
15	Hastings Service Center	\$ 542	\$ 5,693
16	Electric North East B		\$ 250
17	Kalamazoo Service Center	\$ 1,119	\$ 15,527
18	Parnall Renovation	\$ 2,256	\$ 2,932
19	EV Charging Stations	\$ 264	\$ -
20	Return to Facilities	\$ 4,025	\$ 5,677
21	Marshall Sub-Metro Training Building	\$ -	\$ 3,125
22	<b>TOTAL CAPITAL EXPENDITURES</b>	<b>\$ 24,605</b>	<b>\$ 83,705</b>

Exhibit Lines:

Other Equipment

Asset Preservation

Witness: SJBartholomew  
Date: March 2021

Item	2021 - Total		2021 - Electric		2022 - Total		2022 - Electric		2023 - Total		2023 - Electric		2024 - Total		2024 - Electric		Subtotals - Electric Only
	Plan	Only	Plan	Only	Plan	Only	Plan	Only	Plan	Only	Plan	Only	Plan	Only	Plan	Only	
Budget per year	\$1,000,000		\$28,764,660		\$38,268,692		\$32,383,096		\$100,416,448								
Design Engineering	\$850,000		\$1,000,000		\$250,000				\$2,350,000								2.3%
Fiber optic service			\$5,000,000						\$5,000,000								5.0%
Site infrastructure			\$4,764,660						\$5,764,660								5.7%
Building construction			\$9,500,000		\$22,018,692		\$1,000,000		\$36,651,788								36.5%
Commissioning					\$1,000,000		\$500,000		\$1,500,000								1.5%
Furnishings					\$3,500,000		\$500,000		\$4,000,000								4.0%
IT equipment and systems									\$15,000,000								14.9%
Loadings/AFUDC	\$150,000		\$8,500,000		\$11,500,000		\$10,000,000		\$30,150,000								30.0%
<b>Subtotals</b>	<b>\$1,000,000</b>	<b>\$840,000</b>	<b>\$28,764,660</b>	<b>\$24,162,314</b>	<b>\$38,268,692</b>	<b>\$32,145,701</b>	<b>\$32,383,096</b>	<b>\$27,201,801</b>	<b>\$100,416,448</b>	<b>\$84,349,816</b>	<b>100.0%</b>						

**Unified Control Center**  
**Facilities Benefits**

Space	Current Location	Area	Current Operating Cost per Square Foot	Current Operating Cost	Anticipated Operating Cost per Square Foot	Anticipated Operating Cost
Emergency Operations Center (EOC)	Parnall P0	10,250 sf	\$9.78	\$100,245	\$5.75	\$58,938
Gas Control	Parnall P1-1	4,580 sf	\$9.78	\$44,792	\$5.75	\$26,335
Gas Dispatch	Jackson	1,650 sf	\$3.95	\$6,518	\$5.75	\$9,488
Gas Dispatch	Saginaw	1,565 sf	\$4.78	\$7,481	\$5.75	\$8,999
Gas Dispatch	Royal Oak	2,765 sf	\$4.78	\$13,217	\$5.75	\$15,899
Merchant Operations	Parnall P1-2	3,096 sf	\$9.78	\$30,279	\$5.75	\$17,802
System Control Center	Parnall East	16,475 sf	\$9.78	\$161,126	\$5.75	\$94,731
Distribution Control Center	Grand Rapids	4,075 sf	\$4.85	\$19,764	\$5.75	\$23,431
Work Management Center - East	Saginaw	5,765 sf	\$4.78	\$27,557	\$5.75	\$33,149
Work Management Center - Metro	Royal Oak	3,095 sf	\$6.70	\$20,737	\$5.75	\$17,796
Work Management Center - South	Jackson	3,335 sf	\$3.95	\$13,173	\$5.75	\$19,176
Work Management Center - West	Grand Rapids	6,845 sf	\$4.85	\$33,198	\$5.75	\$39,359
Total Area Unified Control Center		63,496 sf		\$478,085		\$365,102
Anticipated Annual O&M Cost Reduction						\$112,983

**MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company**Unified Control Center****Facilities Cost Data**

Case No.: U-20963

Exhibit No.: A-21 (SJB-5)

Page: 2 of 2

Witness: SJBartholomew

Date: March 2021

Current Locations	Building Area	Current Operating		Operating
		Cost		Cost per Square Foot
Parnall	321,844 sf	\$3,149,008		\$9.78
Parnall	321,844 sf	\$3,149,008		\$9.78
Jackson	190,327 sf	\$751,499		\$3.95
Saginaw	182,505 sf	\$872,323		\$4.78
Royal Oak	120,447 sf	\$806,934		\$6.70
Parnall	321,844 sf	\$3,149,008		\$9.78
Parnall East	321,844 sf	\$3,149,008		\$9.78
Grand Rapids	174,902 sf	\$848,136		\$4.85
Saginaw	182,505 sf	\$872,323		\$4.78
Royal Oak	120,447 sf	\$806,934		\$6.70
Jackson	190,327 sf	\$751,499		\$3.95
Grand Rapids	174,902 sf	\$848,136		\$4.85
Total	2,623,738 sf	Average \$/SF		\$6.64

Facility Assessment - Lansing Service Center

Location	Lansing	Maximum Possible Points (80)	Servicable > 48 Points	Poor < 48 Points	Good > 64 Points
Zone	MMOM				
<b>Safety</b>					
Compatible Use	0	5	3	2	4
Site Conditions	3	5	3	2	4
Traffic/Site Flow	1	5	3	2	4
Environmental Hazard	1	5	3	2	4
<b>Quality</b>					
Branding	2	5	3	2	4
Workplace Efficiency	3	5	3	2	4
Years since last major systems upgrade	0	5	3	2	4
<b>Cost</b>					
Facility Operating Costs	4	5	3	2	4
Non Facility Cost Impact	4	5	3	2	4
Space Optimization	3	5	3	2	4
<b>Delivery</b>					
Drive Time	3	5	3	2	4
Customer Response	4	5	3	2	4
Sustainability	1	5	3	2	4
<b>Morale</b>					
Employee Pride	2	5	3	2	4
Retention	3	5	3	2	4
Wellness	5	5	3	2	4
<b>Total</b>	<b>39</b>	<b>80</b>	<b>48</b>	<b>32</b>	<b>64</b>

**Instructions:**

Refer to 'Scoring Criteria' tab for basis to be used in determining score.

Input numerical score into selected cell, the cell will automatically highlight with the correct color.

Total score for site will calculate automatically.

**Score Scoring Guidelines: General**

- 0 Does not satisfy criteria
- 1 Does not satisfy most listed criteria
- 2 Does not satisfy some listed criteria
- 3 Satisfies minimal criteria
- 4 Satisfies most listed criteria
- 5 Satisfies all listed criteria

Facility Assessment - Kalamazoo Service Center

Location	Kalamazoo	Maximum Possible Points (80)	Servicable > 48 Points	Poor < 48 Points	Good > 64 Points
Zone	SWOM				
<b>Safety</b>					
Compatible Use	4	5	3	2	4
Site Conditions	5	5	3	2	4
Traffic/Site Flow	3	5	3	2	4
Environmental Hazard	0	5	3	2	4
<b>Quality</b>					
Branding	3	5	3	2	4
Workplace Efficiency	3	5	3	2	4
Years since last major systems upgrade	0	5	3	2	4
<b>Cost</b>					
Facility Operating Costs	5	5	3	2	4
Non Facility Cost Impact	4	5	3	2	4
Space Optimization	1	5	3	2	4
<b>Delivery</b>					
Drive Time	3	5	3	2	4
Customer Response	4	5	3	2	4
Sustainability	1	5	3	2	4
<b>Morale</b>					
Employee Pride	1	5	3	2	4
Retention	4	5	3	2	4
Wellness	5	5	3	2	4
<b>Total</b>	<b>46</b>	<b>80</b>	<b>48</b>	<b>32</b>	<b>64</b>

**Instructions:**

Refer to 'Scoring Criteria' tab for basis to be used in determining score.

Input numerical score into selected cell, the cell will automatically highlight with the correct color.

Total score for site will calculate automatically.



Facility Assessment - Hastings Service Center

Location	Hastings		Maximum Possible Points (80)	Servicable > 48 Points	Poor < 48 Points	Good > 64 Points
Zone	SWOM					
<b>Safety</b>						
Compatible Use	4		5	3	2	4
Site Conditions	4		5	3	2	4
Traffic/Site Flow	2		5	3	2	4
Environmental Hazard	3		5	3	2	4
<b>Quality</b>						
Branding	3		5	3	2	4
Workplace Efficiency	3		5	3	2	4
Years since last major systems upgrade	1		5	3	2	4
<b>Cost</b>						
Facility Operating Costs	0		5	3	2	4
Non Facility Cost Impact	4		5	3	2	4
Space Optimization	2		5	3	2	4
<b>Delivery</b>						
Drive Time	4		5	3	2	4
Customer Response	3		5	3	2	4
Sustainability	3		5	3	2	4
<b>Morale</b>						
Employee Pride	1		5	3	2	4
Retention	3		5	3	2	4
Wellness	1		5	3	2	4
<b>Total</b>	<b>41</b>		<b>80</b>	<b>48</b>	<b>32</b>	<b>64</b>

**Instructions:**

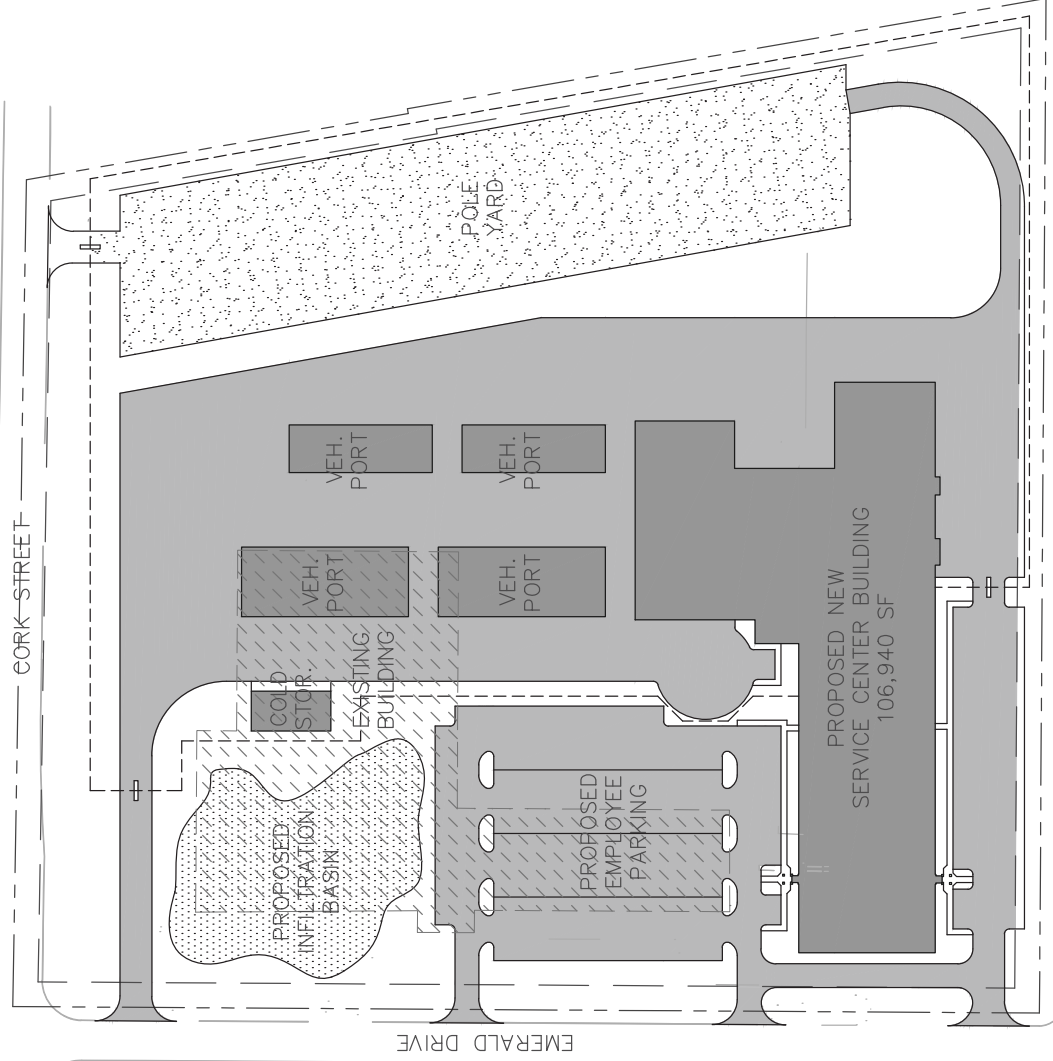
Refer to 'Scoring Criteria' tab for basis to be used in determining score.

Input numerical score into selected cell, the cell will automatically highlight with the correct color.

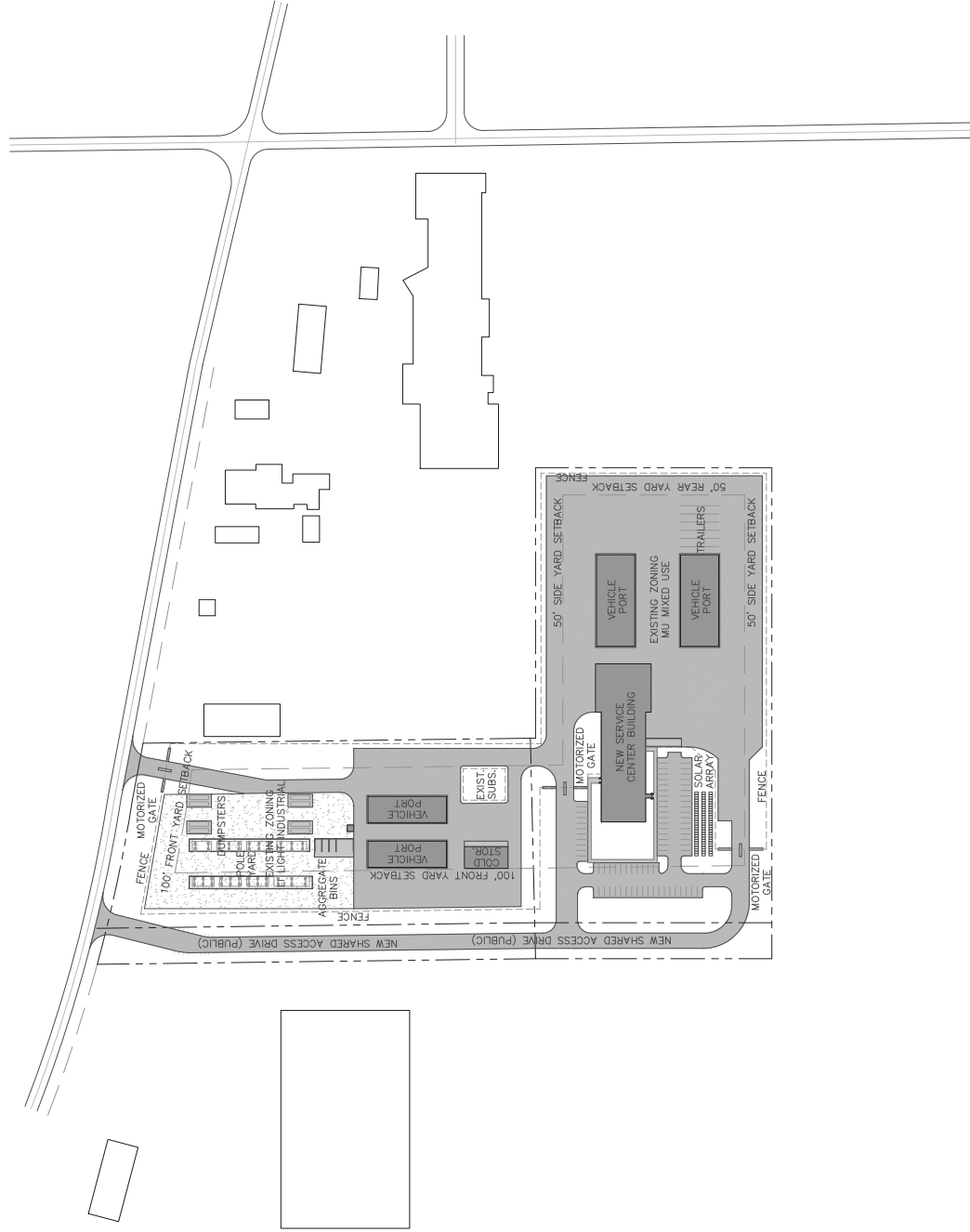
Total score for site will calculate automatically.

**Score Scoring Guidelines: General**

- 0 Does not satisfy criteria
- 1 Does not satisfy most listed criteria
- 2 Does not satisfy some listed criteria
- 3 Satisfies minimal criteria
- 4 Satisfies most listed criteria
- 5 Satisfies all listed criteria



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CONCEPTUAL SITE PLAN  
SCALE: 1" = 100'

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MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company

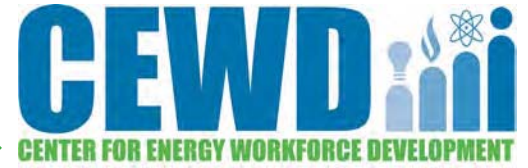
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Lansing/Kalamazoo/Hastings Service Centers - Construction Cost

Location	Existing Floor Area	Number of Employees	Type of Operations	Electric Allocation	Gas Allocation	Projected Total Plan Cost 2020	Projected Electric Cost 2020	Projected Gas Cost 2020	Projected Total Plan Cost 2021	Projected Electric Cost 2021	Projected Gas Cost 2021	Projected Total Plan Cost 2022	Projected Electric Cost 2022	Projected Gas Cost 2022	Projected Total Plan Cost 2023	Projected Electric Cost 2023	Projected Gas Cost 2023	Projected Total Cost
Lansing SC	150,594 SF	412	Electric Operations, Gas	54%	46%	\$1,782,689	\$966,574	\$816,115	\$4,000,000	\$2,168,800	\$1,831,200	\$25,000,000	\$13,555,000	\$11,445,000	\$24,000,000	\$13,012,800	\$10,987,200	\$54,782,689
Kalamazoo SC	140,884 SF	248	Electric Operations, Gas	54%	46%	\$1,618	\$877	\$741	\$2,063,673	\$1,118,924	\$944,749	\$28,637,665	\$15,527,342	\$13,110,323	\$21,307,751	\$11,553,063	\$9,754,688	\$52,010,707
Hastings SC	12,317 SF	44	Electric Operations, Gas	54%	46%	\$4,574	\$2,480	\$2,094	\$1,000,000	\$542,200	\$457,800	\$10,500,000	\$5,693,100	\$4,806,900	\$9,000,000	\$4,879,800	\$4,120,200	\$20,504,574

Location	Item	Total Plan Cost 2020	Total Plan Cost 2021	Total Plan Cost 2022	Total Plan Cost 2023	Total Cost
Lansing SC	Engineering		\$1,500,000			
	Land Acquisition	\$1,782,689				
	Construction		\$2,500,000	\$25,000,000	\$20,750,000	
	Furnishings				\$3,000,000	
Kalamazoo SC	Commissioning				\$250,000	\$54,782,689
	Engineering	\$1,618	\$2,063,673			
	Land Acquisition					
	Construction			\$28,637,665	\$18,057,751	
Hastings SC	Furnishings				\$3,000,000	
	Commissioning				\$250,000	\$52,010,707
	Engineering	\$4,574				
	Land Acquisition		\$1,000,000			
	Construction			\$10,500,000	\$7,400,000	
	Furnishings				\$1,500,000	
	Commissioning				\$100,000	\$20,504,574

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# State of the Energy Workforce 2018



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## Introduction

The Center for Energy Workforce Development (CEWD) is a nonprofit national organization that brings together the best from the energy industry, education, government, and communities to deliver a single mission: **build the alliances, processes, and tools to develop tomorrow's energy workforce**.

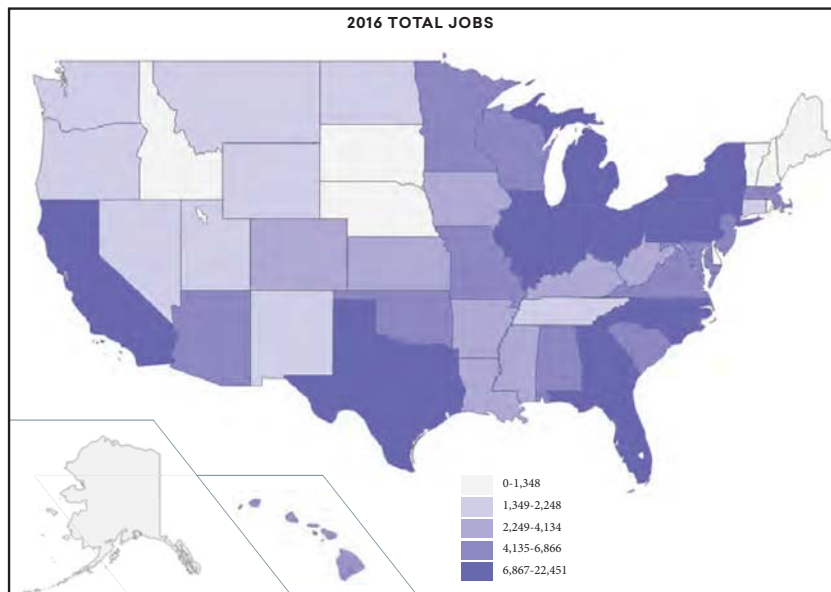
Originally formed by a few large members of the electric utility industry in 2006 to address concerns about an aging skilled workforce, CEWD members today include more than 100 electric and natural gas utilities, six trade associations (Edison Electric Institute, American Gas Association, Nuclear Energy Institute, National Rural Electric Cooperative Association, American Public Power Association, and Distribution Contractors Association), large supplemental contractors, and unions (IBEW and UWUA).

As the only national organization focused solely on attracting and developing a diverse, qualified workforce for the industry, CEWD has grown in its capability to deliver proven workforce development solutions, curriculum, tools, and data that improve the rate and quality of hiring into industry jobs. Its network and system for documenting and sharing across states and regions results in significant savings of time and money for its members and reinforces its foundational approach: **Industry Solutions / Regional Implementation**.

In early 2018, the CEWD Board of Directors took a fresh look at the national factors impacting the industry's ability to attract and retain a diverse, qualified workforce. The review of these industry **Game Changers** was both enlightening and sobering, in part because of the amount and degree of change noted since the last review in 2016.

The Board noted that transformational change in the industry will continue to pose significant risks for the viability of tomorrow's energy workforce.

The good news is that CEWD and its members are better positioned than ever before to identify and address the challenges and turn them into opportunities for the benefit of the industry and its workforce.



## Harvard Business School Case Study – Lessons Learned

CEWD's impact on workforce development in the energy industry was acknowledged in 2018 when the Harvard Business School approached CEWD Executive Director Ann Randazzo about developing a case study. In partnership with Harvard, and citing it as “the highlight of my career,” Randazzo brought to life for future business students the mission, approach, and results of CEWD, gleaned from leading the Center since its beginning. Asked by Harvard to summarize all of that learning in one page, Randazzo offered the following:

**First, make a plan...and then find partners and resources to implement the plan.** It's tempting to jump in for some “quick wins” but real change comes from deliberate strategic workforce planning, whether it's at a national, state, or company level. The process starts with a look at what the future may hold, and then identifying critical groups of jobs that will be impacted. And the plan has to include numbers—where are you now and what is the forecast. From that point, you can develop targeted workforce strategies with accountability for implementation and measurement.

**Collaborate in the classroom – compete on the grid.** CEWD started with the question, “What can we do better together?” Collaborating in the classroom is at the top of the list. Competition isn't an effective workforce development strategy, especially when considering how early you have to start in education. Students aren't deciding who they are going to work for in elementary school, but girls are deciding whether they like Math and Science and all students are making academic and behavior choices that will include or exclude them from certain career pathways. When competing companies collaborate to build a larger talent pool, everyone benefits.

**Industry Solutions – Regional Implementation.** Anyone familiar with CEWD knows this is at the heart of our approach. While every company is different, and every state's energy workforce challenges are different, experience has shown that there are shared challenges and issues regardless of size, geography, or business model. Providing proven solutions at a national level that can be adapted to regional differences ensures that a company or a consortium will not have to spend the time and money to start from scratch.

**The pathway doesn't end at hiring.** True career pathways don't end once an individual is hired, but continue with training, employee development, and retention strategies throughout a career. The feedback loop between industry and education must continue with data and information on the success of hires and changes in skill requirements. In that way, education initiatives will be constantly improving and sustainable over time. Education, community, and government partnerships are critical to success, but industry must be involved all along the way.

In the following pages, we address each of these areas in greater detail through the CEWD Strategic Planning Framework of Workforce Planning, Career Awareness, Education, and Structure and Support.

# Chapter 1:

## *The Energy Industry*

*The Energy Industry Today*

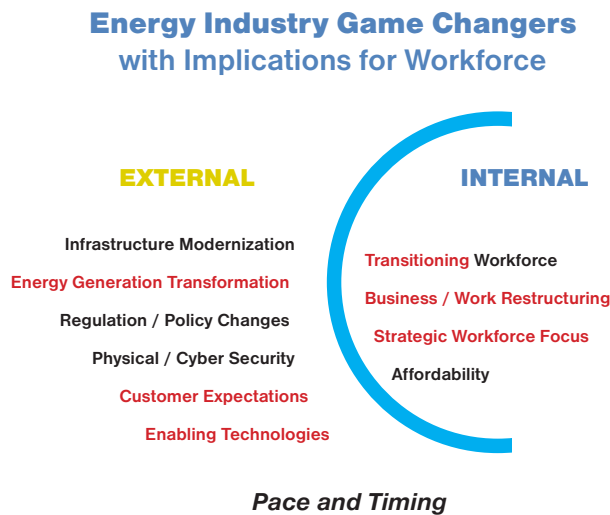
*Implications for Workforce Development*

*Addressing the Challenges*

## The Energy Industry Today

Today's energy workforce is in the midst of significant transformation, driven in large part by the industry's Game Changers, which this report explores in depth in Chapter 2. The skills requirements of the workforce are being impacted in ways not seen in CEWD's history.

Industry Game Changers have been part of CEWD's lexicon for many years and represent the potential for significant shifts in size, skills, and knowledge requirements of the current and future energy workforce. All of these changes can impact a company's ability to create and maintain a talent pipeline of qualified and diverse workers and to deliver on the company's business plan. Companies that are in the midst of infrastructure changes, building or closing plants, or implementing new technologies may have pressing current workforce needs. Others may be planning changes that will not be fully implemented for 5 to 10 years but will have tremendous impact on skill requirements. At a company level, addressing the workforce impact of these Game Changers in many cases means changing the work before changing the workforce.



CEWD's Board of Directors reviewed the industry Game Changers and their workforce impacts in 2018. The 2018 review shows significant differences (in red) from the last edition in 2016. Both the External and Internal Game Changers indicate a shift to an industry that is more rapidly transforming, with technology playing an increasingly important role. The energy workforce is also changing with a younger and more diverse workforce that is increasingly digitally literate. This transitioning workforce, along with advances in education technology, can position the industry to meet the challenges of the future.

The continued move to a more digitized electric and natural gas infrastructure is at the heart of this change. With more smart technology installed, system and customer data are being produced at a rate never before seen. Coupled with Enabling Technologies such as artificial intelligence, machine learning, and robotics, companies are developing the capability and capacity to anticipate and meet energy customers' growing expectations and needs. This interconnectivity also means energy companies must be more vigilant than ever to cyber threats and attacks.

## Implications for Workforce Development

The updated National Strategic Workforce Plan takes a notably broader view of impacted energy jobs, beyond the critical job categories of lineworkers, plant and field operators, technicians, and engineers explored in past Workforce Plans. A key difference in the 2018 analysis from past Game Changer reviews is the underlying impact of the *nature* of today's workforce—younger, transitory, more tech savvy, less likely to build a career with one company. These impacts are seen affecting all categories of jobs analyzed by CEWD and its members.

What are the potential implications for CEWD and its members?

**First, the way CEWD has traditionally defined the workforce is changing and will no doubt continue to change.** Workforce development efforts are growing beyond lineworkers, technicians, plant/field operators, and engineers. The more accurately CEWD can define the demand for the jobs that drive and support the industry and its traditional critical jobs, the better able we are to build an adequate supply of qualified, diverse talent for our industry.

**Second, competencies are key.** Workforce agility, mobility, and promotion are dependent on first mastering foundational competencies, whether they focus on employability, workplace requirements, or technical requirements. The work CEWD has done and continues to champion on building and measuring the effectiveness of workforce competencies has never been more important in today's energy workplace. Equally important is our members' recognition of those competencies in the hiring process.

**Third, the interconnections between skill requirements across the key jobs, support services, and contractors shouldn't be ignored.** Education, on-the-job training, and knowledge transfer are all creating a more fluid workforce, which offers greater flexibility to companies and potentially higher rewards to those who can adapt or change quickly to meet their company's needs.

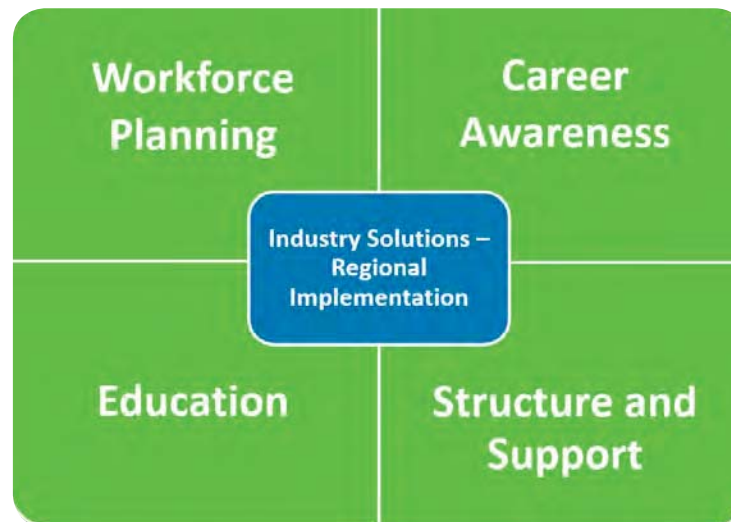
**Fourth, companies must either build, or ensure they have capacity to retrain, their workers and transfer knowledge.** Equally important, employees who have a thirst for learning and are willing to be proactive in their learning and growth will be the winners in the race. In today's workforce, there is no room for complacency.

**Finally, technology is king.** The use of technology—and the changes to technology—have progressed beyond evolutionary and border on revolutionary. Even as the technology needed to do these critical jobs is changing at light speed, the industry must think about on-the-job training, just-in-time training, and knowledge transfer as necessities that can be delivered with technology.

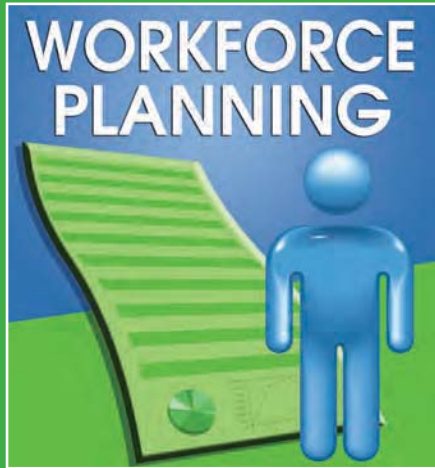
## Addressing the Challenges

The more the workforce development picture changes, and the more quickly the industry transforms, the clearer it becomes that **planning** is the key. After more than a decade of pressure-testing, CEWD's Strategic Plan Framework continues to encompass all of the areas a solid workforce development strategy must address.

Companies and State Energy Workforce Consortia that put focused resources in the four pillars of the framework—Workforce Planning, Career Awareness, Education, and Structure and Support—are significantly more able to not only meet their workforce challenges but turn challenge into opportunity.



The next chapter explores Workforce Planning, taking a deep dive into the Game Changers and National Strategic Workforce Plan and the results of CEWD's most recent Gaps in the Workforce Pipeline Survey, two critical inputs to CEWD's national strategy.



**Objective:** Balance the supply and demand for a qualified and diverse energy workforce.

## Chapter 2: *Workforce Planning*

### *Workforce Planning*

- The CEWD Strategic Planning Model
- 2018 Industry Game Changers and Workforce Implications

### *Workforce Analytics*

- CEWD 2017 Gaps in the Energy Workforce Pipeline Survey Results

### *Workforce Development*

- Get Into Energy Pathways Assessment Tool for Employers

### *Knowledge Transfer & Retention*

### *Execution & Metrics*

- Defining Workforce Development Value

### *Plan Development in State Consortia*

- Strategic Plan Framework for State Consortia

### *Promising Practices in Workforce Planning*

## Workforce Planning

One of the most important things CEWD and its members have learned over the past decade is the importance of strategic workforce planning—and more importantly, **beginning** with a plan.

The Essential Elements of Workforce Planning Model addresses four important quadrants: **Business Planning**, **Workforce Analytics**, **Workforce Development**, and **Execution & Metrics**. One of the first steps is to gain an accurate understanding of strategic workforce priorities and implications and then perform an assessment of the risk associated with them. Secondly, it's critically important to be able to forecast your talent needs in light of the risks.

CEWD maintains the National Strategic Workforce Plan and also provides a Strategic Workforce Planning Template for CEWD member companies (<https://cewd.org/wizard/workforce-planning/>) and a Strategic Planning Workshop Template for State Energy Workforce Consortia (<http://cewd.org/documents/wizard/documents/StrategicPlanningWorkshop-NationalTemplate.pdf>) to help the consortia develop a plan for their state.

More about plan development and the availability of tools to help assess priorities and develop metrics is detailed later in this chapter. But first it's important to understand the quadrants of the model and, within the quadrants, two long-standing areas of documentation that inform CEWD's National Strategic Workforce Plan: the **Industry Game Changers** and the **Gaps in the Energy Workforce Pipeline Survey**.



Within the Strategic Workforce Planning Template, each phase of the Essential Elements model is designed to capture critical information.

The **Business Planning** phase is intended to answer the following:

- What are the internal and external Game Changers affecting our business?
- Does your company have the people, processes, and support in place to implement Strategic Workforce Planning?
- What are the workforce requirements to address current and future business strategies?
- What new skills will be required?
- What are the critical jobs that need to be analyzed?
- What are the risks?



CEWD systematically practices workforce planning at the national level. In March 2018, repeating the practice of two years past, the CEWD Board of Directors and Executive Council conducted an extensive review of industry Game Changers and the potential impacts for the energy workforce. As had occurred in 2016, the review led to some significant changes in both the Game Changers themselves and the risk analysis. Following is a detailed review of the 2018 Game Changers.

## The 2018 National Strategic Workforce Plan and Industry Game Changers

### Workforce Impact Summary

Just as energy companies are balancing the mix of generation and delivery of energy between centralized and distributed resources, today's energy workforce is beginning to mirror that same trend. The centralized workforce is decreasing, but the decentralized workforce appears to be growing. In the last decade, the overall number of employees in Electric and Natural Gas Utilities has declined, with the largest contributor to the overall job decline in support and corporate jobs. Key Jobs that include Lineworkers, Technicians, Plant/Field Operators, and Engineers have remained steady. However, the overall size of the energy industry is growing as contractors and suppliers that provide supplemental labor, specialized expertise, renewable and distributed generation, energy efficiency, and new technology grow to support the energy industry's emerging needs.

*"Competencies like problem solving, critical thinking, teamwork, collaboration, and the ability to learn are equally as important as technical skills in addressing the workforce needs."*

Because the pace and timing of change varies with companies, geography, and regulation, the industry must continue to develop a workforce with skills for traditional energy production and delivery as well as developing capabilities for the future. While the focus in the past has been more on the size of the workforce, this analysis points to a growing concern with skill gaps for both the incoming and the incumbent industry workforce.

Both new and incumbent employees must have strong foundational skills that range from academic skills like Science, Technology, Engineering, and Math (STEM) to employability and technical skills, so the impacts on internal technical training organizations must also be factored in. Competencies like problem solving, critical thinking, teamwork, collaboration, and the ability to learn are equally as important as technical skills in addressing the workforce needs.

With the growth and speed of changes in technology, the energy industry workforce must be able to adapt and learn new skills by building on a strong foundational knowledge. Incumbent workers in jobs that are changing have an increased need for up-skilling as their work changes. Education must adapt at the same pace, with both external and internal training that maps to critical competencies and the use of technology to speed up knowledge transfer and new learning.

The 2018 CEWD Strategic Workforce Plan takes a notably broader view of impacted jobs, beyond the critical job categories of Lineworkers, Plant/Field Operators, Technicians, and Engineers explored in past Workforce Plans. In calling attention to the segments of the workforce that support and/or transition into Key Jobs and the growing reliance on the utility's contingent workforce, we note in this summary the impact the Game Changers have on those jobs as well.

While the impact analysis suggests significant impacts to both size and skills for engineers, support workers, and contractors, the underlying impact of the *nature* of today's workforce—younger, transitory, more tech savvy, less likely to build a career with one company—is significant for all job categories.

*What are the potential implications for CEWD and its members?*

First, the way we have traditionally defined the workforce in the center of CEWD's bullseye is changing and will no doubt continue to change. Our target for workforce development efforts is growing beyond Lineworkers, Technicians, Plant/Field Operators, and Engineers. When we look at the need for Lineworkers nationally, we can no longer ignore that a significant percentage of the crew stringing line isn't employed by the utilities. When we think about who is actually digging the trench to lay a mile of pipe, we realize there are support workers who must be accounted for. The more accurately we can define the demand for the jobs that drive our industry, the better able we are to build an adequate supply of qualified, diverse talent for our industry.

Second, competencies are key. Workforce agility, mobility, and promotion are dependent on first mastering foundational competencies, whether they focus on employability, workplace requirements, or technical requirements. The work CEWD has done and continues to champion on building and measuring the effectiveness of workforce competencies has never been more important in today's energy workplace. Equally important is our members' recognition of those competencies in the hiring process.



Third, the interconnections between skill requirements across the Key Jobs, support services, and contractors shouldn't be ignored. Education, on-the-job training, and knowledge transfer are all creating a more fluid workforce, which offers greater flexibility to companies and potentially higher rewards to those who can adapt or change quickly to meet their company's needs.

Fourth, companies must either build—or ensure they have—capacity to retrain their workers and transfer knowledge. Equally important, employees who have a thirst for learning and are willing to be proactive in their learning and growth will be the winners in the race. In today's workforce, there is no room for complacency.

Finally, technology is king. The use of technology—and the changes to technology—have progressed beyond evolutionary and border on revolutionary. Even as the technology needed to do these critical jobs is changing at light speed, the industry must think about on-the-job training, just-in-time training, and knowledge transfer as necessities that can be delivered with technology.

### Workforce Impact Analysis Methodology

It's helpful to view the workforce risks and implications of Game Changers through an “impact” lens of size and skills:

- Is the **size** of the workforce likely to increase, decrease, or stay the same?
- Are the current **skills** required for the job adequate or will new skills be needed? And, if new skills are needed, will they be provided by the company or by an education provider?

CEWD has attempted to gauge which job categories are potentially most at risk for impact at a national level. While CEWD has historically defined Key Jobs narrowly, this assessment focuses attention on a broader definition of jobs, including support services that may be impacted, and the impact to the industry contractor workforce. Examples of support services jobs include Human Resources, Customer Service, Information Technology, Operations Support, and Supply Chain. Industry contractors include those involved in construction and maintenance of electric and natural gas infrastructure and generation.

It's important to note that some Game Changers (Regulation / Policy Changes, Business / Work Restructuring, Strategic Workforce Focus, and Affordability) can't be assessed at a national level because the impact is driven by individual company strategy, so risk assessments for those areas are not included.

For those areas where national implications can be inferred, the following paragraphs summarize the combination of size and skills impacts and provide a guide for focusing on job categories at the national level. The color coding is not intended to imply direction of impact (e.g. greater, lesser, more, fewer) but the potential for impact, which should be subject to greater analysis. Green indicates that, based on what we know today, the impact appears to be low. Red indicates that there appears to be potential for high impact compared to the current state and that greater analysis needs to be done to define the type and degree of impact for these particular jobs in relationship to this Game Changer.

## External Game Changers

### Infrastructure Modernization

The modernization of the electric and natural gas infrastructure is paving the way for two-way energy flow, interconnected devices and technologies, and access to data that is transforming the industry. The structure and operation of distribution systems is changing as smarter infrastructure is built and new distributed generation technologies, including microgrids, are deployed and integrated into the electric grid. Investing in a safe and reliable power grid is critical to the deployment of new technologies and maximizing the use of renewable energy.

With these new technologies comes the growth in customer expectations, and the need for individualized customer solutions to meet the needs of this new generation of customers. The smart meter is at the center of technologies that will provide access to data to enable decisions on what assets to build and when, anticipate customer needs, and manage the supply of energy from traditional and new sources.

The growing demand for natural gas driven by low gas prices is outpacing the interstate transportation and distribution systems across the country. Safety and reliability are paramount for the natural gas industry, and an aging infrastructure is drawing attention to the need to modernize the existing infrastructure and build new infrastructure to deliver natural gas.

## Workforce Impact

Infrastructure modernization impacts both the size and skills of the workforce. New digital technology in particular is impacting workforce size as a smarter grid requires a greater number to research, design, build, and protect the new technologies. Entirely new organizations are being created to handle this work. Both new and incumbent employees will need new skills and competencies to support interconnected devices and the two-way flow of electricity including telecommunications, networking, and distributed energy integration. These changes may drive the need to upskill segments of the incumbent transmission and distribution workforce, which could potentially impact existing technical training organizations. New technologies in training, like simulations and augmented and virtual reality, will support the need for continuous learning.

Infrastructure Modernization also has significant impact on workforce skills, not only for industry members but for their contractor partners. In particular, for natural gas transmission and distribution, building and repairing gas pipelines has caused a significant increase in the need for natural gas distribution contractor resources. Contractors struggle to attract enough welders, fusers, heavy equipment operators, and other workers to meet the needs of the utilities. Using contractors also impacts internal hiring needs of the utilities because utility employees manage the contracted projects.

Engineers have a significant role to play in modernizing our energy infrastructure. The need for degreed engineers to design new infrastructure is only expected to grow, and the skill requirements are changing. The need also precedes other jobs as engineers are needed to design the work before it can be built. In addition, the results of the CEWD Gaps in the Energy Workforce Pipeline Survey show a significant decrease in the number of mid-career engineers, which may reflect a knowledge loss risk as older engineers retire, and new engineers enter the workforce.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Energy Generation Transformation

Over the past decade, the shift to cleaner sources of energy generation has dramatically changed the energy industry landscape. Advancements in renewable energy, energy efficiency, and energy storage, coupled with the implementation of smart technologies, are driving this transformation of energy generation. Customer expectations for cleaner energy sources and the ability to connect customer sited generation from remote renewable sources, both large and small, have changed the game for energy companies.

Utilities are making significant investments to transition to a cleaner energy mix by expanding the use of gas, hydro, and renewable generation sources, and by improving energy efficiency. This move to reduce the use of carbon-based fuels is driving new construction, coal plant retirements and retrofits, and reinforces the industry's commitment to provide safe, reliable, clean, and affordable energy.

While regional differences still exist, this national shift to a more distributed and decentralized energy generation model has had similar impacts on the workforce. Positions that were once exclusively inside traditional utilities may now be part of a customer workforce or part of the utilities' new supply chain (no longer only materials or labor but generation and services as well).

## Workforce Impact

Engineers, Generation Technicians, and Plant/Field Operators are most impacted by the Energy Generation Transformation. As older plants close, and new generation facilities are built, skill requirements, workforce size, and geography must all be considered for degree of impact. Construction of new generation will have impacts for Engineers and Contractors, as well as for Generation Technicians and Plant/Field Operators to operate and maintain the new plants. Distributed generation will also have some impact on transmission and distribution for new distribution assets to aggregate the energy.

The industry has seen a significant number of plant closings to date, and more closings of both coal and nuclear plants are planned. CEWD's survey data has shown that generation employees in particular have not retired at the same rate as other job categories. Companies are now reporting an uptick in retirements as plants close, meaning fewer employees that are displaced. Incumbent employees are being retrained and redeployed, although there may not be a direct deployment of workers to other types of generation.

The closure of nuclear power plants and the uncertainty of future closures is having an impact on the size of both the utility and contractor workforces. As skilled nuclear workers from plants that have closed move to positions at other plants, there is a cascading effect on talent pipeline initiatives.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Regulation / Policy Changes

Federal and state regulatory mandates continue to influence energy companies' priorities and the workforce plans that support them. In this century alone, federal energy policy has seen significant shifts with presidential administrations. Mandates to reduce fossil fuel emissions and increase renewable energy sources have driven workforce reductions and development of extensive retraining and severance programs as fossil plants have been shuttered. Similarly, decommissioning of nuclear plants presents workforce challenges for engineering and technician specialties. But the impacts are localized as individual companies develop their own strategies to address these shifts in policy.



At the national level, administrative action to drive change in workforce policy appears to be gaining momentum. In 2018, the administration issued a report on national apprenticeship expansion and created the National Council for the American Worker, which is intended to ensure that American students and workers have access to affordable, relevant, and innovative education and job training. Additionally, in 2018 the administration reauthorized the Carl D. Perkins Career and Technical Education Act of 2006 through fiscal year 2023 under a new title, Strengthening Career and Technical Education for the 21<sup>st</sup> Century Act (Perkins V).

The Perkins Act is particularly important in aiding states' abilities to support low-income students from 8<sup>th</sup> grade through postsecondary education, in part through better alignment with other state programs, including the Workforce Innovation and Opportunity Act (WIOA) and Every Student Succeeds Act (ESSA).

While the implications for energy companies of these federally driven efforts aren't fully known at this point, other workforce policy issues are becoming part of the state-level workforce conversation for electric and natural gas utilities and their contractors.

**Career Pathways:** Although energy is not a national career cluster, some states have moved to create their own 17<sup>th</sup> career cluster in energy. In some states without a 17<sup>th</sup> career cluster, companies and their education partners are working with state leaders to implement energy career pathways. In those states, students in K–12 and postsecondary education, as well as individuals re-entering the workforce, are finding greater job-specific training opportunities with more direct entry options into electric and gas jobs.

**Sector Partnerships:** Sector partnerships, which convene multiple employers with education, training, labor, and community-based organizations to address the local skill needs of a particular industry, are a proven strategy for helping workers prepare for jobs and helping employers find skilled workers. The number of states with sector partnership policies has increased as states implement WIOA, which requires sector partnerships as a local workforce activity, and requires states to support those local efforts.

**Employment of individuals with criminal records:** According to a recent report by the Council of State Governments, an estimated 70 million people in America have a criminal record. Understanding and addressing these challenges requires the collaboration of employers, workforce development officials, and policy makers at every level of government. While a focus has emerged in many states to protect individuals with criminal records from discriminatory hiring practices, it's unclear whether the industry will take a proactive stance toward hiring individuals with criminal records, given federal security requirements and other regulatory issues.

**Employment of veterans:** According to a 2018 report by the Bureau of Labor Statistics, the unemployment rate for veterans who served on active duty in the U.S. Armed Forces at any time since September 2001 had edged down to 4.5 percent in 2017. Veterans remain a much sought-after demographic for the energy industry because military skills often align well to the requirements of our critical jobs. Increasing competition for qualified veterans across multiple industries is driving better state-level workforce planning and heightened outreach to veteran organizations, bases, and individual veterans.

**Employment of individuals with disabilities:** CEWD is seeing examples at the company level of successful recruiting and hiring of individuals with disabilities. One of the most important steps is to address the barriers to employment and recognize, first, the capabilities and qualifications the person brings to the organization, rather than the disability. Much work is underway at the state level to develop new ways to attract and engage this important population.

The impacts and timing of these more local policy issues will vary by state and sector, but each bear watching for workforce implications. Strategic workforce planning can significantly mitigate the financial, knowledge, safety, and timing risks of this and other less predictable Game Changers.

## Physical / Cyber Security

Securing the nation's energy infrastructure has grown increasingly more complex and critical as physical attacks and cyberattacks have increased globally. The increasing use of intelligent systems and infrastructure has subjected the industry to complex cybersecurity risks. Interconnected devices increase responsiveness, efficiency, performance, and energy management but also increase cyberattack risk.

While it's unlikely that a large number of physical security and cybersecurity jobs are going to be created by the industry, the issue is less about numbers and more about the need for a unique blend of security knowledge and industry-specific expertise. The numbers are small but critical, and include jobs such as Cyber Security Engineers, Analysts, Architects, and Threat Analysts.

Cybersecurity competencies are becoming embedded in jobs from the bottom to the top of the organization. All employees should have some form of IT cybersecurity training, and the level of training on cyber system capabilities increases in positions associated with the generation, transmission, and distribution of energy. This layering of knowledge in every job is much like the layering of cyber defenses in electric and natural gas energy systems and structures.

## Workforce Impact

Companies may upgrade the skills of some jobs to protect infrastructure or engage external resources. However, the external resources are more likely to be skilled consultants who are focused primarily on security than core utility contractors. Companies are segmenting Information Technology (IT) and Operational Technology (OT) since OT requires different skill sets. Industrial Control Systems, including supervisory control and data acquisition (SCADA) systems, are at the heart of infrastructure modernization and will require increasingly energy-specific skills to keep both the electric and gas infrastructure safe.

Energy companies are also making organization changes that reflect this heightened focus on cybersecurity and physical security by combining organizations.

The impact of physical security and cybersecurity needs is expected to be highest for Engineers and positions in System Operations and Information Technology.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Customer Expectations

The expectations of energy consumers are changing at the speed of technology. As two-way communication between homes, businesses, and energy systems become the norm, customers and their needs are playing a greater role in the design and implementation of everything, from new ways to generate and distribute energy to the way we interact, communicate, and manage the business. The modernization of the electric grid and natural gas infrastructure and implementation of smart metering have led the way to new possibilities for energy companies to bring energy solutions that meet the growing demands of customers who expect access to new services, energy choices, and the ability to manage energy use.

A better definition for customers might be “prosumers,” a term used to describe a prospective consumer who is involved in the design, manufacture, or development of a product or service. The customer experience must play a key role as the customer is inserted earlier and earlier into energy processes and decisions. Putting customer needs at the center before, during, and after decisions, or becoming customer-centric, has become a business imperative for energy companies to stay viable in today’s changing world.

Not all customers are the same and their needs reflect that, so the need for a diverse workforce is felt here as well. It takes a diversity of experience, background, and demographics to anticipate and understand the diverse needs of today’s customers.

## Workforce Impact

The workforce impact is expected to be felt most in engineering and the management of distributed energy resources, system planning, information technology, marketing, and customer support organizations. For all who engage with customers, there will be a need to increase their understanding of industry energy system fundamentals and the use of advanced technologies.

As an example, the role of the traditional customer service organization moves from transactions and response to customer inquiries, to energy advice and education as customers take on more responsibility for managing their own energy use and have access to the data and apps that help them do it. Artificial intelligence, robotics process automation, and the use of chatbots will help to change the work flow for customer service representatives (CSRs) and will increase the need for analytical skills that can’t be programmed. This will, in turn, increase the need for foundational skills like problem solving, critical thinking, and interpersonal communications as routine tasks become automated and more crucial, customer-focused tasks remain.

The workforce impact on Engineers and information technology would appear to mirror the changes reflected with Infrastructure Modernization and Enabling Technologies. The impact on external resources is more likely to be for companies providing skilled consultants (data analysis, data mining, predictive analytics) than for core utility contractors. With customer-facing technology evolving at such a rapid pace, the workforce impact is predicted to be high but specific implications are yet to be seen.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Enabling Technologies

For workforce planning purposes, CEWD defines Enabling Technologies as those that significantly change work flow or processes. Technology is changing at an exponential rate but for some technologies, like upgrades in computer systems and communication devices, the impact is felt as productivity improvements or efficiencies and not as a significant impact on our work and jobs. The speed of technology adoption is driven by leadership and some companies are moving much more aggressively than others.

Enabling technologies can include hardware and equipment, like robots and drones, or software, like artificial intelligence and machine learning, chatbots, robotic process automation (RPA), and blockchain. The challenge is connecting the information gleaned from sources like smart meters, smart sensors, drones, and the connection of distributed energy resources to intelligence that can be used by both equipment and humans in meeting business and customer needs, multiplying the overall impact.

Efficiency and safety are two of the greatest advantages from using drones, and both electric and gas transmission and distribution are seeing benefits. On the electric side, drones are already being used to inspect power lines and substations, shortening outage times and limiting hazardous exposure for Lineworkers, Technicians, and Engineers. On the gas side, drones can be equipped with sophisticated methane sensors to detect gas leaks. Aerial photography by drones can also aid in technical training by providing views of plants, substations, and other equipment not previously available. Drones will become another “tool in the toolbox,” reminiscent of adding tablets for planners, technicians, and lineworkers.

Artificial intelligence (AI) and machine learning are the two technologies being used to leverage information coming out of microgrids and distributed generation. Many see AI as an essential component of grid modernization and management moving forward and will significantly enhance the ability to predict outages and to safeguard the grid, ultimately making all the work like this more efficient and workers more effective.

Chatbots and RPA are being used in support services like Human Resources and Customer Service to automate repetitive transactions. Automating the simpler, repetitive tasks frees employees to solve more difficult tasks, which may require additional training.

## Workforce Impact

For software and devices, the impact is less about workforce reductions and more about workforce reskilling and upskilling. Additionally, the lifespan of new technology is getting shorter and shorter and will require continuous learning capabilities and strong knowledge capture and transfer processes. The workforce impact is primarily on support services including Finance, Information Technology, and Operations Technology, particularly in Demand Management, Infrastructure Management, and Renewable Management. And, again, the external resources are more likely to come from specialized IT consulting firms and supplemental contractors than from core utility contractors.

Higher level technical skill requirements will change based on the technology employed, but foundational competencies like critical thinking, problem solving, and the ability to learn become more important as the implementation increases. Overall, the jobs that appear to be most affected by enabling technologies like robots, chatbots, and drones are in customer service, corporate support services, system operations, and technicians (lineworker, other T&D). These advances in technology will favor workers who are tech-savvy, willing and able to learn new systems, and comfortable with the demands of data management. The younger generation is at a distinct advantage as they have never really known a world without technology.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Internal Game Changers

### Transitioning Workforce

The Electric and Natural Gas Utility industry workforce has changed significantly over the last decade but is benefiting from more than a decade of workforce initiatives to develop and hire workers into critical jobs. As industry hiring has increased and retirements have begun to stabilize, a younger and more diverse workforce is facing the need for a higher level of skills than ever before. This transformation will drive strategic change in everything from education to recruiting, hiring, and retention.

Although retirements have been a major Game Changer for the energy workforce in the past, CEWD's 2017 Gaps in the Energy Workforce Survey shows about 12% of the workforce is ready to retire at any point and overall retirements are forecast at a little over 2% a year for the next 10 years. That is below the percentage of employees who will leave for other reasons and validates the trend toward "normal" retirement rates for the industry.

*"Millennials make up almost 30% of the overall utility workforce and 40% of the engineering and lineworker positions."*

Millennials make up almost 30% of the overall utility workforce and 40% of the engineering and lineworker positions. A key change believed to be driven by this younger workforce is the increase in non-retirement attrition, particularly among those with fewer than five years of service. Studies of millennials in the workplace indicate they are less hesitant to change jobs than their older counterparts. In an industry where it takes years to become fully competent in highly skilled jobs, and in a country where the current unemployment rate is below 4%, companies must rethink their employment value propositions in order to attract and retain new employees and effectively transfer the knowledge of those who leave. Coupled with employee retention efforts, companies will need to use both policy and technology solutions to capture and provide access to critical knowledge when needed.

The energy workforce is also becoming increasingly diverse. Veterans make up about 11% of survey respondents' current workforce, which is an increase from 8% in 2014, the first year CEWD surveyed participants on veterans. Similarly, minorities have increased from 22 to 26% of the workforce, reflecting an increased focus on diversity and inclusion efforts. However, the percentage of women in the utility workforce has shown only a slight increase from previous surveys and, at 24%, reflects half of the national percentage of women in the U.S. workforce.

## Workforce Impact

CEWD's 2017 Gaps in the Energy Workforce Survey shows the overall size of the utilities workforce has decreased since the last survey, with the number of Key Jobs remaining fairly stable. The decreases can be accounted for in corporate support and other types of jobs. When viewing the energy workforce as a whole, however, there are indications that the utility contractor workforce is growing. The contractors who supply supplemental labor for the industry are an integral part of the energy workforce, particularly for Key Jobs. More work must be done to fully quantify the impact of the contractor workforce on the demand for Key Jobs.

The potential loss of knowledge through attrition, as well as the need for retraining, upskilling, and continuous learning, impacts all jobs categories. Internal training and technical training organizations will need to expand the use of technology to train employees on subjects from cybersecurity to automation and developing customer solutions.

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Size Impact							
Skills Impact							

## Business / Work Restructuring

Mergers among energy companies and acquisitions of businesses that complement or broaden an energy company's portfolio continue to drive significant changes internally. If the merger or acquisition includes expansion of geographic service territory, workforce impacts may be larger for corporate functions than for Key Jobs.

As technology is implemented, work process, organization design, and work policies and practices must be analyzed as well. These changes will have an impact not only on Key Jobs but on support workers as well.

## Strategic Workforce Focus

Strategic business decisions may have profound changes on a company's workforce size, demographic makeup, skill sets, and knowledge requirements. Those decisions can encompass a focus on increased diversity, veteran hiring, insourcing previously outsourced talent, centralizing, de-centralizing, combining organization functions, or improving efficiency.

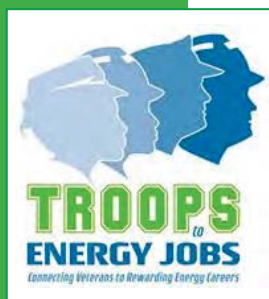
At the national level, the industry's commitment to train, hire, and retain military veterans (Troops to Energy Jobs) is having a real impact on company practices. In addition, the national industry focus on improving diversity and inclusion is driving education and workforce decisions.

Some Strategic Workforce decisions, like outsourcing or insourcing a particular job category, may have an impact on the size and the source of the workforce. But more than likely, they will impact the demographics or distribution of the workforce (for example, awarding work previously done internally to a supplemental labor contractor or hiring military veterans rather than community college graduates).

## Affordability

Balancing workforce needs with reductions in labor budgets is a critical issue for companies as both internal and external cost pressures continue in the industry. External drivers, like those already mentioned, drive company priorities and, subsequently, budgets. Each company must determine what it can afford in the way of workforce strategy. The issue of affordability is apparent when companies make "build, buy, or borrow" decisions and, more recently, technology solution decisions in addressing workforce needs.

Affordability goes hand-in-hand with Strategic Workforce Focus as energy companies find ways to perform work more efficiently. As an example, individual municipal utilities may not have the resources to hire full-time talent in some areas, so groups of public power utilities have formed Joint Action Agencies to share workers between companies, or to provide specialized services. The agencies function less like contractors and more like centralized corporate services departments in larger energy companies.



## Energy Industry Workforce Impact

Job Category	Lineworker	T&D Technician	Generation Technician	Plant/Field Operator	Engineer	Support Services	Contractor
Infrastructure Modernization							
Size Impact							
Skills Impact							
Energy Generation Transformation							
Size Impact							
Skills Impact							
Physical / Cyber Security							
Size Impact							
Skills Impact							
Customer Expectations							
Size Impact							
Skills Impact							
Enabling Technology							
Size Impact							
Skills Impact							
Transitioning Workforce							
Size Impact							
Skills Impact							

The collective impact on the energy workforce at a national level paints a compelling picture for heightened analysis in the engineering and new support services job categories. The supplemental contractor category also suggests the need for more rigorous analysis on the true numbers needed in the industry; this analysis got underway with CEWD's contractor members in 2018.

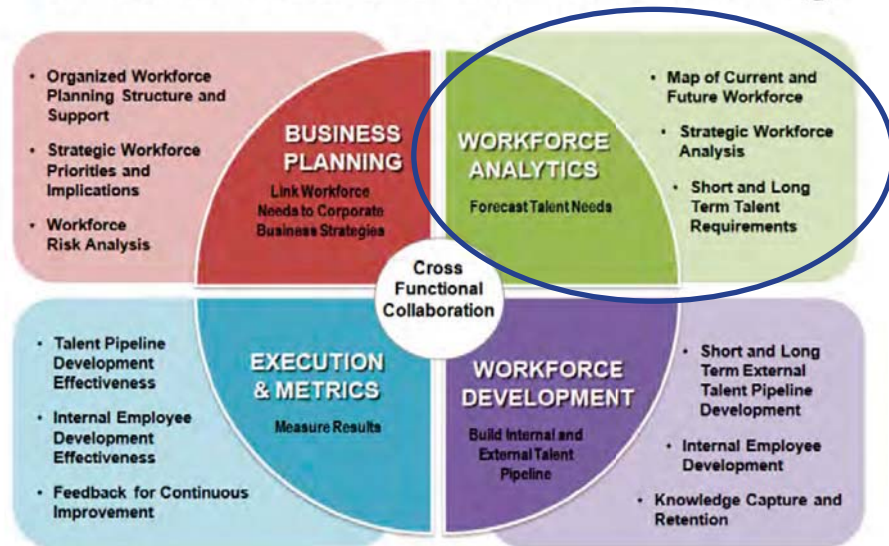
Of equal importance is the potential foundational impact of a transitioning workforce in a transforming industry. The impact of the transitioning workforce is more evident than ever before in the results of the 2017 Gaps in the Workforce Pipeline Survey.

## Workforce Analytics

The **Workforce Analytics** phase is designed to answer the following questions:

- What are the critical workforce trends?
- What is the turnover in each critical job family and why?
- Where will new employees and new skills come from?
- Is the organization prepared to fill workforce requirements?

### Essential Elements of Workforce Planning



### WFP Council Analytics Team

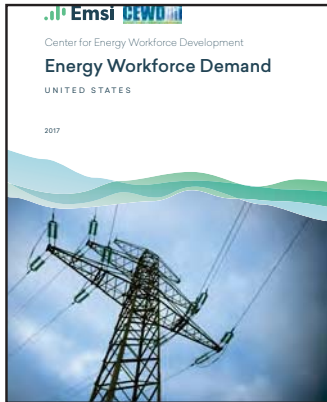
To help members learn more about workforce analytics and share best practices more easily, CEWD organized the Workforce Planning (WFP) Council Analytics Team in late 2015. Participation in this community of practice is open to all interested CEWD members and focused on documenting and sharing best practices, conducting benchmarking, and developing and vetting practices for use on the CEWD Essentials of Workforce Planning Wizard.

Since 2017, the team has pursued a goal of collaborating to improve retirement attrition forecasting and internal workforce planning processes.

See the end of this chapter for best practices from members of the WFP Council Analytics Team.

## 2017 Gaps in the Workforce Pipeline Survey Results

CEWD has collected and analyzed national workforce data on Key Jobs every other year since 2008. The findings from the 2017 Gaps in the Energy Workforce Pipeline Survey are based on responses from Electric and Natural Gas Utilities across the United States. The survey results continue to show progress in building a talent pipeline to fill critical jobs in the industry.



As in previous surveys, CEWD focused the analysis on four key job categories: Lineworkers, Technicians, Plant/Field Operators, and Engineers. These four job categories make up 44% of the total utility workforce and are considered mission critical for the generation, transmission, and distribution of electricity and natural gas across the country. The data provided by the companies responding included information on age, years of service, hires, and attrition, along with information on the diversity and veteran composition of the workforce.

For the first time, CEWD was able to analyze the full impact of public power employees in key jobs through the support of the American Public Power Association. As a result, CEWD is now able to include public power in the

analysis of key job forecasts for hiring and attrition and has established a baseline to be able to make historical comparisons in the future.

Although the workforce size has fluctuated over time, the 2017 survey shows the most significant change since CEWD began surveying in 2006. The overall size of the workforce has decreased by 2.7%. The number of key jobs remained fairly stable, with the decreases showing up in corporate support and other types of jobs. The industry continues to support full-time positions with third-party contractors working directly for the industry.

The composition of the workforce is changing as well. For investor owned utilities (IOUs), veterans make up about 11% of respondents' current workforce, which is an increase from 8% in 2014, the first year CEWD surveyed participants on veterans. Similarly, female minorities have increased from 7.3% to 9% of the population for respondents, and the number of male minorities has increased from 15% to 17%.

### Workforce Composition

↔ 44% Key Jobs	↑ 9% Female Minorities
↑ 11% Veterans	↑ 17% Male Minorities
↑ 22.5% Veterans in Nuclear	

The workforce continues to grow younger, with 19% of the workforce now under the age of 32. Although retirements have been a major game changer for the energy workforce in the past, the current survey shows about 12% of the workforce is ready to retire at any point and overall retirements are forecast at a little over 2% a year for the next 10 years. That is below the percentage of employees who will leave for other reasons and shows the trend toward "normal" retirement for the industry.


Overall, the industry is seeing the impact of more than a decade of workforce initiatives.

## 2017 Survey Findings

### The Workforce Continues to Grow Younger

Since 2006, when CEWD first began to measure workforce age, the industry has seen a consistent progression toward a younger workforce. With a focus on the creation of energy education pathways in high schools, community colleges, and universities, companies have seen an increase in the talent pool for recruiting and hiring into high skill positions. Jobs such as Lineworkers, Skilled Technicians, and Plant Operators require some level of postsecondary education prior to hire, and companies have made significant progress in partnering to develop education that leads to the competencies needed for these high skill, high pay careers.

#### Workforce Age

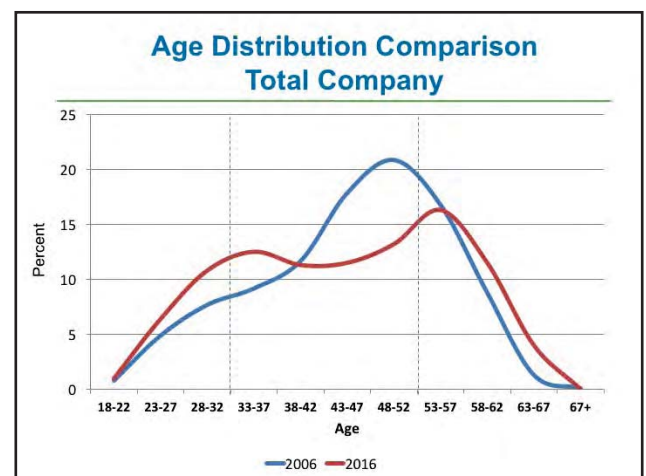

 19% under age 32  
 49% under age 52  
 33% over age 53

As a whole, the age curve for the industry has flattened, as older workers have retired and younger workers have been hired. Electric cooperatives have the youngest workforce, with only 25% of their workforce over the age of 53. IOUs have the oldest, with 35% over age 53. Public power, on the other hand, reports only 12% of their workforce under the age of 32.

When looking at just the key job categories, the percentage of Engineers and Lineworkers under age 32 continues to increase at 29% and 30% respectively, reflecting the focus on hiring in these categories.

Plant Operators and Skilled Technicians in both electric and gas transmission, distribution, and generation remain the oldest of the key jobs and will continue to need focus from a talent pipeline perspective.

Survey respondents report that hiring for the industry has increased significantly since the last survey. The overall percentage of hires into key jobs increased from 5% in 2014 to 9% in 2015 and then to 7% in 2016. In both years, the percentage of hires was greater than attrition and survey respondents forecast hiring at or above attrition, indicating growth for the first time since 2008.



As a percentage of the total hires, other company jobs increased from half of hires in the last survey to almost two-thirds, indicating increased hiring in corporate and other jobs.

## Retirements Are Decreasing for the Industry as a Whole and for Key Jobs

Forecasted retirement rates are down for all jobs from the previous survey, with rates averaging between 2% and 2.3% depending on job category. The most significant decrease is in the key job retirement forecast for years 2017–2022, where overall retirement forecasts dropped from 14% to 11%. That forecast for key jobs is almost even with the future years percentage, indicating a flattening of the retirement curve over time. The forecast for those in key jobs who can retire at any time has remained steady at 10% but increased from 9% to 12% for total industry jobs.

Although utilities historically have among the lowest attrition rates in comparison to other industries, non-retirement attrition is rising in key jobs based on survey responses. Non-retirement attrition varies from a 5-year average of 13% to 15% among the key jobs with an overall average of 14%, but is significant in that the percentage has increased by 4% overall since the last survey. CEWD member companies are paying particular attention to this trend and are focusing on retention strategies based on demographics, age, and phase of career.

Overall, Lineworkers show the lowest percentage of potential retirements for 2017 to 2026 and the lowest percentage of employees who are ready to retire at any time (7%). Ten-year retirement forecasts have decreased by 5% overall since the last survey.

Engineers show the largest decrease in overall forecasted retirements (6%).

Skilled Technicians in generation, transmission, and distribution show an overall decline of 5% in forecasted retirements as well, but have the highest percentage of employees who can retire at any time (13%).

Plant and Field Operators have the highest potential retirement forecast and show a quarter of employees in this category with the ability to retire in the next 5 years. On the whole, retirement forecasts have still decreased by 4% since the last survey.

In Nuclear, the 5-year projection for both retirement and non-retirement attrition is significantly higher than in other key jobs, with rates averaging between 36% and 41% overall. The retirement rates have actually increased since the previous survey.

It is important to note that hiring has increased for the industry, and actual hires for 2015 and 2016 are greater than attrition. Companies are replacing more employees than are leaving for the first time since the recession in 2008. Forecasts for hires show this continued level of replacement and growth.

### Retirement forecasts for Key Jobs have decreased, while forecasts for other attrition have increased



## Industry Demand

As in the previous survey, the actual number of potential replacements for retirement and non-retirement attrition has decreased for key jobs for non-nuclear generation, transmission, and distribution. About 59,000 employees may need to be replaced over the next 10 years for retirements, with an additional 30,000 potential replacements over the next 5 years for non-retirement attrition. Over the next 5 years, the number of critical nuclear jobs that may need to be replaced has actually increased, with an additional 11,800 that may need to be replaced.

This demand for skilled talent will be filled from a variety of sources, including students graduating from schools in the National Energy Education Network (NEEN). NEEN is a consortium of high schools, community colleges, and universities that partner with CEWD members to build relevant and needed education pathways. Learn more about NEEN in Chapter 5 of this report.

**Potential Replacements by 2026  
for Key Jobs  
(Includes Public Power and Excludes Nuclear)**

Job Category	Potential Non-Retirement Attrition		Potential Retirements Includes Ready Now		Potential Retirements	
	2017-2021		2017-2021		2022-2026	
Lineworkers	15%	11,000	17%	12,000	9%	7,000
Technicians	14%	10,000	25%	18,000	11%	9,000
Plant Operators	13%	5,000	24%	9,000	10%	4,000
Engineers	14%	4,000	21%	6,000	10%	3,000
<b>Total Key Jobs</b>	<b>14%</b>	<b>30,000</b>	<b>21%</b>	<b>34,000</b>	<b>10%</b>	<b>25,000</b>

Other positions will be filled by military veterans.

Five years ago, the industry launched the Troops to Energy Jobs initiative to match exiting military and veterans from all branches to our demand for the future. Veterans now make up 11% of our workforce, and in Nuclear Operations that number is 22.5%. Companies from across the industry are reaching out to veterans for their training, leadership, and service mentality to fill these critical positions.

**Potential Replacements by 2021 for Key Jobs in Nuclear Business Areas**

Job Category	Potential Replacements 2017-2021	
	Potential Attrition & Retirement	Estimated Number of Replacements
Operations	36%	3,700
Maintenance	43%	4,800
Engineering	41%	3,300
<b>Total Nuclear Jobs</b>	<b>40%</b>	<b>23,000</b>

The industry has also launched a strategic initiative to increase the diversity of education pathways, hiring, and retention of diverse populations to ensure that our employee populations more closely reflect the communities we serve.

The potential replacements shown are a reflection of retirement and attrition projections only and do not reflect the impact of other industry game changers. The business environment for nuclear, in particular, has changed substantially since the end of 2016 and the projected data may be impacted by recent plant decisions.

Our industry is undergoing a significant transition with the game changing impact of technology, infrastructure modernization, changing customer demands, and the move toward a cleaner energy mix. These changes drive the need for innovation, adaptability, and new skills in the workforce, as well as stronger collaboration with the industry's contractor partners, to fully understand the complete workforce demand in the industry. The energy industry is working together through CEWD to meet the workforce needs of today and of the future.

To review more in-depth results from the 2017 survey, visit <https://cewd.org/survey-report/>.

CEWD continues to revise and improve its survey process. The 2019 Gaps in the Energy Workforce Pipeline Survey will increase the data collected for retention analysis to include race, gender, and age. Additionally, pipeline metrics will be tracked with education members in the National Energy Education Network database.

## Workforce Development

The **Workforce Development** phase is designed to answer the following questions:

- How can the recruitment strategy support the company's workforce strategies, such as increasing diversity within the company and hiring military veterans?
- What is the current supply of potential candidates within the state or region that can be tapped?
- What are some of the sources of candidates that are available?
- Are new programs required at local schools to address demand and potential new skills?
- What actions will the company take to create the desired talent pipeline?



The data and analysis from Workforce Analytics drive the development of action plans for Workforce Development. Workforce Development is the phase in which an organization determines its sources for candidates to meet the strategic direction of the company and to implement its workforce plan.

## *Get Into Energy Pathways Assessment Tool for Employers*

In order for companies to successfully implement a Workforce Development strategy, it's helpful for companies to assess their readiness.

The **Get Into Energy Pathways Assessment Tool for Employers** was developed in 2018 and is based on the five actions companies can take to support a job applicant's pathway to an energy career. Originally described in the 2014 booklet, **Five Things You Need to Know about Energy Workforce Development**, the assessment helps companies gauge where their gaps are in each of five areas: Visibility, Communication of Requirements, Partnerships, Internal Reinforcement, and Measurement and Feedback.

The results of the assessment are helpful in diagnosing weaker areas that companies should consider strengthening as part of their workforce development efforts. The Assessment is located in the Strategic Planning Template on [www.cewd.org](http://www.cewd.org):  
<https://www.cewd.org/documents/GetIntoEnergy-CareerPathwaysAssessmentTool.pdf>.

The Assessment is one step in readying the organization to embark on workforce development. Additionally, the **CEWD Get Into Energy Career Pathways Model** provides a framework for developing a talent supply pipeline for skilled utility technicians. There are multiple resources available through the CEWD website on developing education pipeline programs for specific job categories, for bringing women or diverse candidates into industry positions, or for building a military veteran talent pipeline. See Chapter 4 of this report for more information about the GIE Career Pathways Model.

## Knowledge Transfer and Retention

While overall retirements in the energy industry have ebbed in the past few years, many CEWD members are still experiencing high retirement attrition in their skilled workforce. Additionally, non-retirement attrition has risen well beyond what has been seen historically. The combination has fueled a heightened interest in retaining and transferring the knowledge and unique skills their employees gain before they leave.

In 2017, CEWD took several actions to help their members address the issues of knowledge transfer and retention. They include development of a new knowledge transfer and retention template, collection of best practices companies can draw from, and development of a KT&R Community of Practice where members discuss challenges they are running into and how they are solving them. The new template walks members through the steps they need to take to identify the kind of knowledge they need to capture. It also helps them develop a knowledge transfer plan and a continuous improvement scorecard for the company. This growing collection of tools to support knowledge transfer and retention can all be found in the CEWD Strategic Workforce Planning Implementation Wizard in the Workforce Development section.

### A Summary of Promising Practices from KT&R Community Members

#### NorthWestern Energy – South Dakota

NorthWestern Energy has developed a process to guard against loss of knowledge that includes three elements: a Retirement Planning Discussion; a Knowledge Capture Interview Form; and a Knowledge Transfer Plan for supervisors—a spreadsheet listing methodologies to implement that address the impending loss of knowledge and skills.

The spreadsheet includes drop-down lists and visual elements to help supervisors easily record and prioritize data, as well as action steps that need to be taken as the employee nears separation. The interview form asks questions about job responsibilities, knowledge, skills, and resources critical to the employee's job, such as support they provide to other sites or locations; unique roles they play during crises; approval authorities they carry; meetings they regularly attend; certifications they possess; equipment they operate; and how they learned the things they need to know to do their jobs.

The documents—including an overview form that walks managers through the process—are now kept on the company's website. Managers and supervisors are encouraged to access them and to stay on top of employees who might be nearing retirement eligibility.

**JEA – Florida**

To prevent knowledge loss brought about by retirements, JEA—the municipal utility in Jacksonville, FL—launched an overlap hiring process several years ago. First, the company performs an assessment of retirement risk based on years of service, age for retirement eligibility, and criticality of the role. A second assessment is used to determine the degree of overlap needed in terms of time for a new hire to learn how to do the job from the retiring employee. In their model, because two people are doing the same job for a period of time, funding for salary and benefits for two people had to be addressed with JEA’s board. The board initially approved \$2 million for the overlap hiring process and most recently has increased the funding. Based on JEA’s latest numbers, the company believes it has mitigated for about 92 percent of high-risk positions prior to the person leaving.

In addition to overlap hiring, JEA conducted a talent review to determine where the organization had internal talent that could be developed to fill openings as they arose. Incumbent employees provided resumes and information on jobs they were interested in. Now JEA is able to make interested employees aware of potential openings so that they can work on any competencies they might need to strengthen before applying.

JEA also developed knowledge transfer questionnaires for retiring employees (as well as those leaving for other reasons) that asked about any special tools, devices, vendors, processes, or other information the person used in the job that would be critical for their replacement to know.

**Premier Power Maintenance – Indiana**

At Premier Power Maintenance, an electrical testing and maintenance contractor based in Indianapolis, IN, the knowledge of how to perform skilled work was traditionally passed from seasoned team members to those coming on board as they worked side by side. But the process wasn’t standardized or measurable.

So the company focused on developing a structured, in-house training program for team members—both new and experienced. The result is Premier University, which provides ongoing training for current team members, as well as training for newly hired team members. All new hires are given pre-employment tests to determine their current level of skills and this data is fed into a “skills matrix” showing the company where it has skills gaps to fill.

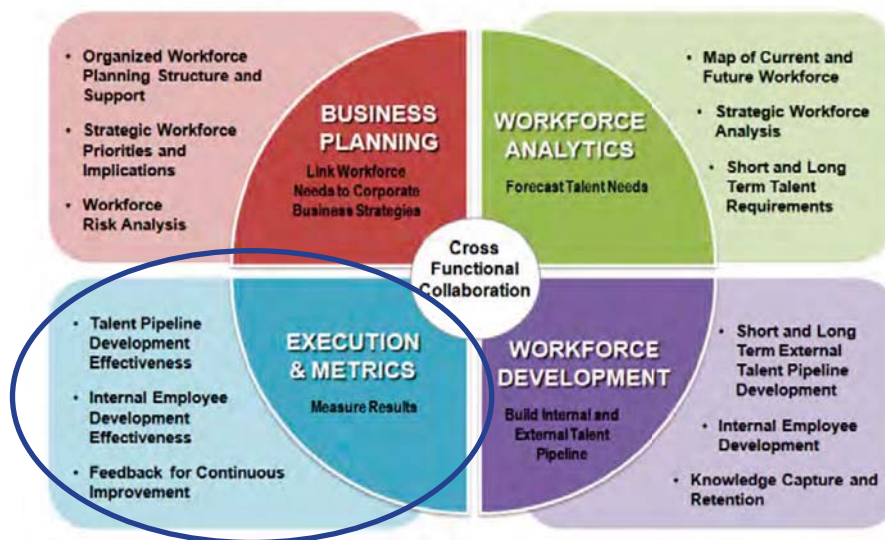
Through its in-house university concept, the company also provides voluntary training programs for team members who want to upgrade or refresh their skills and knowledge in a wide range of areas. These are provided in a “Lunch and Learn” series that includes topics such as algebra, trigonometry, electricity, transformer oil analysis, relays, and other subjects. Most classes are four weeks long and include a Skype meeting, PowerPoint presentation, and problems to work on before and during the lecture. Special one-week classes are also available, such as relay theory and testing.

## Execution & Metrics

The **Execution & Metrics** phase helps companies answer these questions:

- How accurate is the forecasting process when measured against actual hires and attrition?
- How well are the pipeline organizations working in terms of quality and quantity of candidates?
- Are there enough diverse candidates being sourced for the jobs?

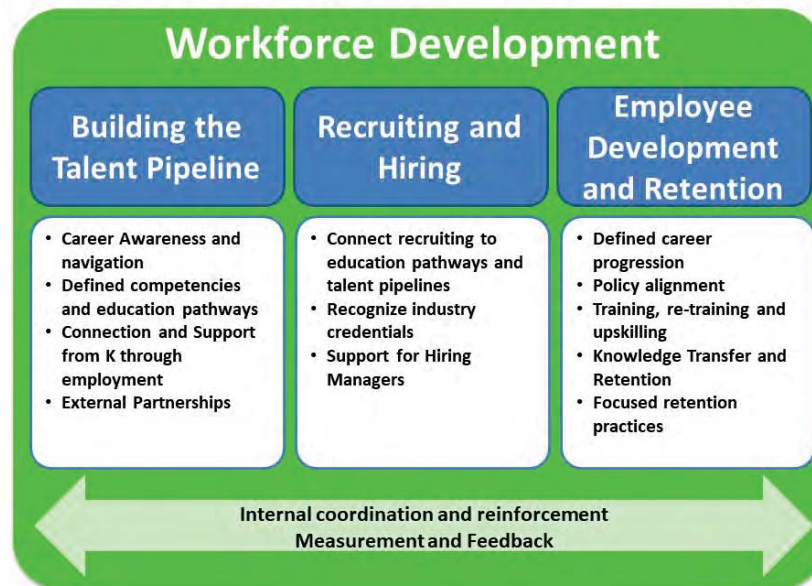
### Essential Elements of Workforce Planning



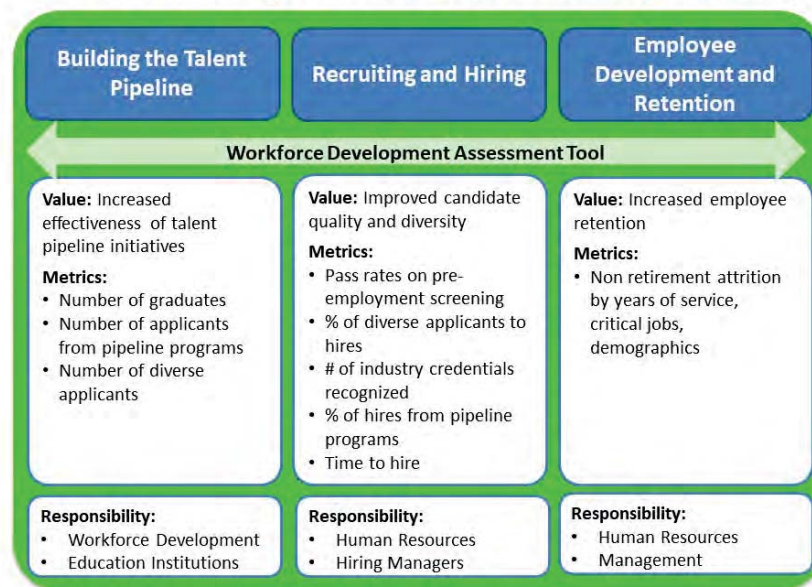
Although some metrics are clearly industry- or even company-specific, CEWD has worked with its members over the years to define meaningful measures that are applicable at a national level. In 2018, CEWD worked with a Measuring Progress Task Force made up of CEWD Executive Council members to take a fresh look at defining how workforce development value can best be measured. The Task Force delivered a refreshed model for measurement that was approved by the Board of Directors and in 2019 will be piloted by a small group of CEWD industry members. Their findings will help shape a permanent set of measures for the membership.

## Workforce Development Value

### CEWD Strategic Workforce Planning



### CEWD Strategic Workforce Planning Metrics

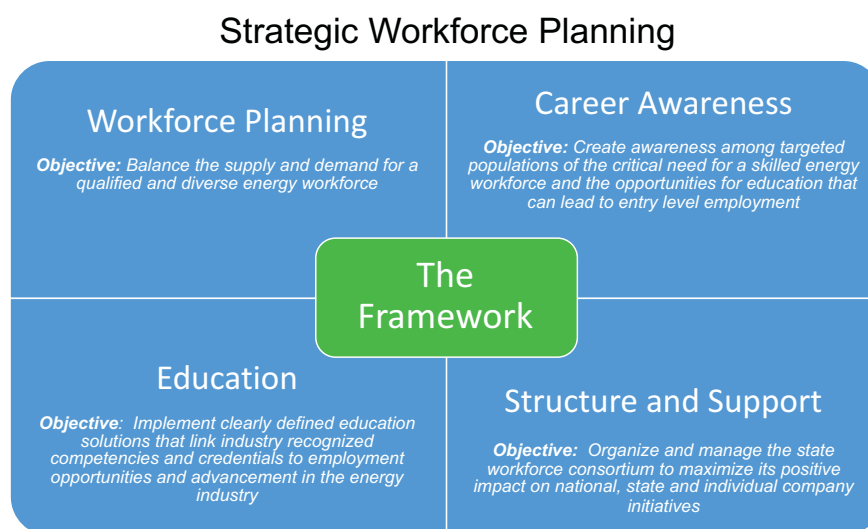


CEWD members who would like to learn more about the proposed metrics or the Measuring Progress Task Force can contact [staff@cewd.org](mailto:staff@cewd.org).

## Plan Development in State Consortia

As CEWD State Energy Workforce Consortia have learned with time and experience, everything they need to do to ensure an adequate pipeline of diverse and qualified workers can be organized in CEWD's four strategic pillars: Workforce Planning, Career Awareness, Education, and Structure and Support. This framework, when used consistently across states, ensures that strategies can be compared and shared more effectively.

The consortium planning framework mirrors the CEWD framework except that, within Career Awareness, consortia must define their target populations, and the Structure and Support pillar focuses on the sustainability of the state consortium.



Strategic plan development within state consortia got a significant boost in 2013 through a grant from the Joyce Foundation designed to help state consortia in the Great Lakes States become more sustainable by creating and implementing a 3-to-5-year strategic workforce plan. CEWD relied on its Four Pillars Framework to guide the plans. The outcomes of the Great Lakes project led to development of a comprehensive strategic planning workshop template that can be used by member companies and their State Energy Workforce Consortia to build or refresh a strategic plan. The template is at <http://cewd.org/documents/wizard/documents/StrategicPlanningWorkshop-NationalTemplate.pdf>.

CEWD's regional consultants work with consortia leadership each year to review their strategic plans and note progress against plan objectives.

State Energy Workforce Consortia build their strategic plans with core objectives and strategies to be able to compare and share best practices across states and regions. Within these strategies, the consortia develop specific actions and apply metrics to ensure their actions are adding value to employers, educators, and students.

## Overarching Strategic Plan Framework for State Energy Workforce Consortia

- **Workforce Planning Objective:** Balance the supply and demand for a qualified and diverse energy workforce.

### Strategies:

- Validate the existing state workforce plan to verify key in-demand jobs for career awareness and strategic planning purposes.
- Measure workforce development initiatives to determine impact on critical skill and workforce gaps.

## Overarching Strategic Plan Framework for State Energy Workforce Consortia

- **Career Awareness Objective:** Create awareness among targeted populations of the critical need for a skilled energy workforce and the opportunities for education that can lead to entry-level employment.

### Strategies:

- Implement targeted career awareness campaigns to increase the diversity of talent pipelines.
- Build state awareness of the need for a skilled energy workforce.

- **Education Objective:** Implement clearly defined education solutions that link industry-recognized competencies and credentials to employment opportunities and advancement in the energy industry.

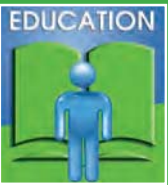
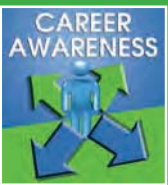
### Strategies:

- Close existing skill gaps to ensure a qualified applicant pool of candidates for in-demand jobs.
- Implement core curriculum across schools to enable easier transfer of credits and faster graduation of students with needed skills.
- Assess the skill impact of new technologies and integrate into education pathways.

- **Structure and Support Objective:** Organize and manage the State Energy Workforce Consortium to maximize its positive impact on national, state, and individual company initiatives.

### Strategies:

- Effectively manage consortium projects and initiatives.
- Regularly convene the consortium to build partnerships and alliances between industry, government, and education.
- Assess the impact of energy workforce needs on state workforce policy and communicate to consortium members and partners.
- Create mutually beneficial alliances with organizations that support and advance consortium initiatives.
- Maintain the consortium as a self-sustaining operating structure that includes governance, management, and financial processes.



## Promising Practices in Workforce Planning

### Pacific Gas and Electric Integrating Workforce Planning Across Multiple Business Units

David Schutt has developed workforce-planning models for a wide range of companies across a broad spectrum of industries. But none has had such a clear need for these services as much as the energy industry.

“In all other industries I’ve worked in, you don’t have to plan so much. But this one, you do,” he said, noting that there aren’t enough other businesses like it to recruit from should a large number of skilled workers leave at once.

“We really have to grow our own in the utility industry,” he said. “If we’re not planning right and there’s a pocket in our organization of people who have a lot of knowledge and experience, if they all walk out the door and we have not planned for it, we can’t just go to another company and poach those people. Businesses like Google or Microsoft can do that. They don’t have to plan. But our planning has to be extensive.”

Schutt, Practice Leader for Workforce Strategy and Planning at PG&E, was recruited from the healthcare industry three years ago to put together a workforce-planning model that could be used across all of the company’s business units. He and his team created a model that projected attrition in every job category of every business unit company-wide and built a tool to help determine how to meet that future demand.

To ensure their model would be successful, they also took steps to align it with the company’s overall strategic planning processes, said Schutt. That meant reaching out to internal partners in finance, corporate strategy, and the executive leadership.

In doing so, said Schutt, they discovered that the corporate strategy department had already developed an enterprise-wide business plan involving multiple steps. That model, however, did not include workforce planning, so they molded the two together.

“We had a six-step process for workforce planning and we attached our steps to the ones they had already developed,” he said. “Their model was divided into two pieces: the first 50–75 percent of the planning year involved strategic planning and the latter part of the year involved executing on that strategy. So we aligned our process to fit in with theirs.”

The strategic planning department was also using a five-year plan, so they built their model to reflect a five-year look ahead for workforce planning, said Schutt. “It’s that partnership with strategic planning that made this thing really hum,” he said.

Another key to success, he said, was bringing the executive leadership and human resources (HR) departments on board and making sure everyone was trained to implement their model.

Here's how it works: The workforce planning team extracts data from the HR system for a specific business unit, such as electric distribution. They upload all of the job titles (e.g. linemen, apprentice linemen, journeymen linemen) and the number of people in each of those jobs into the tool they built for this purpose. Then they look at the projected demand for those jobs (involving factors such as growing need and potential attrition) and plug those numbers into the tool. By adding demand to their current supply (and subtracting out attrition), they determine where there are going to be gaps, he said.

At that stage, said Schutt, his team works with human resources to determine what should be done to bridge those gaps. Do they need to hire and train more workers? Do they need to work on retention of the people already there? Do they need to move people around internally? "This is where strategy comes in," he said.

Finance gets involved, said Schutt, in determining how much budget there is to pay for new hires, retention bonuses, or other strategies that will cost money. "It's an interactive process. It has to be, and it's very beneficial for other parts of our business to be involved."

For example, he said, "if there's going to be a need for a large number of new hires, HR has to know how many recruiters they're going to need and how many training programs they'll have to develop. The facilities department will need to know how many desks, office cubbies, and chairs to purchase. IT has to know how many laptops they'll need. All the support organizations can feed off of this data."

Schutt said PG&E began implementing the model in 2014 and sent out surveys at the end of the year for feedback from other departments. "We got well over 100 different suggestions and recommendations and we spent all of 2015 making the model easier to use and trying to embed it further into the corporate-wide planning program."

Along the way, they've run into some difficult challenges. For example, his department had to adjust its projections for attrition when accuracy dropped from 90 percent initially to roughly 50 percent at the end of 2015, as employees began retiring at a higher-than-expected volume. The company also went through an organizational restructuring that year that disrupted their projections even further, he said.

"When things like that happen, it takes a lot of manual adjusting because we had done our planning based on the organizational structure that existed at the time," said Schutt. "Adjustments are constantly needed," he said, in order to maintain an accurate and useful model.

## Entergy Retirement Attrition Modeling

Projecting how many people will retire—and when—is a tricky business. But it's necessary for utility companies to do so in order to know how many people will need to be hired, and trained, to replace those experienced workers when they go.

Companies rely on a variety of retirement attrition models in order to make these predictions. Some, however, work better than others.

"We were getting feedback that the tool we were using wasn't accurate enough," said Brian Gary, Manager for Workforce Planning for Entergy Corporation.

He spoke with CEWD about the need for a User Group among energy industry members to share best practices. This was the genesis for the Workforce Analytics Task Force.

"It was a classic example of how to use these industry groups to come together and share ideas and make something better for everyone as a result," said Gary. "We benefited tremendously from hearing what others were doing."

What the Entergy participants learned from these discussions was that age was the critical factor in predicting retirement attrition and that they needed to expand the number of years of data they were using in their forecast from three to five. They also learned that filtering the information by business unit wasn't necessary, said Gary.

"Our former model calculated the retirement rate for different business units, but it didn't take age into consideration, just eligibility for retirement," said Alicia Menesses, Entergy's Senior Analyst for Workforce Planning. In other words, the model looked primarily at whether someone retired when they became eligible, which was either age 55 with 10 years at the company or age 65 regardless of how many years the person had worked at Entergy.

Looking more specifically at the age at which people were retiring, and using three to five years of history, the new model showed where attrition was spiking and where it was stagnant, she said. Once they made the changes to their model, accuracy in predicting attrition jumped from 80 percent to 90 percent.

Menesses said they found that people retired in stages: about 10 percent retired immediately upon becoming eligible at age 55 or 56 (depending upon what time of the year their birthdays occurred); then retirements tapered off until age 60 and spiked significantly at age 62, when employees became Medicare eligible. About 22 percent of those eligible to retire at that age did so. The final and largest spike came, when 29 percent of those age 65 and older retired.

"You would think that for every year older an employee gets, there would be an increase in retirement rates, but it really doesn't work that way," said Menesses. "Those who retire immediately at age 55 are those who seem to have planned for it. If you're still here at 57 after becoming eligible for early retirement, you have a lesser probability of retiring until much later."

The discussions with the CEWD task force also helped Entergy representatives sell the changes to the program owner, said Menesses. “I know definitely our benchmarking and our meetings with other industry members and subject matter experts gave us a level of comfort that we were adjusting in the right direction,” she said. “This age-driven model aligns with industry standard practice and that helped convince Entergy’s talent management leadership to buy in to our changes.”

What’s more, the improved data from the new model has helped convince the executive leadership of the need to focus on workforce planning and the issue of knowledge transfer, a problem that arises when more experienced employees leave the company in large numbers.

“I’ve been in the company for 20 years, and while we could see the age curve coming at us, sunshine is really the best disinfectant,” Gary said. “In this case, data is the sunshine. And data is really driving us on this issue now. Sharing the data with executive leadership led us down a path to take more proactive steps.”

### **Southern Company Dashboarding**

Before David Slicker and his team developed dashboards for Southern Company, it was tough for the utility to visually track how employees were performing, how managers were progressing on diversity opportunities, or how frequently and which employees were being developed.

But then Slicker, Human Resources (HR) Analytics and Reporting Manager at Southern Company, and his team developed a process that allowed them to connect to HR data online, refresh it each night, and share it internally on a closed, read-only, live site.

He first tested the program by aggregating data on performance management ratings. “We went from a paper-based performance system to an online one,” he said. “Before this, HR had to call managers and ask, ‘How did you rate these people?’ The new system allowed us to give HR a better insight into the distribution of ratings and the completion of ratings and to have discussions around how people were being rated overall. So that was a quick win for us.”

From there, Slicker and his team found numerous ways that dashboards could help the company improve, giving managers insights into everything from how well they were doing recruiting veterans to the success of their co-op programs.

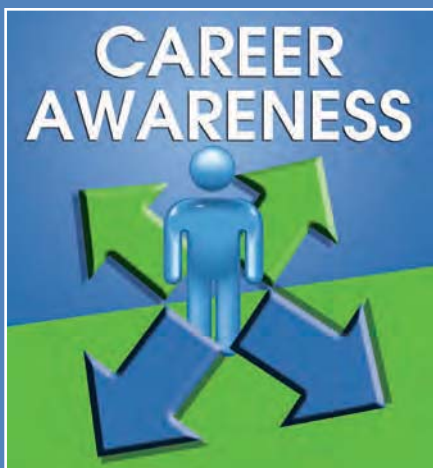
“It started out as a small way to get information in front of people, and now we have more than 400 dashboards for our business units and functions, all using HR data,” he said.

“For us, the biggest advantage of having these dashboards is that we used to have people in the field who were spending a lot of time running reports and aggregating data, but nobody had the same presentation, none of those reports had the same look or feel, and it was hard to make comparisons. Now we can show how the organization is performing from a people standpoint. As the old adage goes, if you don’t measure, you can’t improve.”

Another area the dashboards have been useful, said Slicker, is in showing the company's progress towards increasing the diversity of its workforce. "We have very low turnover at Southern Company," he said. "So the opportunity to bring in new employees and make a change in representation is much slower than in some other places. We really wanted to help managers understand that every time somebody leaves, the organization has an opportunity to affect diversity, to make that conscious decision to make sure that we are giving consideration to all applicants. Diversity dashboards are out there in real time."

Slicker said he serves on the CEWD workforce analytics task force so that he can share information about how Southern Company is using data, but also so that he can learn from others. "Typically when I serve on these councils, I learn a lot more than I share," he said. "The same goes for all of us. When you get 30 people in a room, you're going to get nuggets from everyone. No one person or company has the answer. People are not widgets. They're hard to measure. The best we can do is listen to people, find out what they are trying to affect and what data they have, and how we can present it to them."

"That's my team's charge: Listen to the business and then figure out how to make their lives easier through data."



**Objective:** Create awareness among students, parents, educators, and nontraditional workers of the critical need for a skilled energy workforce and the opportunities for education that can lead to entry-level employment.

## Chapter 3: *Career Awareness*

*Get Into Energy (GIE)*

*[getintoenergy.com](http://getintoenergy.com)*

*Five Quick Things That Support a Military Recruitment Strategy*

*Veterans in Energy – For Veterans, By Veterans*

*Branding at Work*

*Other Career Awareness Resources*

*Get Into Energy / Get Into STEM*

*Strategic Linkages: Linking Strategies to Improve Workforce Diversity*

*Promising Practices in Career Awareness*

## Get Into Energy (GIE)

In a series of CEWD surveys with member companies and state consortia in 2018, career awareness continued to be one of the most important priorities in building a diverse, qualified energy workforce. CEWD launched its national career awareness brand, **Get Into Energy (GIE)**, in 2006 and has since launched a family of brands and career awareness resources.

From the CEWD homepage, [www.cewd.org](http://www.cewd.org), members have a lot of options! You can shop for Careers in Energy Week materials at [ShopCEWD](#); you can search for relevant curricula and education materials on the CEWD Energy Industry Curriculum Center; and you can find everything you need to know about attracting, recruiting, and hiring targeted populations on [www.getintoenergy.com](http://www.getintoenergy.com) and [www.troopstoenergyjobs.com](http://www.troopstoenergyjobs.com).

This chapter explores all that CEWD has available to build career awareness with the candidates CEWD members want and need to bring into the energy industry.



Energy  
Industry  
Fundamentals



get into  
energy



## 2018 State of the Energy Workforce

### [getintoenergy.com](http://getintoenergy.com)

The Get Into Energy website ([getintoenergy.com](http://getintoenergy.com)) was created to raise awareness of jobs in the energy industry. Energy jobs offer competitive pay and benefits, are widely available and generally immune from outsourcing, and provide a valuable service to the community. This public site, which can be reached from the CEWD site or through a general website search, offers important career information designed for five distinct populations: Youth, Engineers, Military, Transitioning Workers, and Women. The site also includes a tab to connect with [getintoenergy.jobs](http://getintoenergy.jobs), the job search tool provided through DirectEmployers, and a link to the **Training Program Locator**, which connects back to CEWD's National Energy Education Network.



#### Youth

The Youth tab of [getintoenergy.com](http://getintoenergy.com) was redesigned in 2018 to become its own microsite that focuses on science, technology, engineering, and math (STEM) skills and their natural connection to energy careers.

Features of the updated [stem.getintoenergy.com](http://stem.getintoenergy.com) include:

- Descriptions of energy careers and hot STEM careers
- Cutting-edge STEM trends in the energy industry
- How to find postsecondary scholarships, contests, and other supports for achieving a career in energy



The **Getting Started and GIE Test Prep** tab gives potential students an understanding of the industry's employment requirements and an overview of the pre-employment tests commonly required by the industry. A new addition is a link to scholarship opportunities for various energy-related programs.

#### Engineers

The Engineering tab describes the types of Engineers needed by the energy industry.

Features include:

- Podcasts and videos about career opportunities and interviews with Engineers
- A resources page with important career-related links
- Outline of the different types of Engineers (e.g. nuclear and mechanical) and how they fit into the industry

## Transitioning Workers

The Transitioning Workers tab was created for workers or youth transitioning into the energy field from another career.

*Features include:*

- A GIE Transitioning Workers Roadmap tool that helps those interested in an energy career through the steps from exploring careers to applying for positions.
- A section that allows a transitioning worker to input his or her current or previous job to identify how skills they've already learned may match up with those needed for energy jobs

## Women

The Women tab on [getintoenergy.com](http://getintoenergy.com) provides resources for women who are considering a career in energy. Energy companies recognize the value of a diverse workforce and are working to appeal more to women who are interested in nontraditional jobs.

As companies focus on women as a key demographic for their future workforce, CEWD is creating tools and resources to help women and energy companies find each other. One recent example is CEWD's Strategic Linkages Guide for Recruiting, Hiring, and Retaining Women Engineers in the Energy Industry.

## Military

Clicking the Military tab on the Get Into Energy website transports visitors to [www.troopstoenergyjobs.com](http://www.troopstoenergyjobs.com), created in 2013 to help veterans make a successful transition to a career in energy. The Troops to Energy Jobs Roadmap guides veterans step-by-step in exploring energy careers, transferring credit for military training and translating military experience to energy job requirements, identifying any additional education and credentials the veteran may need, and finding support in their job search.

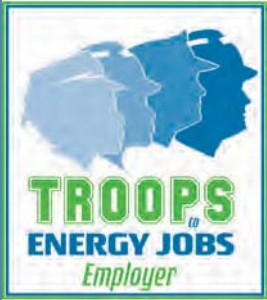
*Clicking on the green button located on the homepage takes veterans to the Roadmap page, where they can:*

- Explore the Troops to Energy Jobs Roadmap tool
- Connect with and get support from a virtual career coach
- Explore energy careers, including Lineworker, Technician, and Power Plant Operator
- Apply for energy jobs
- Register on the Veterans Database

## Five Quick Things That Support a Military Recruitment Strategy

In 2017, CEWD developed a series of recommendations energy companies can take to improve their career awareness with the military and veteran communities.

### 1. Sign the Troops to Energy Jobs (TEJ) Commitment



The TEJ Commitment demonstrates a company's support and commitment to the Troops to Energy Jobs initiative and its engagement in one or more of the following objectives:

- Make it easier for veterans to find your jobs and to translate their skills and training.
- Accelerate the time it takes veterans to earn required credentials or degrees.
- Provide full value for military training and experience when hiring.
- Create a military-friendly environment within the company.
- Increase the number of veterans who are recruited, hired, and retained.

Follow this link to complete the commitment form:

<https://www.surveymonkey.com/r/TroopsCommitment>

### 2. Add the TEJ Employer Badge to your website as well as all veteran-related material

CEWD created a badge member companies can post on their military recruiting or career site that not only shows the company's commitment to hiring veterans but also takes veterans directly to the Troops to Energy Jobs site and enables CEWD to track veteran activity. Once a company signs the TEJ Commitment, the Troops to Energy Jobs Employer Badge will be added next to the company's name on the TEJ Roadmap. [Go to the \*Build section of the Troops Wizard\*](#) and click on "Step 2" to see an example of how the badge can be used on a company site.

### 3. Register on the TEJ Veterans Database

The Veterans Database helps connect veteran jobseekers with employers who are interested in hiring veterans. Registered companies are able to find veterans using several search criteria: state, MOS code, or skills. The database enables recruiters to reach out proactively to veterans to alert them to job openings, career fairs, testing opportunities, or just to inform them of veteran-related activities. [Follow this link to register on the database:](#)  
<http://www.troopstoenergyjobs.com/registration/company/index.php>

### 4. Join the TEJ Community of Practice

CEWD holds quarterly Troops to Energy Jobs Community of Practice calls. The Community of Practice includes military recruiters, military outreach specialists, and those responsible for implementing the veteran strategy within their company. The calls serve as an opportunity to share and learn from others.

### 5. Ensure your open jobs are posted on the TEJ Job Posting Site

CEWD has created a one-stop job search site for veterans where all member companies' open positions are posted. DirectEmployers scrapes CEWD member company sites each night for job postings, and adds them to our posting site. Veterans can click and view job descriptions as well as be taken to the company site to apply for these jobs. Any changes to applicant tracking systems may affect the scraping process. Companies can check the site at <http://troopstoenergyjobs> to ensure their open positions are posted.

## Veterans in Energy – For Veterans, By Veterans

While Troops to Energy Jobs focuses on attracting veterans to the energy industry, Veterans in Energy (VIE) is a national employee resource group that provides transition, retention, and professional development support to the growing population of military veterans who have chosen energy careers.

VIE was established in 2017 by the Utility Industry Workforce Initiative (UIWI), a working group that brought utility industry trade associations, federal agencies, and labor groups together to identify new initiatives the energy industry can undertake to support veterans working in energy jobs.



Led by veterans in the energy industry, VIE provides the opportunity to expand best practices identified in the Troops to Energy Jobs National Template by connecting military veteran employees to others around the country and by providing leadership opportunities at the state, regional, and national level.

An annual VIE Forum celebrates energy employees who have served in the military. To learn more, visit [veteransinenergy.org](http://veteransinenergy.org).

## Branding at Work

### Careers in Energy Week

Career awareness—or, more precisely, the lack of career awareness—is a common theme in State Energy Workforce Consortia meetings across the country. There is overwhelming agreement that jobseekers, students, and parents need a greater understanding of the availability of high-quality energy jobs and the requirements to work in the industry. In an effort to help the industry change those perceptions, CEWD introduced **Careers in Energy Week** in October 2010 as a common time for CEWD members to build awareness of opportunities in the industry.

Each year, Careers in Energy Week celebrations demonstrate the creativity and ingenuity of state consortia and individual companies. From welding contests to classroom grants and governors' proclamations, activities aimed at showcasing the industry as a desirable employer are growing.



### I Got Into Energy

In 2018, CEWD introduced a new career awareness tool just in time for Careers in Energy Week: I Got Into Energy. This initiative leverages cell phone technology and social media to highlight messages from current employees. An I Got Into Energy campaign can be used at any time of the year to reinforce other career awareness activities. Follow this link to see examples of how CEWD's members celebrated Careers in Energy Week 2018! <https://cewd.org/careers-week-social-media>.

## Other Career Awareness Resources

### ShopCEWD

Always a great resource for Get Into Energy materials, **ShopCEWD** is a one-stop location for career awareness materials, many of which can be branded by state consortia or individual industry partners, giving local energy workforce efforts greater visibility and reinforcing CEWD's approach: **Industry Solutions - Regional Implementation**.

GIE materials available through **ShopCEWD** offer potential applicants information about the types of energy careers that are available and also a realistic picture of the requirements for entry-level jobs, including education, physical abilities, pre-employment testing, background, and drug screening. This type of career guidance information is valuable in helping students make the right career choice earlier in the process. Visit <http://www.cewd.org/shop/>.

### National Energy Foundation Partnership

In 2013, CEWD formalized a strategic partnership with the National Energy Foundation (NEF) ([www.nef1.org](http://www.nef1.org)) to leverage the career awareness and education initiatives between the organizations. Through this partnership with NEF, CEWD is able to provide members with lesson plans and other branding materials. To see a full list of alliances, go to: <https://cewd.org/about/partners-alliances/>.



## Get Into Energy / Get Into STEM

When CEWD was approached by its members in 2014 and asked to help strengthen the visibility of energy jobs in the national **FIRST® Robotics** competition, it wasn't hard to envision yet another use for the Get Into Energy brand. So **Get Into Energy / Get Into STEM** was born!

This addition to the Get Into Energy brand family is intended to reinforce that STEM competencies go hand-in-hand with the qualifications needed for highly skilled technical jobs in the energy industry. The new brand, originally developed for **FIRST® Robotics** in 2015, has since been used broadly in career awareness materials and has become the focal point of CEWD's youth site, <http://stem.getintoenergy.com/>.



**FIRST®** (For Inspiration and Recognition of Science and Technology) is a national organization that designs innovative programs to build self-confidence, knowledge, and life skills while motivating young people to pursue opportunities in science, technology, and engineering.

*"These kids are the technicians, the IT professionals, the engineers, and the statisticians of the future. And with the partnership between our industry and FIRST® Robotics, we can tap into that talent pipeline early and build a great reputation as an industry where technology and change are happening and where these kids can join our teams."*

*Patti Poppe,  
President and  
Chief Executive Officer,  
CMS Energy Corporation and  
Consumers Energy Company*

**FIRST®** students have both the technical and employability competencies the energy industry is looking for in its future employees. Through **FIRST® Robotics**, the **FIRST® Tech Challenge**, and the **FIRST® LEGO League**, **FIRST®** inspires young people to be science and technology leaders by engaging them in exciting mentor-based programs that build science, engineering, and technology skills; that inspire innovation; and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

The Get Into Energy / Get Into STEM initiative was created to raise awareness of the energy industry and energy careers through sponsorship of *FIRST*® teams and competitions across the nation. In 2015 and 2016, through generous support from member companies, CEWD provided a regional and national presence including hands-on exhibits and events with sponsoring CEWD member companies. The favorite attraction by far was the **Robot Doctor!** Robot Doctor Stations at the super-regional competitions and national competition were staffed by volunteers from sponsoring CEWD members and CEWD. Support for *FIRST*® Robotics at the regional level continued in 2017 where the Robot Doctor was again open for business!



The 2017 Super Regional competitions also resulted in an impressive amount of social media exposure, reaching more than 22,000 users on Twitter, nearly 600 of whom liked, clicked on, followed, or retweeted CEWD's tweets. Another 10,515 people saw CEWD's Facebook posts from the events, with 77 users reacting to, commenting on, or sharing them. The Facebook posts also generated 469 viral impressions, extending their reach even further.

Following the regional competitions in 2017, CEWD and its sponsoring companies assessed CEWD's national and regional participation in *FIRST*® and made a decision to shift support to local *FIRST*® initiatives. At the local level, companies are better able to have personal engagement and develop long-term relationships with students that potentially lead to employment in the industry.

CEWD continues to support local *FIRST*® and STEM outreach through a robust toolkit and list of resources. Check out <http://cewd.org/first/> to find out how to become a mentor, sponsor a team, and build strategic linkages to your other career awareness and educational activities.



## Strategic Linkages: Linking Strategies to Improve Workforce Diversity

We all know the importance of having a diverse workforce. Let's begin with some fundamental beliefs:

- Everyone benefits when our workforce mirrors the communities we serve.
- Diversity of thought broadens our problem solving, creative thinking, and innovative capabilities, all of which help our companies prosper.
- Real progress in improving diversity, like quality and safety, must start at the top and be reinforced company-wide.

But how are we doing as an industry, and as individual companies, on this critical issue? And what will it take to make real progress?

*"If we want to develop a qualified, diverse workforce, we must intentionally connect programs to strengthen and support our relationships with people of diverse backgrounds at all levels."*

*Ann Randazzo,  
Executive Director, CEWD*

In 2016 and 2017, CEWD began researching how energy companies are creating a diverse workforce by exploring the questions of, "What works? What doesn't? How can we make progress? What else should we be doing?" Through discussions at regional meetings and the CEWD Annual Summit, documenting best practices, and utilizing the Diversity Advisory Group as a sounding board, CEWD created new tools and resources to help member companies "strategically link" their efforts and initiatives to gain more benefit.

The result was the concept of "strategic linkages" that connect diversity efforts all along the energy career pathway, beginning in elementary school and continuing through the hiring process well into employee development.

CEWD defined four distinct phases along the career pathway where strategic linkages can have the greatest impact in building a more diverse workforce:

- **Starting Early**, which focuses on middle and high school career-awareness building for energy careers and development of energy competencies among diverse student populations.
- **Keeping the Momentum Going**, which focuses on providing a seamless transition for students from high school to postsecondary education. Here students confirm their fit for an energy career through work-based experiences, accelerate earning credentials through dual enrollment, and seek out energy-focused scholarships.
- **Providing Support Through Postsecondary**, which reinforces students' relationships with energy employers through career navigation, scholarships, mentoring, and internships.
- **Retaining Diverse Talent**, which focuses on retaining diverse qualified employees, in part by creating an environment that supports, promotes, and rewards diversity.

CEWD also developed a number of resources, beginning with Strategic Linkages Guides for recruiting, hiring, and retaining two distinct diverse populations: individuals with disabilities and women engineers.

In 2017 came the **Diversity and Inclusion National Template**, to include the previously developed Strategic Linkages Guide and a new family of resources called **Making the Connection** that includes a step-by-step playbook for building a more diverse workforce, a diversity and inclusion assessment companies can take, and a CEWD member showcase that highlights strategic linkages that work.

Find these resources and more at <https://cewd.org/diversity/>.

Also, the following Promising Practices reinforce the power of strategic linkages in building career awareness with young girls, veterans, and young women and men of color.

## *Promising Practices in Career Awareness*

### **Southern Nuclear: Creating Strategic Linkages to Young Girls in Georgia**

Like many companies, Southern Nuclear's Plant Vogtle in Waynesboro, GA, wants to attract a diverse, skilled workforce, but the number of women entering the nuclear industry remains scant.

The problem actually starts much earlier—there aren't many women in the industry because they aren't enrolling in energy or STEM pathways back at the high school level. So Southern Nuclear decided it would have to go much further back for its recruitment efforts—all the way back to 6<sup>th</sup> grade.

"The research shows that middle school can be a pivotal time for girls," said Nora Swanson, workforce development coordinator for Southern Nuclear.

It's at this time that girls often lose confidence—and, consequently, any interest—in pursuing math and science courses. However, studies have shown that girls who are involved early in STEM-related afterschool activities and who receive support and encouragement from teachers and industry mentors are more likely to have positive attitudes about pursuing STEM-related careers. They're also more likely to develop the skills they need to be successful in STEM areas.

Armed with this information, three years ago Swanson and Suzanne Sharkey from Georgia Power launched a series of programs called STEM Power for local middle schools. The programs are geared toward generating greater interest and abilities in STEM among girls.

They began with a hands-on afterschool program for 6<sup>th</sup> graders that exposed the girls to STEM-related projects and information about the energy industry. The program was then expanded to include 7<sup>th</sup> graders and field trips to local colleges offering STEM programs of study that feed Southern Nuclear's pipeline. The girls met with professors and female students who talked to them about the numerous career opportunities open to women majoring in math, science, and engineering.

Wanting to continue their relationship with the girls as they advanced through school, Swanson said last year they launched a pilot program for 8<sup>th</sup>-grade girls to join a *FIRST*® Tech Challenge (FTC) Robotics team to build robots and enter them into competitions. It was at a CEWD regional meeting that the idea of building the FTC team came to her, said Swanson.

"CEWD was promoting energy partners to Get Into Energy / Get Into STEM through the *FIRST*® initiatives, and this seemed the natural next step for STEM Power," she said.

The FTC pilot team included 13 8<sup>th</sup>-grade girls and will soon expand to include 9<sup>th</sup>- through 12<sup>th</sup>-grade girls. This will give the students a chance to continue their participation while building a larger team, or dividing into two or three teams, said Swanson.

"The great thing about this program is that we can continue expanding as they move through high school and can stay in contact with these girls through 12<sup>th</sup> grade," she added. "That means we can mentor a girl through STEM Power initiatives for up to seven years."

Both Southern Nuclear and Georgia Power provide coaches, mentors, and support for the FTC teams, said Swanson. The program teaches the girls much more than how to build robots.

“It teaches them about coding, problem solving, and the engineering design process, but it also teaches them gracious professionalism—a trademark of *FIRST*®,” said Swanson. “It builds character in the girls. To succeed, they have to forge alliances with other teams. They build friendships. They learn to help each other when needed.”

The FTC program—as well as the other energy-related afterschool programs that Southern Nuclear and Georgia Power have created—are also a means for giving back to the communities they serve, said Swanson. The programs are offered at Title One schools, “and it’s all free to the girls.”

With each of these programs, said Swanson, the utilities are building awareness of energy careers. She’s hoping this will pay long-term dividends in terms of guiding these students down the energy pathway into their postsecondary partner programs, and ultimately into rewarding careers in the energy industry.

### **Xcel Energy: Connecting Veterans to Energy Jobs in Colorado**

Lacey Golonka spends much of her time matchmaking. A Veterans Diversity Consultant for Xcel Energy, it’s her job to find qualified veterans and transitioning military with the skills to fill openings in all departments of the company’s 15 Colorado plants, as well as those in seven other states. But she doesn’t have to do this alone. With six military bases in Colorado alone and both a state workforce system and State Energy Workforce Consortium deeply committed to veterans, she has plenty of resources at her disposal.

“We’re very lucky in that respect,” said Golonka, herself a veteran still active in the Army National Guard. “The pool is very large for recruiting.”

One of the more useful tools at her disposal, said Golonka, is Connecting Colorado, a database built by the Colorado Department of Labor and Employment that matches job openings to applicants using a series of filters that allow employers to look specifically for veterans in the area. There are more than 127,000 veterans in the database, with more than 12,000 actively seeking work.

“For example, if we need a gas fitter with specific skills, we can ask the workforce centers to search the database for veterans who meet these criteria,” she said. “That’s a phenomenal resource for us, especially for hard-to-fill positions.”

Like many utilities, Xcel sees the value in hiring veterans and transitioning military service members because of the skills they’ve developed as part of their military training. “They’re always on time, they excel quickly, and they make great team leaders,” said Golonka. “They also know how to think outside the box. So in the supply chain, for example, they may bring new ideas from their experience from the military and be able to suggest new ways of doing things in the corporate environment. Hiring veterans has really worked well for us.”

In addition to the database, the Colorado workforce system offers utilities and other employers the opportunity to participate in networking events for veterans tailored to specific job categories. Golonka said the state uses the database to build its invitation list for veterans looking for jobs and invites employers to come to these events to talk about their companies and the jobs they are looking to fill.

“They always try to have an energy representative at those events,” which are held monthly, Golonka said. “If we can’t go, then another energy employer in the area will go.” She added that workforce centers in Minnesota, which is also in Xcel’s coverage area, hold similar networking events for veterans.

“There will be maybe 40 veterans in the room,” she said. “We talk about the jobs we have to offer, best practices for jobseekers, and resume writing in order to network and increase their chances for an interview.”

The Colorado Workforce System makes hiring veterans a priority, using trained veteran outreach staff to collaborate with employers in the energy and other industries to promote hiring veterans. Last year, they worked with the Colorado Energy Workforce Consortium to hold an in-person and virtual job fair for veterans, which they promoted on their computer network for the week leading up to the event, held during Careers in Energy Week.

Golonka said members of the Colorado Energy Workforce Consortium also collaborate informally when looking to fill jobs. For example, if she has a veteran candidate she cannot hire, she’ll pass that person along to other members. “When we have good veteran candidates, we do a lot of sharing,” she said. “I had a veteran fellow who spent 11 weeks as an HR intern. However, at the end of the fellowship we did not have any open HR positions so I passed him along to another energy company.”

Golonka said consortium members also conduct their own veterans outreach efforts. For example, Xcel recently hosted a plant tour for 30 people, including business partners, employees, representatives from workforce centers in the region, and others with connections to veterans, as a means of promoting the company and the jobs it has to offer. “I gave a talk about who we are, the jobs we have, what we do, and what our jobs are going to look like over the next 10 years,” she said. “Half our workforce is going to be eligible for retirement. We have positions to fill.”

### **In Omaha, Utilities Reach Out to Young Women and Men of Color Through Energy Career Days**

Raising awareness of energy careers and attracting more diverse, qualified candidates to them are two of the biggest challenges faced by utilities looking to maintain a steady flow through their workforce development pipelines. Targeted career days offer energy companies a way to address both of these issues head on.

Based on a successful model used by the Oregon Tradeswomen for more than 20 years, the Nebraska Energy Workforce Consortium created a Women in Trades Career Day four years ago to spark interest in the energy field among middle and high school young women in the Omaha area. The one-day event, featuring hands-on demonstrations and activities, was so successful that the consortium has now expanded it to include a second day of events geared toward young men of color.

“In general, the make-up of the workforce at our companies is predominantly male and white,” said Joyce Cooper, Workforce Development Manager of Omaha Public Power District (OPPD), “even though Omaha is the most diverse community in this state. Even with that going for us, our employees are only 21 percent female and for people of color, we’re at 11 percent.”

Cooper said the Energy Career Days give them an opportunity to increase awareness of opportunities within the energy industry among the diverse population of young people who live within their service territory. OPPD and others in the consortium are striving to generate a more representative pool of job candidates down the line.

“We’re finding that students are not even aware of what we do,” she said. “We want to immerse them in our world, so they can remember who we are and what we do when they’re beginning to think of potential careers.”

The Energy Career Days for young men and women are held back-to-back in October at an OPPD service center and now include workshops focused on the types of jobs in greatest demand, based on an analysis conducted by the consortium, said Cooper. Some of those high-demand jobs include engineering, field technicians, plant operators, and cyber security specialists. Each member of the consortium—which includes OPPD, Nebraska Public Power District (NPPD), Lincoln Electric System (LES), Black Hills Energy (BHE), and the Metropolitan Utilities District (M.U.D.)—will conduct hands-on activities for students, specific to these high-demand jobs. The workshops will also include participation from the utilities’ educational partners, who will talk to students about the degree programs they offer that can help prepare them for these jobs.

“This provides a really nice way of connecting the dots for students,” said Cooper.

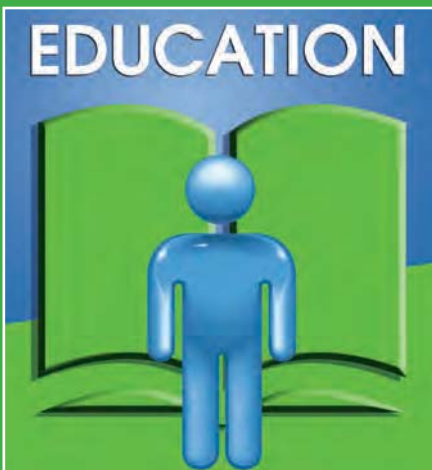
OPPD decided to host the career days at one of its training centers so students could see for themselves what’s required—such as climbing a utility pole—to actually do the jobs they’re learning about, said Cooper. “They can see everything in operation.”

Recruiting for both career days is done through the Omaha Public School (OPS) system, where the student population is 72 percent people of color. Besides working directly with the administrators at OPS, students are recruited from other local school districts, said Cooper. “We also partner with organizations such as the Urban League of Nebraska, Partnership 4 Kids, and Avenue Scholars to help to recruit students for the two career days,” she said.

Roughly 100 young women attended the Careers in Energy Day last year and 30 young men attended the first Careers in Energy Day for males. Cooper said she expects the number of boys to double this year and hopes to attract about 120 girls.

In addition to the Career Days, OPPD sends career ambassadors to schools in the service territory to engage students in classes throughout the year. The 24-member employee outreach team includes women and people of color who are also involved in the company’s employee resource groups. OPPD also hopes to develop an afterschool program for students.

“We are committed to better reflect the customers that we serve,” she said, “and little by little, we are making progress.”



**Objective:** Implement clearly defined education solutions that link industry-recognized competencies and credentials to employment opportunities and advancement in the energy industry.

## Chapter 4: *Education*

### *Progress in Developing a Diverse, Qualified Workforce*

#### *Get Into Energy Career Pathways Model*

#### *GIE Career Pathways Model Case Study*

- Troops to Energy Jobs

#### *CEWD Energy Competency Model*

- Personal, Academic, and Workplace Competencies: Tiers 1–3
- Industry-Wide and Industry-Specific Technical Competencies: Tiers 4–5
- CEWD Legacy I<sup>3</sup> Credential: Supporting Tiers 1–5
- Occupation-Specific Competencies: Tiers 6–8

#### *The CEWD Energy Industry Curriculum Center*

#### *Promising Practices in Education*

## Progress in Developing a Diverse, Qualified Workforce

Significant progress has been made in developing a diverse, qualified energy workforce since CEWD and its members began work in 2006. Partnerships with technical schools, community colleges, vocational programs, and high schools are delivering quantifiable value to the industry. The value comes in the form of diverse, qualified applicants who have the desired skills and through reductions in recruiting and training costs. It is clear that these partnerships work.

While educators are working more closely with industry to fill the talent pipeline, all educational programs are not created equal. The most successful ones are based on a common set of competencies and industry requirements, which readies graduates to have the necessary qualifications for the same job in different parts of the country or with different companies in the same state. When curriculum is not built on a common set of foundational skills that are common to all jobs, a student graduating from one program may have to start over in another program if a job is not available in the area or location they originally targeted.

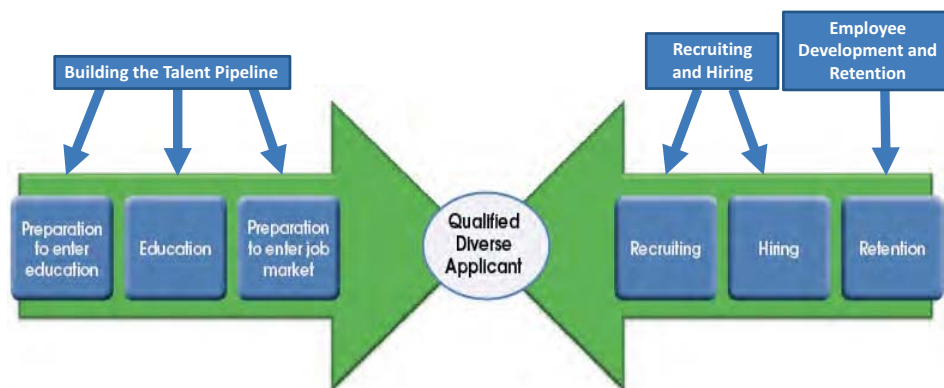
This is why CEWD continues to encourage its National Energy Education Network (NEEN) members to use the **Get Into Energy Career Pathways Model** and take the following actions in developing a diverse, qualified pipeline of applicants for the energy industry:

- Conduct **boot camps** at every stage of the pathway for concentrated skill development.
- Accelerate the time it takes a student to earn his/her credential by **recognizing prior learning**.
- Focus on the **common denominator**, by organizing programs of study around core essentials first and then technical competencies.
- **Bundle curriculum** with transferable certificates and stackable credentials that integrate industry-recognized credentials into energy programs of study.
- Provide industry partners with **supply data** on students in the pipeline.

## Get Into Energy Career Pathways Model

CEWD's **Get Into Energy (GIE) Career Pathways Model** offers a roadmap for entry into skilled positions in the Electric and Natural Gas Utility Industry. These positions include Lineworkers, Generation Technicians, Transmission and Distribution (T&D) Technicians, and Plant/Field Operators. Details on each of the jobs, along with resources for implementing the pathways model, can be found on the CEWD website, [www.cewd.org](http://www.cewd.org). Successful implementation is dependent on partnerships between energy companies, contractors, educators, and other training providers to ensure that youth, military, and transitioning workers can successfully enter energy careers.

The model offers an in-depth view of three key phases for which every successful **applicant** for an energy job will need industry and education support, as well as the three key phases the companies themselves must drive internally to ensure qualified applicants are hired and retained. These phases align to the measurement areas described in the new **CEWD Measurement Framework** described in Chapter 2: Workforce Planning.



**Retention** is a key issue for many companies and should be addressed as part of a company's Workforce Development strategies. See Chapter 2 for more about solutions CEWD members have developed to address retention.

Student entry into key energy jobs may not be as linear or clean as this model would suggest, but each phase is important to success.

### Preparation to enter education:

*Interest to  
Acceptance into  
program*

### Education:

*Enrollment to  
Completion of  
credential with  
Labor Market  
Value*

**Preparation to enter education:** Preparing for and selecting the right education pathway is critical for those aspiring to a career in the energy industry. This phase covers steps involved in understanding energy careers, selecting and preparing for the appropriate education pathway, and ends with acceptance into a program of study for a specific job category. Resources for career awareness and career navigation range from the Get Into Energy website and career navigation materials to the Troops to Energy Jobs website created specifically for transitioning military and military veterans.

**Education:** Steps in this phase start with enrollment in an appropriate program of study, to completion of defined credential(s) with labor market value. CEWD has defined specific education pathways and the competencies and credentials that will prepare potential applicants for success in energy careers.

### Preparation to enter job market:

Preparation to  
Selection

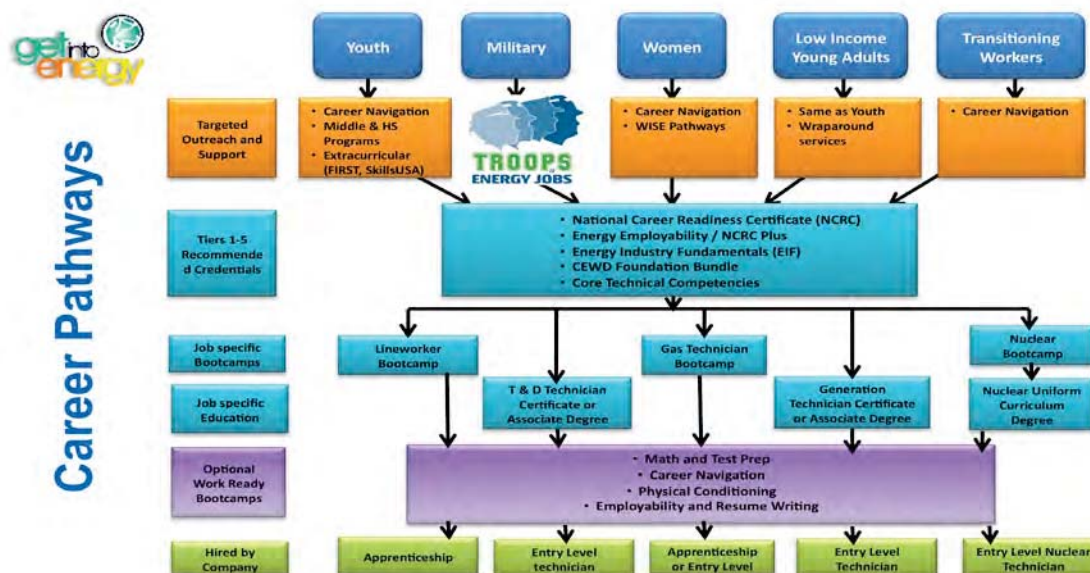
**Preparation to enter job market:** Upon completion of an energy pathway, candidates begin preparation to enter the job market. This phase may include research into a specific company's application requirements and preparation for pre-employment testing and screening. There are a number of best practices being used in the energy industry to help make this transition successful. These include providing support for pre-employment testing with CEWD's Get Into Energy Test Prep Workshop, using the Troops to Energy Jobs Roadmap for Veterans, or registering on the [Get Into Energy Registration Site](#).

CEWD's Career Pathways Model helps you decide the best way to appeal to and achieve competency for various demographics: **Youth**, **Military**, **Women**, **Low Income Young Adults**, and **Transitioning Workers**. For each of these groups, the pathway may look different based on experience and skills but all of them have the option to earn common industry-recognized credentials, which are detailed in the following pages.

Options include **Job-Specific Boot Camps and Education** that align to positions such as Lineworker, Technician (Gas, Generation, or T&D), or a nuclear-specific career, all of which require some type of postsecondary education.

**Work-Ready Boot Camps** enable individuals to brush up on general, Work-Ready skills, such as preparing for pre-employment testing, resume writing, interviewing, and navigating one's career. In addition, there are Work-Ready Boot Camps that can provide physical conditioning for those careers more physical in nature, such as a Lineworker.

**Hiring by Company:** Depending on the occupation, individuals may be hired as an apprentice (Lineworker or Gas Technician) or as an entry-level employee (Generation, T&D, or Nuclear).



## GIE Career Pathways Model Case Study: Troops to Energy Jobs

**Troops to Energy Jobs** is a perfect example of targeted outreach, support, and education in CEWD's Career Pathways Model. The outreach, support, and educational requirements needed for a veteran moving into an energy job can differ greatly from that required for other demographics. The U.S. Department of Veterans Affairs estimates that between 190,000 to 200,000 active-duty personnel will separate from the military in the next 25 years. Combine those numbers with career opportunities in the energy industry, and having a dedicated support model for veterans is a win-win strategy for energy companies and returning veterans.

The Troops to Energy Jobs National Template guides employers through four key phases—Prepare, Build, Implement, and Measure—which help them prepare internally to recruit, hire, and retain veterans. The Troops to Energy Jobs website ([www.troopstoenergyjobs.com](http://www.troopstoenergyjobs.com)) guides veterans through a unique Roadmap to a Career in Energy, including access to virtual career coaching and a job posting site ([www.troopstoenergy.jobs](http://www.troopstoenergy.jobs)) that is updated daily.

The National Template aligns with and complements the Troops to Energy Jobs Roadmap (found at [www.troopstoenergyjobs.com](http://www.troopstoenergyjobs.com)) created by CEWD to provide veterans with step-by-step advice on how to transfer their military training to new energy careers. Together, these tools 1) make it easier for veterans to find jobs, 2) accelerate the time needed to earn required credentials, 3) ensure the veteran is receiving credit for military experience, and 4) create a military-friendly environment within the company. The overriding goal of these tools is to increase the number of veterans who are recruited, hired, trained, and retained.



CEWD's  
Partners in  
Developing  
the Troops  
to Energy  
Jobs National  
Template:

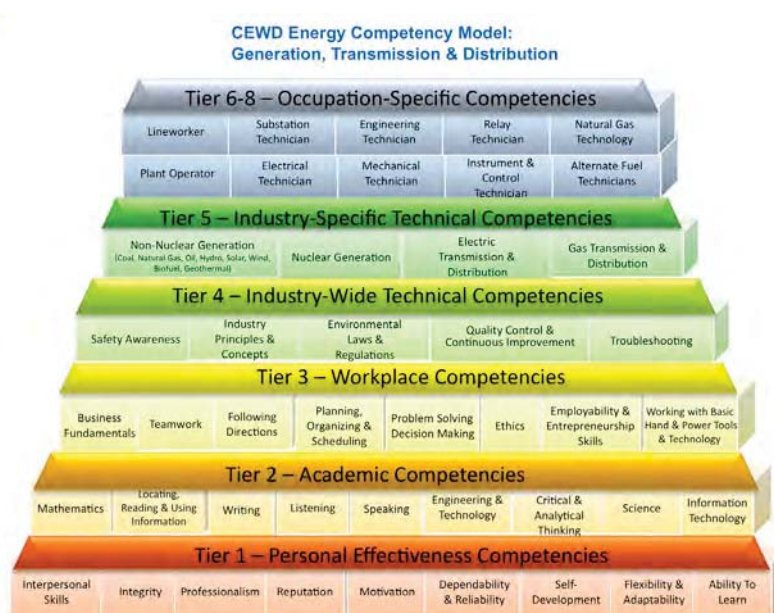


## CEWD Energy Competency Model

The CEWD Energy Competency Model has proven to be a valuable tool for educators, workforce investment professionals, and businesses to articulate the skills required to perform successfully in various jobs in the energy industry.

**A competency model is a collection of competencies that together define the potential for successful performance in a particular work setting.** Competency models are the foundation for important human resource functions—such as recruitment and hiring, training and development, and performance management—because they specifically define essential skills as well as train and develop a diverse, qualified candidate pool.

CEWD, in partnership with the U.S. Department of Labor, developed the **Energy Competency Model** that defines basic competencies, industry fundamentals, industry technical competencies, and job-specific competencies in eight separate tiers. The Energy Competency Model is designed to provide a consistent definition of the competencies required to work in the industry.



Tiers 1–4 define the common competencies required for any position in an electric and natural gas utility. Tier 5 identifies competencies that are unique to positions in four industry functions: **Nuclear Generation**, **Non-Nuclear Generation (coal, natural gas, oil, hydro, solar, wind, biofuel, or geothermal)**, **Electric Transmission & Distribution**, and **Gas Transmission & Distribution**. The remaining tiers describe occupational-specific competencies.

Potential candidates on an energy career pathway must master personal, academic, and workplace competencies (Tiers 1–3), as well as industry-wide and industry-specific competencies (Tiers 4–5), which provides a foundation of knowledge about the energy industry and its functions, and occupation-specific competencies (Tiers 6–8).

## 2018 State of the Energy Workforce

In the following pages, we detail some of the competency-based education that supports and reinforces the competencies outlined in each tier of the CEWD Competency Model.

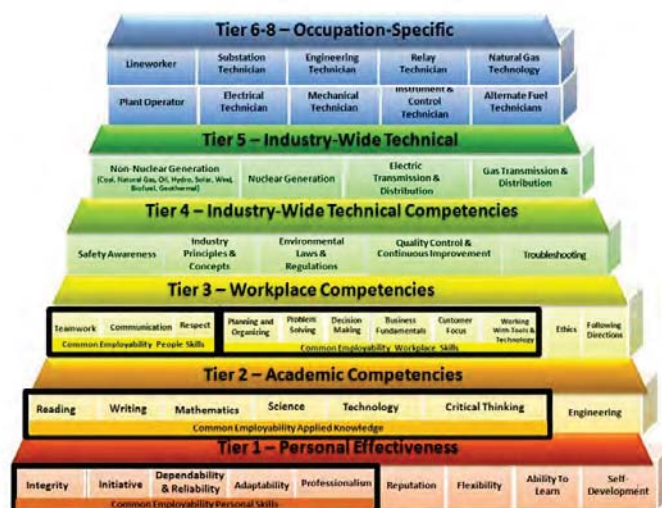
More information about the CEWD Competency Model can be found on the CEWD Members Implementation Wizard under Education: <https://cewd.org/wizard/educators/>.

### Personal, Academic, and Workplace Competencies: Tiers 1–3

Tiers 1–3 of the Energy Industry Competency Model include the categories of Personal Effectiveness, Academic Requirements, and Workplace Requirements. These competencies are an essential foundation to success in any career pathway in the energy industry. CEWD is a member of the National Network of Business and Industry Associations (NNBIA) which has published a Common Employability Skills (CES) Framework that establishes a vivid, unifying description of the requisite knowledge and skills needed to gain employment.

CEWD is a sponsor of the CES, along with other leading industries, including advanced manufacturing, retail, IT, and transportation. These skills directly align to Tiers 1–3 of the Energy Industry Competency Model, though there are a few industry-specific areas, such as engineering and technology, hand and power tools, and some more advanced math concepts, which are part of the CEWD version of the CES Model.

As a result of the partnership with NNBIA, CEWD developed an energy industry version of the CES, including skill “add-ons” like engineering, enhanced decision-making, and other skills especially important in energy careers. The CES skills were then overlaid on the existing CEWD Competency Model, as shown here.



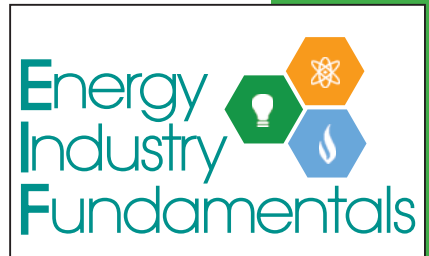
A valuable outcome of CEWD’s partnership with the NNBIA is three booklets for use by NEEN educators to assess and teach employability skills through contextualized learning and to build awareness among students on the importance of these skills in the workplace. The three booklets, **CES Assessment Guide for the Energy Industry**, **CES Contextualized Learning Guide for the Energy Industry**, and **CES Student Communication Guide for the Energy Industry**, can be found at <https://cewd.org/wizard/educators/ces-for-educators/>.

## Industry-Wide and Industry-Specific Technical Competencies: Tiers 4–5

CEWD developed the **Energy Industry Fundamentals (EIF) Certificate** in 2011 to support and test the achievement of competencies in Tiers 4–5. The curriculum was reviewed and updated in 2018, at which point there were approximately 69 Approved Course Providers (ACPs) for Energy Industry Fundamentals. Since inception, 3,526 students have taken the assessment and 2,533 EIF Certificates have been issued.

Community colleges and high schools that have become ACPs are able to adapt the curriculum to meet different needs, including incorporating OSHA-10 certification or using a blended learning approach with students reading material independently and instructors “bringing it to life” through instruction, labs, and projects.

EIF provides a broad understanding of the Electric and Natural Gas Utility Industry and the energy generation, transmission, and distribution infrastructure, commonly called the “largest machine in the world,” which forms the backbone for the industry. The course includes business models; regulations; types of energy and their conversion to useable energy, such as electric power; how generated power is transmitted; emerging technologies; and the connection to careers in the energy industry.



There are seven course modules which may be offered separately or as a **certificate program** totaling approximately 130 hours of instruction. Five of the modules are designed to be taught in person in a classroom setting (either high school or community college) and include Instructor Guides, Student Guides, and PowerPoint presentations. Modules 6 and 7 are online modules that can be used in a classroom setting, but are also effective for students to explore on their own. In addition, a new online, instructor-led version of the course is available.

**New in 2017:** Students who successfully complete EIF and pass the assessment receive a digital credential which can be shared via social media and included on their jobseeker profiles.

To learn more about how to offer EIF or to review the modules, visit <http://www.cewd.org/curriculum/eif-modules.php>.

### CEWD Legacy I<sup>3</sup> Credential: Supporting Tiers 1–5

In 2018, CEWD was awarded a grant from the National Network of Business and Industry Associations (NNBIA) to develop a joint **CEWD/Legacy I<sup>3</sup> Credential** that incorporates the Energy Industry Common Employability Skills, Energy Industry Fundamentals, and the OSHA-10 certification. The new credential recognizes students who complete the Legacy I<sup>3</sup> Model and demonstrate competency in all areas of Tiers 1–5.

The TCI Solutions Legacy I<sup>3</sup> Model is designed to identify and systematically address the factors that cause industries to falter in attracting, developing, and retaining qualified, local, and diverse young adults. It is based on a collaborative approach that synchronizes and leverages existing resources from industry, education, and support organizations and prepares high school juniors and seniors for entry-level employment or further education. The Model provides character and skills training after school and on weekends and connects families with community-based agencies that provide support services.



The Legacy Model has been implemented successfully in Minnesota and Nebraska. In Minnesota, with lead energy partner Xcel Energy, 32 students had completed the program as of 2018, with 22 of them enrolling in college, 6 enrolling in a lineworker program, and 18 completing business internships.

In Nebraska, with lead energy partner Omaha Public Power District (OPPD), 23 students had completed the program as of 2018, with all 23 enrolled in college and having earned 4 college credits for their completion of Legacy. Twenty of the students interned with OPPD.



Legacy I<sup>3</sup> has incorporated the Legacy I<sup>3</sup> Energy Industry Credential as part of its programming for seniors in high school and in their intensive summer program for high school graduates.

### Occupation-Specific Competencies: Tiers 6–8

Credentials for the competencies detailed in Tiers 6–8 are delivered in many ways, including **high school career pathways, postsecondary 2- or 4-year degrees, apprenticeships, and boot camp certificates**.

CEWD offers boot camp curricula in its Energy Industry Curriculum Center, detailed in the following pages.

Program offerings for postsecondary completion are detailed at a state, regional, and national level through CEWD's National Energy Education Network (NEEN). NEEN includes more than 200 sponsored educational institutions across the country that collectively offer more than 400 energy programs to train students for key technical careers. Educators in NEEN include universities, community colleges, technical schools, high schools, and career centers.

## The CEWD Energy Industry Curriculum Center

As the need for targeted and responsive energy curriculum has grown, so too has CEWD's offerings to its members and their sponsored educators. The **Energy Industry Curriculum Center**, with its own direct link (<http://www.cewd.org/curriculum/>) that can be found on the CEWD homepage, houses an array of energy-related educational materials, tools, and resources. In addition to the EIF curriculum, options include Get Into STEM lesson plans, a newly developed "Fundamentals of Energy" curriculum for middle school students, and guidance on how to implement a 17<sup>th</sup> Career Cluster in Energy in your state or a High School Energy Career Academy in your service area. Some examples of resources on the CEWD Energy Industry Curriculum Center are highlighted here.

### Fundamentals of Energy

Designed for Grades 6–8, Fundamentals of Energy is a 150-hour course designed to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the energy industry. The content includes but is not limited to a variety of careers; energy sources; and electrical power generation, transmission, and distribution. Divided into seven modules with both Teacher and Student Guides, Fundamentals of Energy is correlated to the Next Generation Science Standards, the Common Core, as well as STEM connections. All materials have been developed by CEWD's partner, the National Energy Foundation (NEF).



### High School Energy Career Academy

A career academy is a small learning community within a school that has a career theme, shows students links between their academic subjects and this theme, and involves employers and higher education institutions in preparing students for college and a career. CEWD's High School Energy Career Academy curriculum helps communities "grow their own" workforce by preparing students in Grades 9–12 for entering postsecondary education or moving directly to employment in an energy job. The curriculum has a heavy STEM focus and not only helps students to build their knowledge of the energy industry, but includes employability skills and integrated academic components as well.

## Get Into Energy Test Prep Workshop

The Get Into Energy Test Prep Workshop is a structured instructor-led program that provides candidates the opportunity to not only learn more about pre-employment testing, but to experience it firsthand. Candidates are exposed to the types of problems they will encounter in real-life testing situations, including being timed while taking practice tests. They also learn strategies for solving the types of questions they will encounter on the EEI CAST, MASS, and POSS tests.

The workshop is best suited for candidates that have already been screened and either have work experience similar to the positions for which they may qualify through the CAST, MASS, and POSS tests or have recently been through some type of education or training experience to prepare them for these positions. It should be offered to individuals who have gone through the company qualifying process and are ready to take the pre-employment test.

The workshop is approximately 20–25 hours in length, depending on which pre-employment test is the focus, and should be completed 2–3 weeks in advance of the testing date. This allows candidates to continue preparing for the test, utilizing the resources provided at the workshop. The workshop is modular, so the program format is flexible and can be taught boot-camp-style or over a longer period of time.

For maximum impact of the workshop, it is important that GIE Test Prep Workshop facilitators utilize the lesson plans as they are written. For this reason, CEWD requires that any members who plan to use the workshop materials participate in a virtual orientation. After completion of the orientation, CEWD provides members with a full instructor guide, student guide, and a take-home practice booklet designed for candidates to keep preparing until the testing date. CEWD, in turn, asks that members report to CEWD how the materials were used (for example, the target audience and how the program was structured) and the percentage of individuals that pass the pre-employment test.

CEWD has resources available on the [Get Into Energy website](#) for candidates who aren't able to access the Get Into Energy Test Prep Workshop in person, including links to math practice quizzes, energy industry reading passages, and mechanical concepts practice.

## Lineworker Pathway

A Lineworker Boot Camp is a short-term program (most are 8–10 weeks) that includes basic information about the industry and the requirements for the position, a climbing certificate, a commercial driver's license, and a safety certificate. The boot camp includes an on-the-job training experience to ensure that the student fully understands the job requirements.

Students are hired into an apprenticeship where they begin an extensive training period (in some cases, up to five years), including classroom sessions with on-the-job reinforcement of the skills learned. All apprentices are paired with experienced lineworkers. Some of the items that are included in the apprenticeship training are cable splicing, installation of transformers and other pole-top equipment, and stringing cable.

## Natural Gas Technician Pathway

In 2013, CEWD developed the Natural Gas Boot Camp in partnership with the Midwest Energy Association (MEA). It is a 10-week program that incorporates the Energy Industry Fundamentals; math skills enhancement; resume and interviewing skills; and Natural Gas Technician-specific skills, such as safety, piping, valves, excavation, customer service, and corrosion. This introductory course is designed for individuals who are interested in the natural gas industry, but have limited knowledge of the work.

The program provides students with an understanding of the principles of natural gas, how to use natural gas in a manner that is safe for the public, and the types of tools and equipment used in the industry. This is an instructor-led online program that incorporates classroom training and hands-on activities to give participants actual work experience. CEWD members have access to the Natural Gas Boot Camp through the CEWD curriculum site and MEA.

## Utility Technician, Power Plant Operator, and Generation Technician Pathways

These Technicians are generally trained as part of a certificate program or two-year associate degree. There are many programs already in existence at local community colleges.

The training programs generally include courses on basic electricity—alternating and direct current, physics, print reading, three-phase power theory, safety, overview of the energy industry, electrical system components—and general education courses such as mathematics, English, and economics. There are also job-specific courses depending on the discipline the student wishes to follow.

Upon graduation and hiring, individuals in these positions would begin an apprentice program of varying duration. There they would be able to apply classroom training in on-the-job situations.

Individuals who are interested in a career in energy can learn more about which curriculum offerings are required for the occupations described in the Career Pathway by exploring the Get Into Energy website at [www.getintoenergy.com](http://www.getintoenergy.com) and the Troops to Energy Jobs website at [www.troopstoenergyjobs.com](http://www.troopstoenergyjobs.com).

## *Promising Practices in Education*

### **How to Succeed in EIF:**

#### **VA School Achieves 100 Percent Pass Rate—Two Years in a Row**

Like all industries, the energy industry is in constant competition to attract the best and the brightest students. But too often, students are unaware of the opportunities available to them in energy. To remedy this, a growing number of high schools and community colleges are introducing students to careers in the energy industry through the Energy Industry Fundamentals (EIF) course. Developed by CEWD, EIF provides a broad overview of the energy industry and the wide range of jobs available on this career path.

While earning the EIF credential can be challenging for high school students, one school in Virginia has found a way to achieve high levels of success.

The Bridging Communities Career and Technical Center and Governor's STEM Academy in New Kent, VA, has been offering the course to high school seniors for the past two years. And for the past two years, they've had a 100 percent pass rate, with all students earning the EIF credential upon completion of the program. Students who pass the course also earn college credits through a dual enrollment program with Rappahannock Community College.

Pat Roane, instructor for the two-year Engineering and Technology program at Bridging Communities, said he attributes the high pass rate to several variables, such as the maturity of the students, small class size, a wide range of instructional methods tailored to the students' strengths, and the fact that he is concurrently teaching the students Introduction to Alternative Energy.

The importance of having a high maturity level in order to take the course should not be underrated, said Roane. "There is a lot of work in this course. By the time they have finished, they have taken 14 in-class quizzes, completed 14 online modules, completed 14 online quizzes, 14 note-taking guides, and there's a lot of reading on top of that. The online module assignments put a burden on them to keep pace. It requires a lot of self-motivation."

Roane teaches the EIF course three days a week to students, alternating between it and the Introduction to Alternative Energy course. There is a small amount of overlap between the two courses, which also helps.

Roane uses a wide range of instructional methods to keep the students engaged, such as lectures, field trips, lab projects, and online coursework, along with guest speakers from their two energy industry partners, Dominion Energy and Columbia Gas of Virginia. The utilities also provide representatives who serve on an advisory committee for the curriculum.

The four college credits students earn through the dual enrollment program are transferrable to an undergraduate degree. Half the students who have completed the course have gone on to study engineering at a college or university. One was recently selected for the Apprentice School at Newport News Shipbuilding.

“It’s too early to tell if these kids are going into energy careers,” he said. “The ones that completed EIF last year are just finishing their first year in college.”

However, he added, several of those who completed the course this year have applied for entry-level energy industry positions.

“Having the EIF credential makes them more competitive candidates for these positions,” he said. “From an energy industry perspective, it makes them better prepared.”

## **Creating an Energy Career Pathway in Michigan**

In 2013, the Michigan Energy Workforce Development Consortium (MEWDC) identified the need to improve visibility for their skilled jobs. The consortium, led by Consumers Energy and DTE Energy, realized one reason the industry had no visibility was that the state lacked an official energy career cluster. Instead, curriculum that aligned to energy in the secondary school system was embedded in other career clusters like manufacturing and agriculture.

Then an opportunity arose with the U.S. Chamber of Commerce to apply for a grant to develop a Talent Pipeline Management Model. The grant provided the necessary funding to work collaboratively with education, government, and other industry partners to pursue an energy career cluster, which was approved in February 2016.

Having an official energy career cluster allows high school students to learn about career opportunities specific to this field and what’s needed to follow that pathway. Through the process, the state’s energy industry was able to help education, government, and other partners understand just what it was they needed in a successful job applicant.

As they worked on creating the career cluster, they evaluated all the energy-related curricula being offered at postsecondary schools in Michigan. They also identified community colleges most appropriate for offering energy-related programs based on the regions in which Consumers Energy and DTE Energy provide service. Based on those criteria, the MEWDC identified regions where they would have more intense focus on energy career educational pathways, including both secondary and postsecondary schools.

A key activity in bringing the industry and education requirements together was the implementation of an Industry and Education Partnership Summit. The day-long event, held at Lansing Community College, gave industry members a much better understanding of education’s priorities and capabilities in Michigan. And it gave the educators in the regions a clear understanding of what Consumers Energy and DTE Energy needed in their applicants from the standpoint of competencies and credentials.

The consortium conducted a gap analysis to see to what extent the selected schools were covering energy industry fundamentals and found that some went even further than teaching the fundamentals.

Since the effort began, the MEWDC has been able to embed CEWD’s Energy Industry Fundamentals (EIF) course into the offerings at five high schools and three community colleges.

To initially help others understand how EIF should be taught, Consumers and DTE Energy organized a “Go and See” event at Oakland Public Schools Career and Technical Education Center, where they observed the curriculum in action, and organized a second Industry and Education Partnership Summit to help all the regions understand what’s needed to establish a fully aligned energy career pathway.

For students, having an energy cluster and an energy career pathway helps them understand not just what they need to know to work in the industry, but where they can go to get those credentials.

The value of establishing such a pathway is that if educators and students know what’s required for energy jobs, applicants will arrive better prepared and it will take less time for employers to vet, as well as train, them. It’s also important that employers agree to recognize the credentials students are earning once they obtain them.

### **Partnerships Spell Success for Mecklenburg Electric Cooperative's Power Line Worker Program**

In 2016, Mecklenburg Electric Cooperative launched the Power Line Worker Program, a partnership with Southside Virginia Community College (SVCC). The 11-week certificate program is supported by the 13 members of the Virginia, Maryland & Delaware Association of Electric Cooperatives (VMDAEC) and is designed to meet the need for electric lineworkers driven by retirements and to address other economic conditions in southside Virginia.

John Lee, President and CEO of Mecklenburg Electric Coop, was instrumental in bringing together the cooperatives and SVCC and has stayed engaged as the program has grown as a resource, and as a member of the school’s advisory board.

“The need to address our retirement attrition was an initial and powerful driver for the Power Line Worker Program,” Lee said, “but its impact on our industry, on our regional economy, and on the graduates has been phenomenal. The key all along the way has been in building meaningful community partnerships with entities who share common goals.”

Since the inaugural class began March 1, 2016, eight cohorts have graduated, leading to nearly 150 new lineworkers now employed in the region. From development of the program with SVCC through hiring, the partnership has been the primary success factor. Graduates of the program have been hired at 37 different companies including the cooperatives, investor-owned utilities including Dominion, and contractors including Pike. The program is seeing more than a 95 percent placement rate.

To meet a continually growing demand, what began as a class of 20 students has grown into classes with 34 students, and still there is a waiting list. As a result, SVCC has had to increase its number of instructors.

Successful partnerships supporting the program also include state government. Virginia Governor Terry McAuliffe attended the graduation ceremony for the Power Line Program in November 2017 to commemorate the 100<sup>th</sup> graduate, and current Virginia Governor Ralph Northam had also visited the school to commemorate its success.

## Louisiana Consortium Addresses Need for Lineworkers

Louisiana—driven by Entergy’s needs in the state to replace retiring lineworkers—is one of CEWD’s newest State Energy Workforce Consortia.

“We were hiring and training a lot of new people but only having marginal success,” said Melonie Stewart, Vice President of Customer Service for Entergy Louisiana and original chair of the Louisiana Energy Workforce Consortium (LEWC). “Some of the hires simply wanted to get their foot in the door and after months of training were seeking to move into a different assignment. Others underestimated the physical demands of the job. In both cases, we were spending a lot of time recruiting, on-boarding, and training, only to lose the hire.”

In January of 2017, Stewart began working with CEWD and using the Strategic Planning Workshop National Template (<http://cewd.org/documents/wizard/documents/StrategicPlanningWorkshop-NationalTemplate.pdf>) to form a state consortium for Louisiana, first engaging other energy industry members and contractors with similar needs and then inviting technical colleges to the table.

“In April, we asked employers to submit a five-year hiring projection for the state of Louisiana,” said Stewart, who now serves as Executive Sponsor of the LEWC. “In May, we were able to show the technical colleges the number of hires we were going to be needing. We did this because we understood the colleges wanted to make sure all of their graduates would get hired. That’s their goal.”

The LEWC then formed education and career awareness committees that held weekly conference calls to make sure everyone stayed on track, said Stewart. While they initially thought they’d be able to launch a lineworker training program by August, it quickly became apparent they would need more time, so the launch date was moved to January 2018. By then, they were ready to implement programs with two schools in the highest demand areas: Fletcher Technical College and Delgado Community College.

Prescreening and content for both programs were identical, said Stewart. The only difference was that Fletcher offered the course on a full-time basis for 16 weeks and Delgado delivered it over six months on evenings and weekends. “But the students graduate with the exact same skills and certifications,” she said.

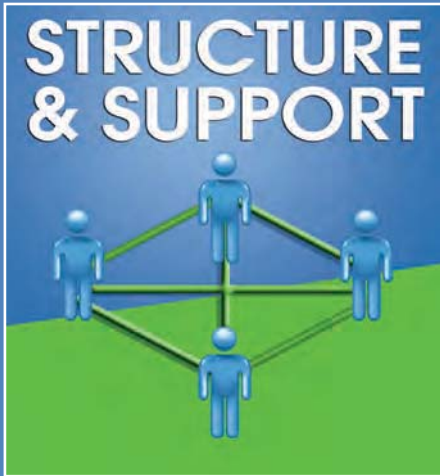
To date, three cohorts have completed the curriculum and graduated, two at Fletcher and one at Delgado. Eighteen of the graduates have been hired.

Stewart said much of the program’s success is due to the rigorous prescreening process, which all of the employers helped to develop. Drug testing and background checks are done prior to acceptance into the program. Employers then interview the students and rate them.

Students who complete the program are hired at a higher level than other first hires, said Stewart. “They come in one step up from apprentice, and they get a higher salary.”

# Chapter 5:

## *Structure and Support*



**Objective:** Organize energy industry workforce development efforts to maximize the effectiveness of national, state, and individual company initiatives.

### *CEWD's Structure and Support Model*

- Annual Convenings
  - The Annual Summit
  - The National Forum
  - Regional Meetings
- Communities of Practice
- Additional Resources

### *The National Energy Education Network (NEEN)*

### *State Energy Workforce Consortia*

### *CEWD Partnerships for the Benefit of All*

## CEWD's Structure and Support Model

CEWD was originally formed to develop solutions for replacing an aging skilled workforce. Today, CEWD is viewed by its members as the industry's most comprehensive resource for energy workforce solutions, offering practical support and solutions all along the talent pipeline, from awareness-building to retention. CEWD's membership has grown significantly, now including well over 100 industry utilities, all major energy industry trade associations, and some of the largest utility contractor companies in the nation. A growing interest in workforce development by international utilities led CEWD in 2017 to revise its charter to accept international members. The industry's broad support of CEWD underscores in a very visible manner its track record for helping the industry develop a qualified and diverse workforce to meet the country's energy needs.

CEWD's support of its members is broad and diverse. Membership in CEWD provides unlimited access to workforce resources, tools, and best practices through a variety of direct and indirect support services. Perhaps the greatest benefit of CEWD membership and affiliation is the ability to learn, grow, and share best practices through this national network of support opportunities.

### Annual Convenings

- The **CEWD Annual Summit**, held each November in the DC area, brings together leaders from the industry, operations and workforce professionals, educators, and others from across the country. The Annual Summit features national workforce experts and opportunities to network and learn from others.



- The **National Forum**, held the day before the Annual Summit, is by, for, and about the nation's **State Energy Workforce Consortia**. Representatives from the nation's consortia share progress in developing and delivering on state energy workforce plans and collaborating with education to provide industry training and pipeline development.

- The **CEWD Regional Meetings** are the Center's annual "road show" for each of the country's seven CEWD regions. Each meeting includes a reception the night before, and the full-day's agenda focuses on region-specific workforce issues and examples of best practices within the region for developing talent pipelines. Dates for the regional meetings are released in January.

**CEWD  
Association  
Members:**

*Edison Electric  
Institute (EEI)*

*Nuclear Energy  
Institute (NEI)*

*American Gas  
Association  
(AGA)*

*American  
Public Power  
Association  
(APPA)*

*National  
Rural Electric  
Cooperative  
Association  
(NRECA)*

*Distribution  
Contractors  
Association  
(DCA)*

**CEWD Labor  
Partners:**

*International  
Brotherhood  
of Electrical  
Workers  
(IBEW)*

*Utility Workers  
Union of  
America  
(UWUA)*

**CEWD Communities of Practice** have grown in number and importance over the past two years and have evolved into true “think tanks” for CEWD and its members.

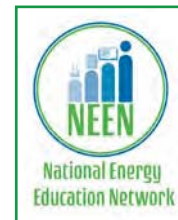
- **The Knowledge Transfer and Retention (KT&R) Community** is focused on sharing process and procedure information that might improve their own or others’ KT&R programs. This community shares implementation ideas and best practices. For most of the companies involved, the opportunity for improvement is successful implementation and measurement of success. The community meets monthly.
- **Diversity and Inclusion Community**: Increasing diversity in the talent pipeline continues to be a driving force behind the energy industry’s workforce development efforts. The Diversity and Inclusion Community includes both companies and educators who work together to implement CEWD’s diversity assessment tool and playbook.
- **Troops to Energy Jobs Community**: Each quarter, interested member company representatives meet through teleconference to discuss current practices and events in military recruiting, training, and retention. CEWD has more than 50 members who have officially committed to the Troops to Energy Jobs objectives.
- **The Energy Industry Fundamentals Approved Course Providers Community of Practice** provides EIF curriculum and credential implementation support to a growing network of nearly 70 EIF educators. This group shares ideas on what has been successful teaching the course. This community meets monthly via conference call.
- **The High School Community of Practice** provides support and idea-sharing on ways to build awareness around energy careers, as well as how to implement education efforts such as energy academies and adding a 17<sup>th</sup> career cluster. The group has quarterly conference calls and shares resources.
- **Contractors Community of Practice**: A number of national contractors joined CEWD in 2017 and, while they share many of the workforce challenges of IOUs, municipalities, and coops, the purpose of this Community of Practice is to identify workforce issues unique to the contractor environment and to ensure CEWD resources and tools are directed to addressing them. This group meets quarterly.
- **The Workforce Planning Council Analytics Community of Practice** shares insights and experiences in the world of workforce analytics, which focuses on forecasting attrition, both retirement and non-retirement, and discovering how employees move within their corporate structures. Some members have active analytics teams inside their companies that are helping improve attrition forecasting. An additional area of exploration is new software designed to improve analytics and WFP activities.

## Additional Resources

- **Benchmarking Support** is provided to industry and education members as requested. CEWD consultants work with the members in their regions to organize mini surveys and meaningful, “just in time” interactions on a wide variety of topics—from measuring diversity to requirements for military status.
- **Virtual and on-site member resource refreshers and strategic planning workshops** are provided by the CEWD Executive Director and regional CEWD consultants as requested.
- **Monthly CEWD Newsletters** highlight member successes and cutting-edge practices in workforce development. To read more, go to: <https://cewd.org/gie-newsletter/>.
- **Free Webinars** for CEWD members are scheduled periodically to promote learning on topics of interest. Examples include *Delivering the Nuclear Promise Series*, *Establishing a 501(c)3 in a State Energy Workforce Consortium*, *EEL Testing Update and Strategies to Enhance Testing Outcomes*, and *Making the Connection to a Diverse, Qualified Pipeline* webinar series.

## The National Energy Education Network

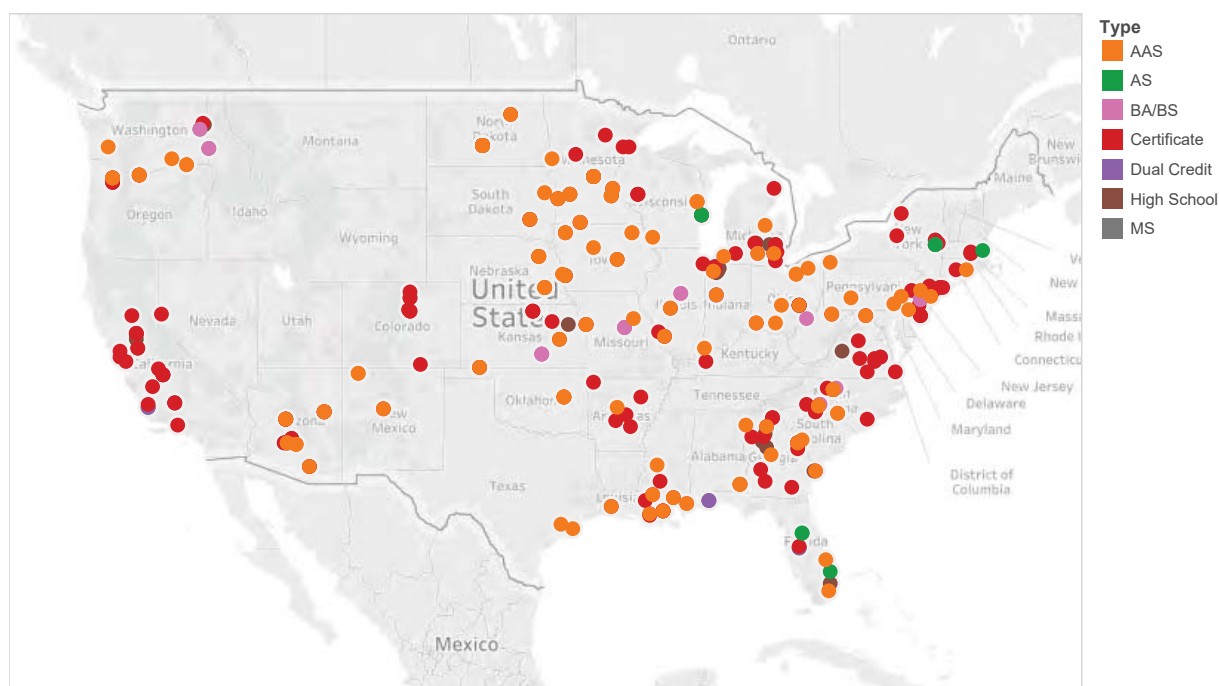
CEWD's **National Energy Education Network (NEEN)** comprises more than 200 sponsored educational institutions across the country that collectively offer more than 400 energy programs to train students for key technical careers. Educators in NEEN include universities, community colleges, technical schools, high schools, and career centers.



*For employers and educators to form strong, productive partnerships, they must have: shared and clear goals and objectives, a commitment to success, collaboration and cooperation, measurable outcomes, and an accurate flow of information between them. CEWD supports these partnerships through the National Energy Education Network.*

To be a member of NEEN, educators must be in a partnership—or in the process of establishing a partnership—with at least one CEWD industry member and must be willing to provide education required by the industry member, report results to the sponsoring partner and to CEWD, and be willing to share best practices that might benefit an education program in another state or region.

The benefits for the NEEN members are significant. Sponsorship includes membership in CEWD with access to “members only” tools, resources, and curricula, as well as publication of their program information and location on the “**NEEN Map**,” an interactive training program locator Google map accessible to students and industry members for the purposes of identifying local training programs (<http://www.getintoenergy.com/googleapp/>).



## State Energy Workforce Consortia

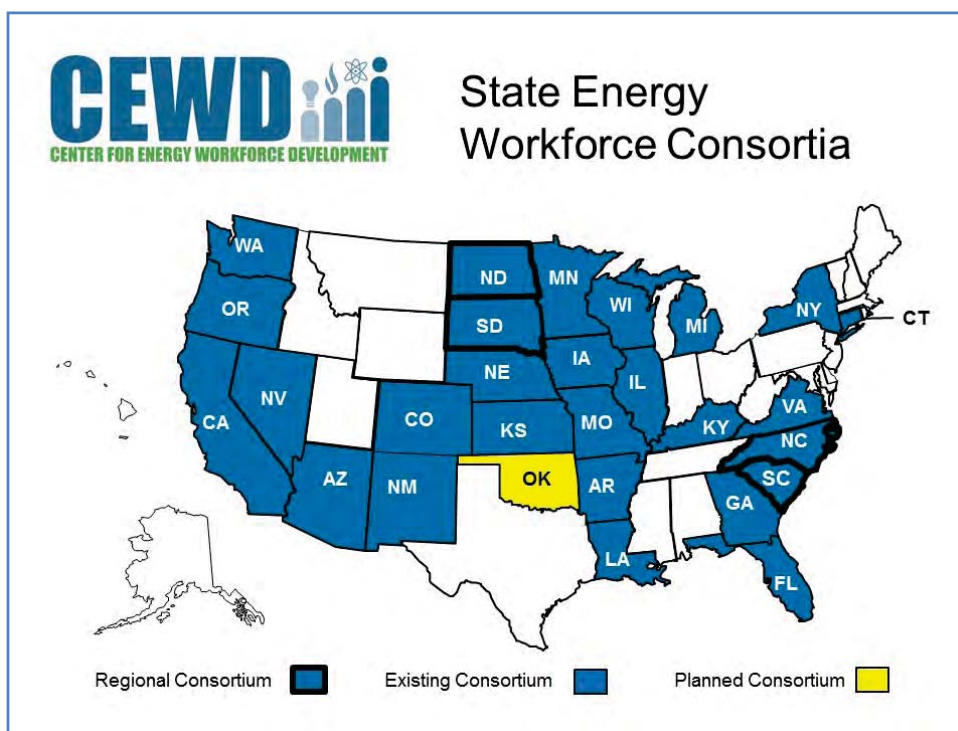
“What can we do better together than separately?”

That is the question utilities and energy companies across the U.S. have asked each other as the CEWD model for State Energy Workforce Consortia has grown and matured.

Today, nearly 30 states are represented by State Energy Workforce Consortia, including six that have recently organized or been reenergized: **Arizona**, **Arkansas**, **Carolinas**, **Louisiana**, **Missouri**, and **Nevada**. Each of these states began like others before them: developing a strategic workforce plan for the state.

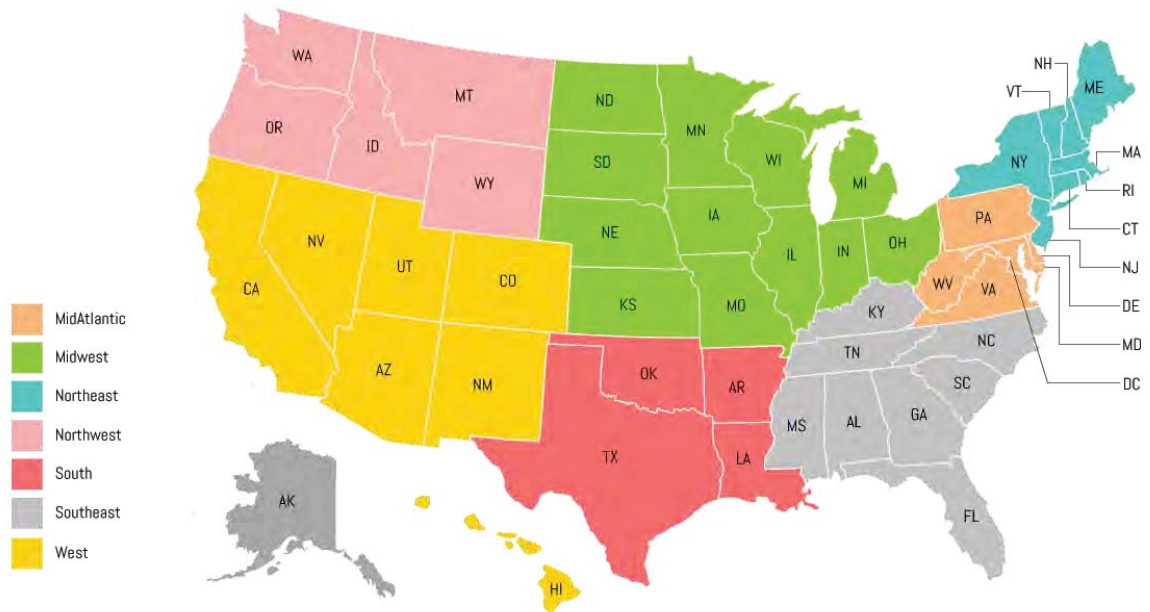
The purpose of each state consortium is to identify and develop programmatic solutions that consortium members use to meet the current and future workforce needs of the energy industry in their state. Each consortium is encouraged and supported in developing a strategic workforce plan that takes into account specific challenges of the industry in the state. CEWD provides assistance in organizing and starting a consortium and has a state consortium page on the CEWD Members Implementation Wizard with resources and tools for starting and maintaining a state consortium. Consortia leads are also encouraged to attend the **National Forum** and participate in the **CEWD State Consortia Quarterly Calls**.

The calls are used to announce new workforce initiatives, report results, and hear from state consortia leads about best practices in workforce development.



## Regional Support for a Consortium

CEWD provides support to State Energy Workforce Consortia through its **regional consulting support model** based on seven geographic regions. The model ensures that members and consortia have a single point of contact for help in accessing relevant CEWD resources and quickly connecting with consortia in other regions for benchmarking and data collection.



## The Business Case for a Consortium

One of the tools business leaders use in their companies to communicate the value of participating in a state consortium is **State Energy Workforce Consortia: The Business Case**. Following are some highlights.

### It's a Smart Decision

Individual companies often have workforce needs that are unique to their business portfolio, but common needs, such as education and training of skilled utility technicians, can be met much more efficiently in partnership with other companies. The consortia bring together industry members, their contractor partners, their education partners, government, workforce investment boards, unions, and others to plan and develop programs that directly address the shared energy workforce needs of the state. Such programs are much more able to withstand the ups and downs of a single company's recruiting needs, especially when the programs are grounded in a common denominator of industry-recognized credentials and core curriculum. Plus, a strong applicant pool helps reduce the time necessary to recruit, hire, and train them. The ROI is there and is being proven repeatedly through the workforce development efforts of the companies involved in CEWD.



### It's About Pride

Employees of energy companies take great pride in their companies, in their communities, and in the customers they serve. And their companies want the next generation of workers to carry on that tradition. In a consortium model, pride in the community is transformed to a much broader base that includes the community's educators, state and local offices, and workforce development agencies, all of whom have a stake in seeing the community succeed.



### It's About Security

Affordable, reliable, and safe energy is crucial to the American economy. As demand for energy continues to grow, developing a new, highly skilled workforce is key to maintaining reliability and customer service and to securing our nation's grid and infrastructure. Workforce planning in collaboration with other energy partners helps ensure an adequate supply of qualified workers when and where they are needed.



## *2018 State of the Energy Workforce*

### **It's About Opportunity**

State Energy Workforce Consortia provide the key energy partners in the state with an incredible opportunity to develop its workforce and attract individuals who otherwise may not be aware of the energy industry and its high-quality careers. Formalizing and operating specialized programs to attract and train workers from targeted demographics is resource-intensive and can be more successful when companies work together through a State Energy Workforce Consortium.



To learn more about the State Energy Workforce Consortia, identify whether one is active in your state, and know who to call to get involved, visit <http://cewd.org/about/state-consortia/state-consortia-2/> or send an email to [staff@cewd.org](mailto:staff@cewd.org).

## CEWD Partnerships for the Benefit of All

CEWD and its members have participated in numerous studies and grants over the years as one approach to fulfilling its mission: **to build the alliances, processes, and tools to develop tomorrow's energy workforce.**

A requirement of CEWD membership for industry members and their sponsored educators is the willingness to share what they learn with other members. Serving as grant development partners, technical advisors, and project managers, CEWD staff members work to leverage the benefits by documenting best practices, developing guides and toolkits, and facilitating communities of practice to ensure **what benefits one will benefit all.**

Following are some current examples of CEWD partnerships that serve to broaden the reach and application of related workforce development initiatives.

**The National Network of Business and Industry Associations (NNBIA)** has created a Common Employability Skills (CES) Framework that establishes a vivid, unifying description of the requisite Applied Knowledge along with Personal, People, and Workplace Skills needed to gain employment. CEWD is a sponsor of the CES, along with other leading industries including Manufacturing, Retail, IT, and Transportation. These skills directly align to the Energy Industry Competency Model. There are a few industry-specific areas, such as engineering and technology, hand and power tools, and some more advanced math concepts, which are part of the CEWD version of the Model. For more information about Common Employability Skills, see Chapter 4: Education.

CEWD and four State Energy Workforce Consortia have agreed to partner with the **Quality Assurance (QA) Commons for Higher & Postsecondary Education**. QA Commons is an independent project funded through the National Center for Higher Education Management Systems (NCHEMS) under a grant from the Lumina Foundation that has developed a set of **Essential Employability Qualities (EEQs)**—the people skills, problem-solving abilities, and professional strengths that graduates need to thrive in the changing world of work—which address many of the same knowledge, skills, and abilities identified in the NNBIA Common Employability Skills. The next step is to develop a certification for higher and postsecondary education programs based on how effectively college programs prepare their students to exhibit EEQs in the workplace. Learn more about this project at <https://theqacommons.org/>.

CEWD has a new strategic partnership with **CSMlearn**. CSMlearn has an online education course and credential centered on High Performance, which includes fluent math and literacy, problem solving, ability to learn on one's own, attention to detail, persistence, high personal expectations, and self-efficacy. CEWD and several of its member companies are engaged in a pilot program to test out the High Performance credential with Get Into Energy Career Pathways target audiences. To learn more, visit <https://www.csmlearn.com/>.

CEWD participated in **The Learning First Alliance** employer engagement meeting. The Learning First Alliance, which is a partnership of leading education associations representing more than 10 million members, supports improved student learning in America's public schools by engaging individual and organizational expertise, leadership, and advocacy efforts.

## Chapter 6: *Recommendations*

*Employers*

*Educators*

*State Energy Workforce Consortia*

*Associations*

*CEWD*



## CEWD Recommendations

Every situation is different, and every energy company and State Energy Workforce Consortium is at a slightly different stage of identifying and planning to meet its workforce needs. But there are common lessons and learnings that we know work. From that perspective, CEWD offers the following recommendations for employers, educators, State Energy Workforce Consortia, and CEWD associations. And we wrap up with what CEWD commits to do to support your journey.

### The most important things energy employers can do to develop a diverse, qualified pipeline of applicants:

- **Visibility:** Make it easier for students and jobseekers to find us, understand our jobs, and know what education pathways in your region will lead to an energy job.
- **Communication of Requirements:** Signal to students, jobseekers, and educators which credentials are required, preferred, and recognized by employers in your state, and are being used in hiring decisions.
- **Partnerships:** Develop partnerships with other employers and educators to engage students from interest through employment.
- **Internal Reinforcement:** Organize and educate within your company to communicate strategies, initiatives, policies, and funding and align company personnel, systems, policies, and practices to support the needs of diverse, qualified applicants.
- **Measurement and Feedback:** Provide data on the timing and demand for jobs in your company and feedback to educators and pipeline organizations on the quality of hires from their organizations.

To support companies in implementing these recommendations, CEWD has developed the **Get Into Energy Career Pathways Assessment for Employers**. The Assessment tool takes company leaders through each recommendation to gauge their current strengths and weaknesses and then provides links to CEWD tools to address each of the areas.

CEWD's goal for 2019 is to make the Assessment interactive online.

### The most important things educators can do to develop a diverse, qualified pipeline of applicants:

- Conduct **boot camps** at every stage of the pathway for concentrated skill development.
- Accelerate the time it takes a student to earn his/her credential by **recognizing prior learning**.
- Focus on the **common denominator**, by organizing programs of study around core essentials first and then technical competencies.
- **Bundle curriculum** with transferable certificates and stackable credentials that integrate industry-recognized credentials into energy programs of study.
- Provide industry partners with **supply data** on students in the pipeline.

**The most important things State Energy Workforce Consortia can do to develop a diverse, qualified pipeline of applicants:**

- Develop and maintain a [state energy workforce plan](#) to steer industry-led workforce efforts.
- [Build state awareness](#) of the need for a skilled energy workforce and awareness of energy careers among targeted populations.
- [Implement core curriculum](#) across schools to enable easier transfer of credits and faster graduation of students with needed skills.
- [Assess the impact](#) of energy workforce needs on the state's workforce policy and communicate to consortium members and partners.
- [Create mutually beneficial alliances](#) with organizations that support and advance the consortium's initiatives.
- [Maintain the consortium](#) as a self-sustaining operating structure that includes governance, management, and financial processes.

**The most important things CEWD's Association Members can do to develop a diverse, qualified pipeline of applicants:**

- [Convene](#): Use member convenings to engage associated organizations and ensure there are alignment, integration, and a shared understanding of industry workforce issues and what is needed to address them.
- [Advocate](#): Be advocates for industry workforce efforts and policy issues at both the company and the national government level.
- [Communicate](#): Ensure a vocal presence in the Nation's Capital for energy industry workforce issues; share workforce successes within the industry; create integrated teams of legislative and communications representatives.
- [Provide heightened focus](#) on employee processes and systems that are most critical to workforce development and knowledge transfer, including human resources policy, compensation and benefits practices, and succession planning.

**What CEWD will continue to do to support its members:**

**Build** the alliances, processes, and tools to:

- Ensure companies and State Energy Workforce Consortia are equipped to [develop sustainable workforce plans](#) that balance the supply and demand for a qualified and diverse energy workforce.
- [Create awareness](#) among students, parents, educators, and nontraditional workers of the critical need for a skilled energy workforce and the opportunities for education that can lead to entry-level employment.
- [Implement clearly defined education solutions](#) that link industry-recognized competencies and credentials to employment opportunities and advancement in the energy industry.
- [Organize the energy industry workforce development efforts](#) to maximize the effectiveness of national, state, and individual company initiatives.

CEWD's mission began in 2006 and has continued to evolve as the industry and its need for skilled talent has changed. CEWD will continue to support all members of the energy industry in building, developing, and retaining a skilled workforce as long as our members realize value.



**Formed in March 2006, the Center for Energy Workforce Development (CEWD) is a nonprofit consortium of electric, natural gas, and nuclear utilities, contractors and their associations—Edison Electric Institute, American Gas Association, American Public Power Association, Nuclear Energy Institute, National Rural Electric Cooperative Association, and Distribution Contractors Association.**

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[www.cewd.org](http://www.cewd.org) [www.getintoenergy.com](http://www.getintoenergy.com)

For information, please contact us at [staff@cewd.org](mailto:staff@cewd.org).



STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**MARC R. BLECKMAN**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

# Schedule D-1

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Overall Rate of Return Summary  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-14 (MRB-1)  
Schedule: D-1  
Page: 1 of 2  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Description	(b) Amount (\$000,000) (1)	(c) Capital Structure		(e) Cost Rate %	(g) Weighted Cost			
			(d) Percent Permanent Capital (2)	(d) Percent of Total Capital		(f) Permanent Capital (7)	(g) Total Cost % (8)	(h) Conversion Factor	(i) Pre-Tax Return (9)
1									
2	Long-Term Debt	\$ 9,072	47.80%	39.34%	3.55% (3)	1.70%	1.40%	1.0000	1.40%
3									
4	Preferred Stock	37	0.20%	0.16%	4.50% (4)	0.01%	0.01%	1.3391	0.01%
5									
6	Common Shareholder's Equity	<u>9,870</u>	<u>52.00%</u>	42.80%	10.50% (5)	5.46%	4.49%	1.3391	6.02%
7									
8	Total Permanent Capital	\$ 18,979	<u>100.00%</u>						
9									
10	Short-Term Debt	200		0.87%	1.15% (6)		0.01%	1.0000	0.01%
11									
12	Deferred Income Taxes	3,751		16.27%	0.00%		0.00%	1.0000	0.00%
13									
14	<u>Investment Tax Credit</u>								
15	Long-Term Debt	62		0.27%	3.55%		0.01%	1.0000	0.01%
16	Preferred Stock	0		0.00%	4.50%		0.00%	1.3391	0.00%
17	Common Equity	68		0.30%	10.50%		0.03%	1.3391	0.04%
18									
19	Total	<u>\$ 23,060</u>		<u>100.00%</u>			<u>5.95%</u>		<u>7.48%</u>

(1) See Exhibit A-14 (MRB-2), Schedule D-1a, Page 1.

(2) Excludes Short-term Debt, Deferred Income Taxes, and Investment Tax Credit to calculate the rate of return for Investment Tax Credit purposes in accordance with Internal Revenue Service Income Tax Regulation Section 1.46-6.

(3) See Exhibit A-14 (MRB-4), Schedule D-2.

(4) See Exhibit A-14 (MRB-6), Schedule D-4.

(5) See Exhibit A-14 (TAW-1), Schedule D-5.

(6) See Exhibit A-14 (MRB-5), Schedule D-3, Page 1.

(7) Column (c) x column (e).

(8) Column (d) x column (e).

(9) Column (g) x column (h).

# Schedule D-1

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Overall Rate of Return Summary - Adjusted  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-14 (MRB-1)  
Schedule: D-1  
Page: 2 of 2  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Description	Adjusted		Unadjusted		Adjusted	
		(b) 13-Month Avg. For Yr. Ended 2022	(c) Percent Permanent Capital	(e) 13-Month Avg. For Yr. Ended 2023	(f) Percent Permanent Capital	(g) 13-Month Avg. For Yr. Ended 2023	(h) Percent Permanent Capital
		Amount (\$000,000)		Amount (\$000,000)		Amount (\$000,000)	
1							
2	Long-Term Debt - Adjusted	\$ 9,563	49.12%	\$ 9,998 (4)	47.84%	\$ 10,829	49.83%
3							
4	Preferred Stock	37 (1)	0.19%	37 (4)	0.18%	37 (4)	0.17%
5							
6	Common Shareholder's Equity	9,870 (1)	50.69%	10,864 (4)	51.98%	10,864 (4)	50.00%
7							
8	Total Permanent Capital	\$ 19,470	100.00%	\$ 20,900	100.00%	\$ 21,731	100.00%
9							
10							
11							
12	Long-Term Debt	\$ 9,072 (1)				\$ 9,998 (4)	
13							
14	Add: Securitization Debt	187 (2)				528 (4)	
15	Add: Short-Term Debt	200 (1)				200 (1)	
16	Add: Leases	104 (3)				104 (3)	
17		\$ 491				\$ 831	
18							
19	Long-Term Debt - Adjusted	\$ 9,563				\$ 10,829	
20							

- (1) See Exhibit A-14 (MRB-1), Schedule D-1, Page 1.  
(2) Projected Securitization debt balance for the 13-months ending December 2022.  
(3) Projected using the Lease balance at December 31, 2020.  
(4) Average projected balance for the 13 months ending December 31, 2023.

**Schedule D-1a**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
 Capital Structure Development  
 for the Projected Year Ending December 31, 2022

Case No.: U-20963  
 Exhibit No.: A-14 (MRB-2)  
 Schedule: D-1a  
 Page: 1 of 4  
 Witness: MRBleckman  
 Date: March 2021

Line No.	(a) Description	(b) Historical Capital Structure 13-Month Avg. For Yr. Ended December 31, 2019			(e) Balances as of Dec. 31, 2019 (000,000)	(f) Test Year Adjustments (000,000)	(g) Recommended Capital Structure		
		(b) Amount Outstanding (000,000)	(c) % of Permanent Capital	(d) % of Total Capital			(g) Amount Outstanding (000,000)	(h) % of Permanent Capital	(i) % of Total Capital
1									
2	Long-Term Debt	\$ 6,516	46.57%	37.10%	\$ 6,997	\$ 2,075	\$ 9,072	47.80%	39.34%
3									
4	Preferred Stock	37	0.27%	0.21%	37	-	37	0.20%	0.16%
5									
6	Common Equity	<u>7,437</u>	<u>53.16%</u>	42.35%	<u>7,729</u>	<u>2,141</u>	<u>9,870</u>	<u>52.00%</u>	42.80%
7									
8	Total Permanent Capital	\$ 13,990	<u>100.00%</u>		\$ 14,764	\$ 4,216	\$ 18,979	<u>100.00%</u>	
9									
10	Short-Term Debt, Incl Renewable Liability	104		0.59%	107	93	200		0.87%
11									
12	Deferred Income Taxes	3,358		19.12%	3,431	320	3,751		16.27%
13									
14	<u>Investment Tax Credit</u>								
15	Long-Term Debt	51		0.29%	57	5	62		0.27%
16	Preferred Stock	0		0.00%	0	0	0		0.00%
17	Common Equity	<u>58</u>		<u>0.33%</u>	<u>63</u>	<u>5</u>	<u>68</u>		<u>0.30%</u>
18									
19	Total Investment Tax Credit	<u>109</u>		<u>0.62%</u>	<u>120</u>	<u>10</u>	<u>130</u>		<u>0.56%</u>
20									
21	Total Capitalization	<u>\$ 17,561</u>		<u>100.00%</u>	<u>\$ 18,422</u>		<u>\$ 23,060</u>		<u>100.00%</u>

Sources and Support, by Column:

- (b) Consumers Energy General Ledger 13-month average balances as of December 31, 2019.
- (c) Each line 2, 4, and 6 in column (b) is divided by line 8, column (b).
- (d) Each line 2, 4, 6, 10, 12, 15, 16, 17, and 19 in column (b) is divided by line 21, column (b).
- (e) Consumers Energy General Ledger balances as of December 31, 2019.
- (f) Line 2 Debt maturities and debt issues, line 6 Adjustment for retained earnings and equity contributions, line 10 Adjustment to project short-term debt and renewable liability balance, line 12 Adjustment to project Deferred Income Taxes balance, lines 15-17 Adjustment to project Investment Tax Credit balance.
- (g) Column (e) + column (f). Represents 13-month averages.
- (h) Each line 2, 4, and 6 in column (g) is divided by line 8, column (g).
- (i) Each line 2, 4, 6, 10, 12, 15, 16, 17, and 19 in column (g) is divided by line 21, column (g).

**Schedule D-1a**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Capital Structure Development - Projected Long-Term Debt Balance  
for the Projected Year Ending December 31, 2022  
(in millions)

Case No.: U-20963  
Exhibit No.: A-14 (MRB-2)  
Schedule: D-1a  
Page: 2 of 4  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Long-Term Debt	(b) Actual Jan-19	(c) Actual Feb-19	(d) Actual Mar-19	(e) Actual Apr-19	(f) Actual May-19	(g) Actual Jun-19	(h) Actual Jul-19	(i) Actual Aug-19	(j) Actual Sep-19	(k) Actual Oct-19	(l) Actual Nov-19	(m) Actual Dec-19
1													
2	Beginning Balance	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,996	\$ 7,071	\$ 7,071
3	Add: Issuances	-	-	-	-	300	-	-	-	626	75	-	-
4	Less: Retirements	-	-	-	-	(300)	-	-	-	-	-	-	-
5	Subtotal	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,370	\$ 6,996	\$ 7,071	\$ 7,071	\$ 7,071
6													
7	Less: Unamortized Fees	(56)	(56)	(58)	(57)	(63)	(63)	(63)	(63)	(73)	(73)	(74)	(74)
8													
9	Ending Balance	<u>\$ 6,314</u>	<u>\$ 6,314</u>	<u>\$ 6,312</u>	<u>\$ 6,313</u>	<u>\$ 6,307</u>	<u>\$ 6,307</u>	<u>\$ 6,307</u>	<u>\$ 6,307</u>	<u>\$ 6,923</u>	<u>\$ 6,998</u>	<u>\$ 6,997</u>	<u>\$ 6,997</u>
10													
11													
12													
13	Long-Term Debt	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
14													
15	Beginning Balance	\$ 7,071	\$ 7,371	\$ 7,371	\$ 7,946	\$ 7,846	\$ 8,505	\$ 8,255	\$ 8,220	\$ 8,220	\$ 7,845	\$ 7,972	\$ 7,972
16	Add: Issuances	300	-	575	-	659	-	-	-	-	127	-	300
17	Less: Retirements	-	-	-	(100)	-	(250)	(35)	-	(375)	-	-	(300)
18	Subtotal	\$ 7,371	\$ 7,371	\$ 7,946	\$ 7,846	\$ 8,505	\$ 8,255	\$ 8,220	\$ 8,220	\$ 7,845	\$ 7,972	\$ 7,972	\$ 7,972
19													
20	Less: Unamortized Fees	(73)	(73)	(80)	(80)	(91)	(90)	(90)	(90)	(89)	(91)	(91)	(92)
21													
22	Ending Balance	<u>\$ 7,298</u>	<u>\$ 7,298</u>	<u>\$ 7,866</u>	<u>\$ 7,766</u>	<u>\$ 8,414</u>	<u>\$ 8,165</u>	<u>\$ 8,130</u>	<u>\$ 8,130</u>	<u>\$ 7,756</u>	<u>\$ 7,881</u>	<u>\$ 7,881</u>	<u>\$ 7,880</u>
23													
24													
25													
26	Long-Term Debt	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
27													
28	Beginning Balance	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607
29	Add: Issuances	-	-	-	-	-	-	-	635	-	-	-	-
30	Less: Retirements	-	-	-	-	-	-	-	-	-	-	-	-
31	Subtotal	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 7,972	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607
32													
33	Less: Unamortized Fees	(92)	(92)	(91)	(91)	(91)	(90)	(90)	(64)	(64)	(63)	(62)	(62)
34													
35	Ending Balance	<u>\$ 7,880</u>	<u>\$ 7,880</u>	<u>\$ 7,881</u>	<u>\$ 7,881</u>	<u>\$ 7,881</u>	<u>\$ 7,882</u>	<u>\$ 7,882</u>	<u>\$ 8,543</u>	<u>\$ 8,543</u>	<u>\$ 8,544</u>	<u>\$ 8,545</u>	<u>\$ 8,545</u>
36													
37													
38													
39	Long-Term Debt	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
40													
41	Beginning Balance	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607	\$ 9,057	\$ 9,057	\$ 9,057	\$ 9,712	\$ 9,712	\$ 9,712	\$ 9,712
42	Add: Issuances	-	-	-	-	450	-	-	655	-	-	-	-
43	Less: Retirements	-	-	-	-	-	-	-	-	-	-	-	-
44	Subtotal	\$ 8,607	\$ 8,607	\$ 8,607	\$ 8,607	\$ 9,057	\$ 9,057	\$ 9,057	\$ 9,712	\$ 9,712	\$ 9,712	\$ 9,712	\$ 9,712
45													
46	Less: Unamortized Fees	(61)	(61)	(60)	(60)	(64)	(64)	(63)	(67)	(66)	(65)	(65)	(64)
47													
48	Ending Balance	<u>\$ 8,546</u>	<u>\$ 8,546</u>	<u>\$ 8,547</u>	<u>\$ 8,547</u>	<u>\$ 8,993</u>	<u>\$ 8,993</u>	<u>\$ 8,994</u>	<u>\$ 9,645</u>	<u>\$ 9,646</u>	<u>\$ 9,647</u>	<u>\$ 9,647</u>	<u>\$ 9,648</u>
49													
50	<b>Test Year 13-Month Average:</b>												
51	Subtotal												\$ 9,135
52	Less: Unamortized Fees												(63)
53	Ending Balance												<u>\$ 9,072</u>

**Test Year 13-Month Average**

## Schedule D-1a

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

Capital Structure Development - Projected Common Equity Balance  
for the Projected Year Ending December 31, 2022

(in millions)

Case No.: U-20963  
Exhibit No.: A-14 (MRB-2)  
Schedule: D-1a  
Page: 3 of 4  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Common Equity	(b) Actual Jan-19	(c) Actual Feb-19	(d) Actual Mar-19	(e) Actual Apr-19	(f) Actual May-19	(g) Actual Jun-19	(h) Actual Jul-19	(i) Actual Aug-19	(j) Actual Sep-19	(k) Actual Oct-19	(l) Actual Nov-19	(m) Actual Dec-19
1													
2	Beginning Balance	\$ 6,905	\$ 7,188	\$ 7,228	\$ 7,308	\$ 7,236	\$ 7,263	\$ 7,631	\$ 7,596	\$ 7,659	\$ 7,720	\$ 7,563	\$ 7,659
3	Ret. Earnings	(67)	40	80	(72)	27	43	(35)	63	62	(157)	96	70
4	Equity Infusion	350	-	-	-	-	325	-	-	-	-	-	-
5	Ending Balance	<u>\$ 7,188</u>	<u>\$ 7,228</u>	<u>\$ 7,308</u>	<u>\$ 7,236</u>	<u>\$ 7,263</u>	<u>\$ 7,631</u>	<u>\$ 7,596</u>	<u>\$ 7,659</u>	<u>\$ 7,720</u>	<u>\$ 7,563</u>	<u>\$ 7,659</u>	<u>\$ 7,729</u>
6													
7													
8													
9	Common Equity	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
10													
11	Beginning Balance	\$ 7,729	\$ 7,585	\$ 8,025	\$ 8,095	\$ 8,081	\$ 8,143	\$ 8,497	\$ 8,438	\$ 8,524	\$ 8,554	\$ 8,440	\$ 8,493
12	Ret. Earnings	(144)	90	70	(14)	62	54	(59)	86	30	(114)	53	60
13	Equity Infusion	-	350	-	-	-	300	-	-	-	-	-	-
14	Ending Balance	<u>\$ 7,585</u>	<u>\$ 8,025</u>	<u>\$ 8,095</u>	<u>\$ 8,081</u>	<u>\$ 8,143</u>	<u>\$ 8,497</u>	<u>\$ 8,438</u>	<u>\$ 8,524</u>	<u>\$ 8,554</u>	<u>\$ 8,440</u>	<u>\$ 8,493</u>	<u>\$ 8,553</u>
15													
16													
17													
18	Common Equity	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
19													
20	Beginning Balance	\$ 8,553	\$ 8,565	\$ 8,728	\$ 8,740	\$ 8,877	\$ 8,890	\$ 9,202	\$ 9,214	\$ 9,227	\$ 9,239	\$ 9,252	\$ 9,264
21	Ret. Earnings	12	12	12	12	12	12	12	12	12	12	12	12
22	Equity Infusion	-	150	-	125	-	300	-	-	-	-	-	-
23	Ending Balance	<u>\$ 8,565</u>	<u>\$ 8,728</u>	<u>\$ 8,740</u>	<u>\$ 8,877</u>	<u>\$ 8,890</u>	<u>\$ 9,202</u>	<u>\$ 9,214</u>	<u>\$ 9,227</u>	<u>\$ 9,239</u>	<u>\$ 9,252</u>	<u>\$ 9,264</u>	<u>\$ 9,276</u>
24													
25													
26													
27	Common Equity	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
28													
29	Beginning Balance	\$ 9,276	\$ 9,289	\$ 9,676	\$ 9,688	\$ 9,701	\$ 9,713	\$ 10,100	\$ 10,113	\$ 10,125	\$ 10,137	\$ 10,150	\$ 10,162
30	Ret. Earnings	12	12	12	12	12	12	12	12	12	12	12	12
31	Equity Infusion	-	375	-	-	-	375	-	-	-	-	-	-
32	Ending Balance	<u>\$ 9,289</u>	<u>\$ 9,676</u>	<u>\$ 9,688</u>	<u>\$ 9,701</u>	<u>\$ 9,713</u>	<u>\$ 10,100</u>	<u>\$ 10,113</u>	<u>\$ 10,125</u>	<u>\$ 10,137</u>	<u>\$ 10,150</u>	<u>\$ 10,162</u>	<u>\$ 10,174</u>
33													
34													
35													

Test Year 13-Month Average \$ 9,870

	Test Year Impact of Retained Earnings			Test Year Impact of Equity Infusions		
	2020	2021	2022	2020	2021	2022
Jan	\$ (144)	\$ 186	\$ 335	\$ -	\$ 650	\$ 1,225
Feb	\$ (54)	\$ 199	\$ 347	\$ 350	\$ 800	\$ 1,600
Mar	\$ 16	\$ 211	\$ 359	\$ 350	\$ 800	\$ 1,600
Apr	\$ 2	\$ 223	\$ 372	\$ 350	\$ 925	\$ 1,600
May	\$ 64	\$ 236	\$ 384	\$ 350	\$ 925	\$ 1,600
Jun	\$ 118	\$ 248	\$ 396	\$ 650	\$ 1,225	\$ 1,975
Jul	\$ 59	\$ 260	\$ 409	\$ 650	\$ 1,225	\$ 1,975
Aug	\$ 145	\$ 273	\$ 421	\$ 650	\$ 1,225	\$ 1,975
Sep	\$ 175	\$ 285	\$ 433	\$ 650	\$ 1,225	\$ 1,975
Oct	\$ 61	\$ 298	\$ 446	\$ 650	\$ 1,225	\$ 1,975
Nov	\$ 114	\$ 310	\$ 458	\$ 650	\$ 1,225	\$ 1,975
Dec	<u>\$ 174</u>	<u>\$ 322</u>	<u>\$ 470</u>	<u>\$ 650</u>	<u>\$ 1,225</u>	<u>\$ 1,975</u>
13-Month Avg.		<u>\$ 396</u>				<u>\$ 1,745</u>

## MICHIGAN PUBLIC SERVICE COMMISSION

Capital Structure Development - Projected Deferred Income Tax Balance

(in millions)

Date: March 2021

[illegible]

## Schedule D-1b

### MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Development of Capital Structure  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-14 (MRB-3)  
Schedule: D-1b  
Page: 1 of 1  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Description	(b) Financial Basis	(c) MPSC Ratemaking Basis
I.	LONG-TERM DEBT:		
a.	First Mortgage Bonds	Include	Include
b.	Trust Preferred Securities	Include	Include
c.	Other Subordinated LTD	Include	Include
d.	Unamortized Debt Premium	Include	Include
e.	Unamortized Debt Discount	Include	Include
f.	Unamortized Debt Expense	Include	Include
g.	Current Maturities	<b>Exclude</b>	<b>Include</b>
h.	Capitalized Leases	<b>Include</b>	<b>Exclude</b>
II.	SHORT-TERM DEBT	Include	Include
III.	PREFERRED STOCK EXPENSE		
a.	Preferred Stock	Include	Include
b.	Trust Preferred Securities	Exclude	Exclude
c.	Preferred Stock Expense	Include	Include
IV.	COMMON EQUITY		
a.	Common Stock Issued	Include	Include
b.	Premium on Common Stock	Include	Include
c.	Donations Received From Stockholders	Include	Include
d.	Common Stock Expense	Include	Include
e.	Gain on Reacquired Stock	Include	Include
f.	Miscellaneous Paid In Capital	Include	Include
g.	Mark-to-Market Accounting	<b>Include</b>	<b>Exclude</b>
h.	Appropriated Retained Earnings	Include	Include
i.	Unappropriated Retained Earnings	Include	Include
j.	FAS 90 (Abandoned Plant)	Include	Include
V.	DEFERRED ITC	<b>Exclude</b>	<b>Include</b>
VI.	DEFERRED TAXES	<b>Exclude</b>	<b>Include</b>
VII.	DEFERRED JDITC	<b>Exclude</b>	<b>Include</b>



### Schedule D-3

#### MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Cost of Short-Term Debt

for the Projected Year Ending December 31, 2022

(in millions)

Case No.: U-20963

Exhibit No.: A-14 (MRB-5)

Schedule: D-3

Page: 1 of 2

Witness: MRBleckman

Date: March 2021

Line No.	Description	(a) Average Borrowings	(b) Cost of Borrowings	(c) Cost Rate
1	Short-Term Debt - Short-Term Liquidity Facilities	\$ 137.8	\$ 2.1	
2				
3	Short-Term Debt - Renewable Liability	62.1	0.2	
4				
5	Total Short-Term Debt	<u>\$ 199.9</u>	<u>\$ 2.3</u>	<u>1.15%</u>

#### Sources:

Column (a): Average borrowings per Exhibit A-14 (MRB-7), Schedule D-6.

Column (b): Short-Term Debt - Short-Term Liquidity Facilities cost per Exhibit A-14 (MRB-5), Schedule D-3, page 2.

Short-Term Debt - Renewable Liability cost equal to the average borrowings (column (a)) times the projected interest on borrowings rate of 0.38%, per Exhibit A-14 (MRB-5), Schedule D-3, page 2.

Column (c) = column (b)/column (a).

# Schedule D-3

## MICHIGAN PUBLIC SERVICE COMMISSION

### Consumers Energy Company

Cost of Short-Term Debt - Short-Term Liquidity Facilities

for the Projected Year Ending December 31, 2022

(in millions)

Case No.: U-20963

Exhibit No.: A-14 (MRB-5)

Schedule: D-3

Page: 2 of 2

Witness: MRBleckman

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line No.	<b>Summary</b>				<b>Test Year Assumption</b>				
1		<b>Agreement</b>		<b>Facility</b>	<b>Less: Avg.</b>	<b>Less: Letters</b>	<b>Amount</b>	<b>Upfront</b>	
2		<b>Date</b>	<b>Expiration</b>	<b>Amount</b>	<b>Borrowings</b>	<b>of Credit</b>	<b>Unused<sup>b</sup></b>	<b>Fee Amort</b>	
3					(A)	(B)	(C)	(D)	
4	1. JPMorgan Revolver <sup>a</sup>	Jun. 2018	Jun. 2023	\$ 1,100.0	\$ -	\$ 6.9	\$ 1,093.1	\$ 0.2	
5	2. Commercial Paper Facility	Sep. 2014	N/A	\$ 500.0	\$ 137.8	\$ -	\$ -	\$ -	
6	3. Scotiabank Revolver	Nov. 2018	Nov. 2022	\$ 250.0	\$ -	\$ 1.1	\$ 248.9	\$ 0.3	
7									
8									
9									
10	<b>Cost of Short-Term Debt - Short-Term Liquidity Facilities</b>								
11									
12	<b>(A) Interest on Borrowings</b> - Calculated on the projected drawn balance at LIBOR plus the spread on borrowings								
13									
14			Plus:	Projected	Avg.				
15	<u>Facility</u>	<u>LIBOR<sup>c</sup></u>	<u>Spread</u>	<u>Rate</u>	<u>Borrowings</u>	<u>Cost</u>			
16	1. JPMorgan Revolver	0.38%	0.875%	1.26%	\$ -	\$ -			
17	2. Commercial Paper Facility	0.38%	0.000%	0.38%	137.8	0.5			
18	3. Scotiabank Revolver	0.38%	0.750%	1.13%	-	-			
19						<u>\$ 0.5</u>			
20									
21	<b>(B) Letter of Credit Fees</b> - Calculated on the projected letters of credit outstanding at a rate equal to the spread.								
22									
23				Projected	Letters				
24	<u>Facility</u>	<u>Letter of Credit Type</u>		<u>Rate</u>	<u>of Credit</u>	<u>Cost</u>			
25	1. JPMorgan Revolver	Regular Operating		0.875%	\$ 6.9	\$ 0.1			
26	2. Commercial Paper Facility	N/A		N/A	-	-			
27	3. Scotiabank Revolver	MISO Margin		0.750%	1.1	-			
28						<u>\$ 0.1</u>			
29									
30	<b>(c) Unused (Commitment) Fees</b> - Calculated on the unused portion of the revolver at a rate stated in the facility agreement.								
31									
32				Projected	Amount				
33				<u>Rate</u>	<u>Unused<sup>b</sup></u>	<u>Cost</u>			
34	1. JPMorgan Revolver			0.075%	\$ 1,093.1	\$ 0.8			
35	2. Commercial Paper Facility			N/A	-	-			
36	3. Scotiabank Revolver			0.075%	\$ 248.9	\$ 0.2			
37						<u>\$ 1.0</u>			
38									
39	<b>(D) Amortization / Expense of Facility Fees</b> - Fees paid upfront at the inception or amendment to the facility, amortized over the life of the facility.								
40									
41						Annual			
42						<u>Cost</u>			
43	1. JPMorgan Revolver					\$ 0.2			
44	2. Commercial Paper Facility					-			
45	3. Scotiabank Revolver					0.3			
46						<u>\$ 0.5</u>			
47									
48									
49	<b>Total Cost of Short-Term Debt - Revolver / Commercial Paper</b>					<b>\$</b>	<b>2.1</b>		

<sup>a</sup> Facility amount currently \$850 mil, expected to increase to \$1,100 during the test year ending 2022.

<sup>b</sup> Commercial Paper drawn balances go against, or are "backstopped," by the Company's JPMorgan Revolver. To the extent amounts are borrowed under the Commercial Paper Facility, the availability of the JPMorgan Revolver are reduced. These borrowings do not, however, reduce the "unused" portion of the revolver in calculating the unused (commitment) fees.

<sup>c</sup> Projected LIBOR rate per Exhibit A-14 (MRB-4), Schedule D-2. Forecasted LIBOR assumed to closely approximate commercial paper rate.

# Schedule D-4

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Cost of Preferred Stock

for the Projected Year Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-14 (MRB-6)

Schedule: D-4

Page: 1 of 1

Witness: MRBleckman

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
						Net Proceeds Received By Company	Number Of Shares Outstanding	Total Value Of Net Proceeds (000)	Cost Rates	Annual Cost (000)
Line No.	Description	Annual Dividend	Par Value	Finance Expense	(Premium) Discount					
	<b>PREFERRED STOCK:</b>									
1	\$4.500 Series	\$4.500	\$100.00	\$0.00	\$0.00	\$100.00	373,148	<u>\$37,315</u>	4.50%	<u>\$1,679</u>

Calculations:

Column (i) = (column (h)\*column (b))/column (f))/column (h).

Column (j) = column (h)\*column (i).

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Short-Term Debt Utilization  
for the Projected Year Ending December 31, 2022  
(in millions)

Case No.: U-20963  
Exhibit No.: A-14 (MRB-7)  
Schedule: D-6  
Page: 1 of 1  
Witness: MRBleckman  
Date: March 2021

[illegible]

	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19
	\$ 42	\$ 43	\$ 40	\$ 41	\$ 39	\$ 33	\$ 35	\$ 36	\$ 32	\$ 27	\$ 22	\$ 17
	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
	\$ 25	\$ 29	\$ 27	\$ 28	\$ 26	\$ 20	\$ 20	\$ 20	\$ 15	\$ 14	\$ 12	\$ 8
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
	\$ 12	\$ 15	\$ 19	\$ 22	\$ 26	\$ 29	\$ 33	\$ 36	\$ 40	\$ 43	\$ 47	\$ 50
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
	\$ 52	\$ 54	\$ 56	\$ 58	\$ 60	\$ 62	\$ 64	\$ 66	\$ 68	\$ 70	\$ 72	\$ 74
	Test Year 13-Month Average											\$ 62

45 <sup>b</sup>Projected year-end Renewable Liability balances are consistent with the Company's Renewable Energy reconciliation proceeding reflected in Case No. U-20722.

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Current and Historical Credit Ratings  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-30 (MRB-8)  
Page: 1 of 1  
Witness: MRBleckman  
Date: March 2021

Line No.	Credit Ratings					
	(a)	(b)	(c)	(d)	(e)	(f)
	<b>Standard &amp; Poors Ratings at Year End</b>					
	<b>Current</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
1						
2						
3	<b>Consumers Energy Company</b>					
4	Senior Secured Debt	A	A	A	A	A
5	Commercial Paper	A-2	A-2	A-2	A-2	A-2
6	Senior Unsecured Debt	N/A	N/A	N/A	N/A	N/A
7	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
8	Preferred Stock	N/A	N/A	N/A	N/A	N/A
9	Outlook	Stable	Stable	Stable	Stable	Stable
10						
11	<b>CMS Energy Corporation</b>					
12	Senior Secured Debt	N/A	N/A	N/A	N/A	N/A
13	Senior Unsecured Debt	BBB	BBB	BBB	BBB	BBB
14	Junior Subordinated Debt	BBB-	BBB-	BBB-	N/A	N/A
15	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
16	Preferred Stock	N/A	N/A	N/A	N/A	N/A
17	Outlook	Stable	Stable	Stable	Stable	Stable
18						
19						
20		<b>Moody's Ratings at Year End</b>				
21	<b>Current</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
22	<b>Consumers Energy Company</b>					
23	Senior Secured Debt	Aa3	Aa3	Aa3	Aa3	A1
24	Commercial Paper	P-1	P-1	P-1	P-1	P-2
25	Senior Unsecured Debt	N/A	N/A	N/A	N/A	N/A
26	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
27	Preferred Stock	A3	A3	A3	A3	Baa1
28	Outlook	Stable	Stable	Stable	Stable	Positive
29						
30	<b>CMS Energy Corporation</b>					
31	Senior Secured Debt	A3	A3	A3	A3	Baa1
32	Senior Unsecured Debt	Baa1	Baa1	Baa1	Baa1	Baa2
33	Junior Subordinated Debt	Baa2	Baa2	Baa2	N/A	N/A
34	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
35	Preferred Stock	N/A	N/A	N/A	N/A	N/A
36	Outlook	Negative	Negative	Stable	Stable	Positive
37						
38						
39		<b>Fitch Ratings at Year End</b>				
40	<b>Current</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
41	<b>Consumers Energy Company</b>					
42	Senior Secured Debt	A+	A+	A+	A+	A+
43	Commercial Paper	F-2	F-2	F-2	F-2	F-2
44	Senior Unsecured Debt	A	A	A	A	A
45	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
46	Preferred Stock	BBB+	BBB+	BBB+	BBB+	BBB+
47	Outlook	Stable	Stable	Stable	Stable	Stable
48						
49	<b>CMS Energy Corporation</b>					
50	Senior Secured Debt	BBB+	BBB+	BBB+	BBB+	BBB+
51	Senior Unsecured Debt	BBB	BBB	BBB	BBB	BBB
52	Junior Subordinated Debt	BB+	BB+	BB+	N/A	N/A
53	Hybrid Preferred Securities	N/A	N/A	N/A	N/A	N/A
54	Preferred Stock	N/A	N/A	N/A	N/A	N/A
55	Outlook	Stable	Stable	Stable	Stable	Stable











**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Recent Utility Corporate Bond Issuances  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-31 (MRB-9)  
Page: 6 of 6  
Witness: MRBleckman  
Date: March 2021

Line No.	(a) Issue Date	(b) Ticker	(c) Issuer	(d) Type	(e) Amt (\$mm)	(f) Coupon	(g) Ratings		(i) Maturity	(j) Issue Spread (bp)	(k) Category
							Moody's	S&P			
1	06/16/20	PCG	Pacific Gas & Electric	Secured	2,000	2.500%	Baa3	BBB-	02/01/31	+175	
2	06/16/20	PCG	Pacific Gas & Electric	Secured	1,000	3.300%	Baa3	BBB-	08/01/40	+180	
3	06/16/20	PCG	Pacific Gas & Electric	Secured	1,925	3.500%	Baa3	BBB-	08/01/50	+200	
4	06/17/20	IDA	Idaho Power	Secured	80	1.900%	A1	A-	06/15/30	+120	
5	06/23/20	NGGLN	Niagara Mohawk Power	Unsecured	600	1.960%	A3	A-	06/15/30	+125	
6	06/23/20	NGGLN	Niagara Mohawk Power	Unsecured	500	3.025%	A3	A-	06/15/50	+155	2
7	06/28/20	AEP	AEP Texas	Unsecured	600	2.100%	Baa1	A-	07/01/30	+150	
8	07/28/20	NEE	Florida Power & Light Company	Unsecured	1,250	FRN	A1	A	07/28/23	3mL+38	
9	08/03/20	DTE	DTE Energy Co	Unsecured	800	1.050%	Baa2	BBB	06/01/25	+85	
10	08/04/20	PEG	Public Service Electric and Gas Co	Secured	375	2.050%	Aa3	A	08/01/50	+90	1
11	08/05/20	FTSCN	Tucson Electric Power Co	Unsecured	300	1.500%	A3	A-	08/01/30	+100	
12	08/11/20	ES	Eversource Energy	Unsecured	300	0.800%	Baa1	BBB+	08/15/25	+55	
13	08/11/20	ES	Eversource Energy	Unsecured	600	1.650%	Baa1	BBB+	08/15/30	+100	
14	08/11/20	ES	Eversource Energy (reopening)	Unsecured	300	3.450%	Baa1	BBB+	01/15/50	+125	3
15	08/12/20	NI	NiSource Inc	Unsecured	1,250	0.950%	Baa2	BBB+	08/15/25	+70	
16	08/12/20	NI	NiSource Inc	Unsecured	750	1.700%	Baa2	BBB+	02/15/31	+103	
17	08/12/20	PEG	Public Service Enterprise Group	Unsecured	550	0.800%	Baa1	BBB	08/15/25	+55	
18	08/12/20	PEG	Public Service Enterprise Group	Unsecured	550	1.600%	Baa1	BBB	08/15/30	+95	
19	08/12/20	ES	Public Service Co of New Hampshire	Secured	150	2.400%	A1	A+	09/01/50	+110	
20	08/17/20	DUK	Duke Energy Progress	Unsecured	700	FRN	A2	A-	02/18/22	3mL+18	
21	08/17/20	DUK	Duke Energy Progress	Secured	600	2.500%	Aa3	A	08/15/50	+110	1
22	08/17/20	SO	Southern Co Gas Capital Corp	Unsecured	500	1.750%	Baa1	A-	01/15/31	+110	
23	08/17/20	OGLETH	Oglethorpe Power Corp	Secured	450	3.750%	Baa1	BBB+	08/01/50	+240	3
24	08/24/20	SO	Alabama Power	Unsecured	600	1.450%	A1	A	09/15/30	+85	
25	08/24/20	ETR	Entergy Corp	Unsecured	800	0.900%	Baa2	BBB	09/15/25	+70	
26	09/08/20	PNW	Arizona Public Service Co	Unsecured	400	2.650%	A2	A-	09/15/50	+125	2
27	09/08/20	ETR	Entergy Arkansas	Secured	675	2.650%	A2	A	06/15/51	+125	1
28	09/08/20	DUK	Duke Energy Corporation (reopening)	Unsecured	350	2.450%	A2	A	06/01/30	+103	
29	09/08/20	D	Dominion Energy Inc	Unsecured	1,000	FRN	Baa2	BBB	09/15/23	3mL+53	
30	09/08/20	DUK	Duke Energy Corporation	Unsecured	650	0.900%	A2	A	09/15/25	+63	
31	09/14/20	WEC	WEC Energy Group	Unsecured	700	0.550%	Baa1	BBB+	09/15/23	+40	
32	09/14/20	SRE	Southern California Gas	Unsecured	300	FRN	A2	A	09/14/23	3mL+35	
33	09/16/20	AQNCN	Liberty Utilities	Unsecured	600	2.050%	NR	BBB	09/15/30	+140	
34	09/17/20	EDPPL	EDP Finance BV	Unsecured	850	1.710%	Baa3	NR	01/28/28	+125	
35	09/17/20	DQE	Duquesne Light Holdings Inc	Unsecured	350	2.532%	Baa3	BBB-	10/01/30	+185	
36	09/22/20	SRE	San Diego Gas & Electric Company	Secured	800	1.700%	A2	A	10/01/30	+105	
37	09/22/20	XEL	Xcel Energy	Unsecured	500	0.500%	Baa1	BBB+	10/15/23	+38	
38	09/23/20	ATO	Atmos Energy	Unsecured	600	1.500%	A1	A	01/15/31	+88	
39	09/23/20	AGR	New York State Electric & Gas	Unsecured	200	1.950%	A3	A-	10/01/30	+130	
40	09/23/20	CNP	CenterPoint Energy Resources	Unsecured	500	1.750%	A3	BBB+	10/01/30	+108	
41	09/23/20	ONCORTX	Onco Electric Delivery Company	Secured	450	0.550%	A2	A+	10/01/25	+40	
42	09/28/20	EIX	Southern California Edison Company	Secured	350	1.200%	A3	A-	02/01/26	+97	
43	09/28/20	ETR	Entergy Texas, Inc.	Secured	600	1.750%	Baa1	A	03/15/31	+113	
44	09/28/20	PPL	PPL Electric Utilities	Secured	250	FRN	A1	A	09/28/23	3mL+25	
45	09/29/20	DTE	DTE Energy	Unsecured	750	0.550%	Baa2	BBB	11/01/22	+45	
46	09/29/20	NRUC	National Rural Utilities Cooperative Finance Corp	Secured	400	1.350%	A1	A	03/15/31	+73	
47	10/01/20	NGGLN	New England Power Company	Unsecured	400	2.807%	A3	A-	10/06/50	+135	2
48	10/01/20	AEE	Ameren Missouri	Secured	550	2.625%	A2	A	03/15/51	+118	1
49	10/05/20	WEC	WEC Energy	Unsecured	500	1.375%	Baa1	BBB+	10/15/27	+85	
50	10/05/20	WEC	WEC Energy	Unsecured	450	1.800%	Baa1	BBB+	10/15/30	+105	
51	10/27/20	BRKHEC	Berkshire Hathaway Energy Company	Unsecured	500	1.650%	A3	A-	05/15/31	+90	
52	10/27/20	BRKHEC	Berkshire Hathaway Energy Company	Unsecured	1,500	2.850%	A3	A-	05/15/51	+128	2
53	11/09/20	AEE	Ameren Illinois	Secured	375	1.550%	A1	A	11/15/30	+65	
54	11/09/20	ETR	Entergy Louisiana	Secured	300	1.600%	A2	A	12/15/30	+70	
55	11/09/20	ETR	Entergy Louisiana LLC (reopening)	Secured	300	2.900%	A2	A	03/15/51	+95	1
56	11/09/20	ED	Consolidated Edison Co of NY	Unsecured	600	3.000%	Baa1	A-	12/01/60	+128	
57	11/12/20	PCG	Pacific Gas & Electric	Secured	1,450	FRN	Baa3	BBB-	11/15/21	3mL+137.5	
58	11/16/20	ES	The Connecticut Light & Power Co	Secured	400	0.750%	A1	A+	12/01/25	+35	
59	11/16/20	PNW	Arizona Public Service Co (reopening)	Unsecured	105	2.600%	A2	A-	08/15/29	+75	
60	11/16/20	AGR	Rochester Gas & Electric	Secured	200	1.850%	A1	A	12/01/30	+95	
61	11/17/20	NRG	Alexander Funding Trust	Secured	900	1.841%	Baa3	BBB-	11/15/23	+163	
62	11/17/20	NRG	NRG Energy Inc	Secured	500	2.000%	Baa3	BBB-	12/02/25	+163	
63	11/17/20	NRG	NRG Energy Inc	Secured	900	2.450%	Baa3	BBB-	12/02/27	+185	
64	11/17/20	ETR	Entergy Louisiana LLC	Secured	1,100	0.620%	A2	A	11/17/23	+40	
65	11/17/20	LNT	Alliant Energy Finance LLC	Unsecured	200	1.400%	Baa2	BBB+	03/15/26	+105	
66	11/18/20	AEP	American Electric Power	Unsecured	600	FRN	Baa2	BBB+	11/01/23	3mL+48	
67	11/18/20	AEP	American Electric Power	Unsecured	450	0.750%	Baa2	BBB+	11/01/23	+55	
68	11/18/20	AEP	American Electric Power	Unsecured	450	1.000%	Baa2	BBB+	11/01/25	+65	
69	11/19/20	AES	The AES Corporation	Unsecured	800	1.375%	Ba1	BBB-	01/15/26	+100	
70	11/19/20	AES	The AES Corporation	Unsecured	1,000	2.450%	Ba1	BBB-	01/15/31	+160	
71	11/19/20	NGGLN	Massachusetts Electric Co	Unsecured	500	1.729%	A3	A-	11/24/30	+88	
72	11/30/20	ED	Consolidated Edison Inc	Unsecured	650	0.650%	Baa2	BBB+	12/01/23	+47	
73	12/01/20	D	Virginia Electric & Power Co	Unsecured	900	2.450%	A2	BBB+	12/15/50	+85	3
74	12/01/20	EIX	Southern California Edison Co	Secured	900	FRN	A3	A-	12/03/21	3mL+27	
75	12/02/20	CMS	Consumers Energy	Secured	390	0.350%	Aa3	A	06/01/23	+20	
76	12/07/20	WGL	Washington Gas Light Co (reopening)	Unsecured	100	3.650%	A3	A-	09/15/49	+110	2

Average Spread 2017-2020	
(1) 30-year Debt Issuance A Rated Securitie:	+118
(2) 30-year Debt Issuance A- Rated Securitie:	+132
(3) 30-year Debt Issuance BBB+ Rated Securitie	+137
(4) 30-year Debt Issuance BBB Rated Securitie:	+210

Source: S&P Global Market Intelligence (SNL Energy)

(a) Line No.	(b) Company Name	(c) (d) (e) (f) Dec 31, 2019 (amounts in \$000s)				(g) Long-Term Debt	(h) % of Total Preferred Stock	(i) Common Stock
		Long-Term Debt	Preferred Stock	Common Stock	Total			
1	<u>Alliant Energy Corporation</u>							
2	Interstate Power and Light Company	3,241,249	200,000	3,271,773	6,713,022			
3	Wisconsin Power and Light Company	2,048,849	0	2,383,598	4,432,447			
4		5,290,098	200,000	5,655,371	11,145,469	47.5%	1.8%	50.7%
5								
6	<u>Ameren Corporation</u>							
7	Ameren Illinois Company	3,608,745	61,632	4,069,506	7,739,883			
8	Ameren Transmission Company of Illinois	525,000	0	730,078	1,255,078			
9	Union Electric Company	3,956,959	80,760	4,268,726	8,306,445			
10		8,090,704	142,392	9,068,310	17,301,406	46.8%	0.8%	52.4%
11								
12	<u>DTE Energy Company</u>							
13	Citizens Gas Fuel Company	0	0	10,301	10,301			
14	DTE Electric Company	7,187,181	0	7,199,713	14,386,894			
15	DTE Gas Company	1,709,681	0	1,852,690	3,562,371			
16		8,896,862	0	9,062,704	17,959,566	49.5%	0.0%	50.5%
17								
18	<u>Eversource Inc.</u>							
19	Eversource Kansas Central, Inc.	3,714,643	0	7,345,291	11,059,934			
20	Eversource Kansas South, Inc.	670,923	0	3,048,823	3,719,746			
21	Eversource Metro, Inc.	2,542,812	0	2,574,219	5,117,031			
22	Eversource Missouri West, Inc.	1,073,989	0	1,088,654	2,162,643			
23	Great Plains Energy Incorporated	3,616,801	0	3,662,873	7,279,674			
24	Westar Energy (KPL)	3,043,720	0	4,197,866	7,241,586			
25	Westar Generating, Inc.	0	0	98,602	98,602			
26		14,662,888	0	22,016,328	36,679,216	40.0%	0.0%	60.0%
27								
28	<u>Edison International</u>							
29	Southern California Edison Company	15,316,326	2,245,055	15,582,215	33,143,596	46.2%	6.8%	47.0%
30								
31	<u>NISource Inc.</u>							
32	Central Kentucky Transmission Company	0	0	698	698			
33	Columbia Gas of Kentucky, Incorporated	142,375	0	168,685	311,060			
34	Columbia Gas of Maryland, Incorporated	70,355	0	77,397	147,752			
35	Columbia Gas of Ohio, Inc.	1,412,926	0	1,593,275	3,006,201			
36	Columbia Gas of Pennsylvania, Inc.	785,515	0	983,420	1,768,935			
37	Columbia Gas of Virginia, Incorporated	NA	0	NA	NA			
38	Northern Indiana Public Service Company	2,253,384	0	2,918,488	5,171,872			
39		4,664,555	0	5,741,963	10,406,518	44.8%	0.0%	55.2%
40								
41	<u>Pinnacle West Capital Corp.</u>							
42	Arizona Public Service Company	5,254,071	0	5,876,263	11,130,334	47.2%	0.0%	52.8%
43								
44	<u>Portland General Electric Company</u>							
45	Portland General Electric Company	2,607,358	0	2,591,260	5,198,618	50.2%	0.0%	49.8%
46								
47	<u>WEC Energy Group, Inc.</u>							
48	Integrus Holding, Inc.	NA	NA	NA	NA			
49	Michigan Gas Utilities Corporation	90,000	0	192,427	282,427			
50	Minnesota Energy Resources Corporation	NA	NA	NA	NA			
51	North Shore Gas Company	132,000	0	148,799	280,799			
52	Peoples Gas Light and Coke Company	1,520,000	0	1,650,642	3,170,642			
53	Upper Michigan Energy Resources Corporation	160,000	0	199,165	359,165			
54	Wisconsin Electric Power Company	2,767,219	30,450	3,561,047	6,358,716			
55	Wisconsin Gas LLC	639,467	0	921,250	1,560,717			
56	Wisconsin Public Service Corporation	1,624,093	0	1,953,803	3,577,896			
57		6,932,779	30,450	8,627,133	15,590,362	44.5%	0.2%	55.3%
58								
59	<u>Xcel Energy Inc.</u>							
60	Northern States Power Company - MN	5,569,033	0	6,081,828	11,650,861			
61	Northern States Power Company - WI	815,849	0	966,559	1,782,408			
62	Public Service Company of Colorado	5,426,223	0	6,996,196	12,422,419			
63	Southwestern Public Service Company	2,442,933	0	2,884,448	5,327,381			
64	WestGas InterState, Inc.	0	0	811	811			
65		14,254,038	0	16,929,842	31,183,880	45.7%	0.0%	54.3%
66								
67	Average Proxy Group					46.2%	1.0%	52.8%

Column (b) = Company ROE witness Wehner's proxy group from Exhibit A-14 (TAW-1), Schedule D-5, page 1.

Columns (c), (d) & (e): Balances at December 31, 2019 per S&P Global Market Intelligence (formerly SNL Energy).

Data for each company is equal to the sum of the regulated subsidiaries of each proxy group company (where applicable).

Column (f) = sum (c), (d), (e).

Column (g) = (c)/(f).

Column (h) = (d)/(f).

Column (i) = (e)/(f).

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Rating Agency Adjusted FFO Analysis  
for the Projected Year Ending December 31, 2022

Case No.: U-20963  
Exhibit No.: A-33 (MRB-11)  
Page: 1 of 1  
Witness: MRBleckman  
Date: March 2021

Line No.		(a)	(b)	(c)	(d)
	(000's)				
	Consumers Energy				
	<b>S&amp;P</b>	2019 - Actual	Adjustment: 51.11% Equity Ratio	Adjustment: 9.90% ROE	2019 - Adjusted Equity Ratio / ROE
1	FFO (adjusted)	\$ 1,823	(28)	(10)	\$ 1,785
2	Debt (adjusted)	\$ 8,238	287	-	\$ 8,525
3	FFO / Debt (Line 1 / Line 2)	22.1%			<b>20.9%</b>

	(000's)				
	Consumers Energy				
	<b>Moody's</b>	2019 - Actual	Adjustment: 51.11% Equity Ratio	Adjustment: 9.90% ROE	2019 - Adjusted Equity Ratio / ROE
4	CFO Pre-W/C (adjusted)	\$ 1,623	(28)	(10)	\$ 1,585
5	Debt (adjusted)	\$ 8,092	287	-	\$ 8,379
6	(CFO Pre-W/C) / Debt (Line 4 / Line 5)	20.1%			<b>18.9%</b>

Column (a): For S&P, data from S&P's January 27, 2021 credit opinion for Consumers Energy.  
For Moody's, data from Moody's July 7, 2020 credit opinion for Consumers Energy.

Column (b): Equity ratio reduced from 53.16% in 2019 to 51.11%.

Column (c): ROE in 2019 from 10.0% to 9.9%.

Column (d): Lines 1, 2, 4, and 5, equal to Column (a) + Column (b) + Column (c)



## **Rating Action: Moody's changes outlook of CMS Energy and Consumers Energy to negative**

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01 Jul 2020

### **Approximately \$14.3 billion of debt affected**

New York, July 01, 2020 -- Moody's Investors Service, ("Moody's") changed the outlook of CMS Energy Corporation (CMS) and Consumers Energy Company (Consumers Energy) to negative from stable. At the same time, Moody's affirmed all ratings, including the Baa1 senior unsecured rating of CMS and the Aa3 senior secured and Prime-1 short-term commercial paper ratings of Consumers Energy.

### **RATINGS RATIONALE**

"Although we continue to view the regulatory framework in Michigan to be credit supportive, financial metrics of both CMS and Consumers Energy have weakened considerably due to tax reform and higher leverage to support elevated capital investments at the utility," stated Jairo Chung, Moody's analyst. "The possibility of a lower authorized ROE and equity capital structure could put further pressure on the organization's already weakened credit metrics," added Chung.

Historically, both CMS and Consumers Energy produced strong and consistent credit metrics, including a cash flow from operations before working capital (CFO pre-WC) to debt ratio averaging around 17% and 24%, respectively, through 2018. However, their metrics began to weaken starting in 2018 primarily due to tax reform. By 2019, CFO pre-WC to debt for CMS and Consumers Energy had fallen to 15% and 20%, respectively, leaving little financial flexibility at their current rating levels. With the potential of a declining ROE and, more importantly, a lower regulatory equity capital structure, we expect the credit metrics of both CMS and Consumers Energy to remain under pressure.

The rapid spread of the coronavirus outbreak, severe global economic shock, low oil prices and asset price volatility are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. We expect CMS and Consumers Energy to be resilient to recessionary pressures related to the coronavirus because of Consumer Energy's rate-regulated business model. Nonetheless, we are watching for changes in electricity usage, utility bill payment delinquency, and the regulatory response to counter these effects on earnings and cash flow. As events related to the coronavirus unfold, we are taking into consideration a wider range of potential outcomes, including more severe downside scenarios. The effects of the pandemic could result in financial metrics that are weaker than expected.

ESG considerations incorporated into our credit analysis for CMS and Consumers Energy primarily focus on its carbon transition risk associated with its utility operations in Michigan and CMS's unregulated generation assets. CMS has a goal to reach net zero carbon emissions by 2040 and net zero methane emissions by 2030. Also, our credit analysis incorporates social risks associated with the safety and liability of their utility operations, regulatory relationships as well as the changes in societal trends and customer behavior. For governance considerations, CMS's financial strategy, including dividend policy and overall risk management, and the effectiveness and oversight of the board of directors are key factors.

### **Rating Outlook**

The negative outlook of CMS and Consumers Energy reflect our expectation that their credit metrics are likely to remain weak due to continued pressure on the utility's ROE and equity capital structure. Consumers Energy is likely to produce a CFO pre-WC to debt ratio below 20% if the equity capital structure falls below the current level. CMS, already exhibiting metrics that are relatively weak for its Baa1 rating, is expected to generate CFO pre-WC to debt in the 14%-15% range over the next few years.

### **FACTORS THAT COULD LEAD TO AN UPGRADE OR DOWNGRADE OF THE RATINGS**

Factors That Could Lead to an Upgrade

The negative outlook limits the likelihood of a near term rating upgrade. An upgrade could be considered for CMS and Consumers Energy if their respective financial metrics improve such that the CFO pre-WC to debt ratio is above 20% and 25% on a sustained basis. If the regulatory environment in Michigan improves further such that it becomes more formulaic or transparent, a rating upgrade could be possible. Also, if the parent debt level falls below 25% of the consolidated debt, CMS could be upgraded.

#### Factors That Could Lead to a Downgrade

A rating downgrade could be considered for CMS and Consumers Energy if there is material deterioration in the Michigan regulatory support; if the utility's authorized ROE or equity capital structure continued to be under pressure; or if the credit profile either entity deteriorates such that CFO pre-WC to debt is below the high teens for CMS and below 20% for Consumers Energy. Also, if the parent debt level increases materially, a rating downgrade could be possible for CMS.

#### Affirmations:

..Issuer: CMS Energy Corporation

....Junior Subordinated Regular Bond/Debenture, Affirmed Baa2

....Senior Unsecured Revolving Credit Facility, Affirmed Baa1

....Senior Unsecured Regular Bond/Debenture, Affirmed Baa1

..Issuer: Consumers Energy Company

....Pref. Stock Preferred Stock, Affirmed A3

....Senior Secured First Mortgage Bonds, Affirmed Aa3

....Senior Secured Revolving Credit Facility, Affirmed Aa3

....Senior Unsecured Commercial Paper, Affirmed P-1

..Issuer: Michigan Strategic Fund

....Senior Secured Revenue Bonds, Affirmed Aa3

#### Outlook Actions:

..Issuer: CMS Energy Corporation

....Outlook, Changed To Negative From Stable

..Issuer: Consumers Energy Company

....Outlook, Changed To Negative From Stable

CMS Energy Corporation (CMS) is an energy holding company whose principal subsidiary, Consumers Energy Company (Consumers), is a Michigan regulated electric and gas utility, representing over 90% of CMS's earnings and cash flow. Consumers serves approximately 6.7 million customers in Michigan with a rate base of approximately \$18 billion. In addition to Consumers, CMS has ownership interests in 1,335 MW of unregulated generation capacity mostly within Michigan, and EnerBank, a FDIC-insured industrial loan company providing unsecured consumer installment loans for financing home improvements.

The principal methodology used in these ratings was Regulated Electric and Gas Utilities published in June 2017 and available at [https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC\\_1072530](https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1072530). Alternatively, please see the Rating Methodologies page on [www.moodys.com](http://www.moodys.com) for a copy of this methodology.

#### REGULATORY DISCLOSURES

For further specification of Moody's key rating assumptions and sensitivity analysis, see the sections Methodology Assumptions and Sensitivity to Assumptions in the disclosure form. Moody's Rating Symbols and Definitions can be found at: <https://www.moodys.com/researchdocumentcontentpage.aspx?>

[docid=PBC\\_79004](#).

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Moody's general principles for assessing environmental, social and governance (ESG) risks in our credit analysis can be found at [https://www.moody's.com/researchdocumentcontentpage.aspx?docid=PBC\\_1133569](https://www.moody's.com/researchdocumentcontentpage.aspx?docid=PBC_1133569).

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STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**RICHARD T. BLUMENSTOCK**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

## Schedule: B-5.1

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Electric Distribution

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (RTB-1)

Schedule: B-5.1

Page: 1 of 1

Witness: RTBlumenstock

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	New Business Program	132,554	119,515	133,942	253,457	134,158
	Contractor	19,972	25,196	31,723	56,919	29,706
	Labor	33,420	23,461	25,875	49,336	26,442
	Materials	31,240	26,430	31,445	57,875	29,559
	Business Expenses	315	42	67	108	54
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	47,607	44,386	44,832	89,218	48,397
2	Reliability Program	227,252	207,267	309,869	517,136	369,437
	Contractor	92,318	66,722	98,667	165,389	118,549
	Labor	20,099	29,597	41,519	71,116	51,667
	Materials	37,821	31,296	48,313	79,609	54,371
	Business Expenses	3,751	2,218	2,909	5,127	3,310
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	73,264	77,434	118,461	195,895	141,539
3	Capacity Program	57,325	57,751	62,622	120,374	64,840
	Contractor	17,733	15,682	17,027	32,708	17,742
	Labor	5,889	6,620	7,078	13,698	7,351
	Materials	12,356	11,552	13,082	24,634	13,336
	Business Expenses	80	264	327	590	327
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	21,267	23,634	25,109	48,744	26,084
4	Demand Failures Program	173,990	149,068	120,243	269,312	125,651
	Contractor	31,207	16,859	12,496	29,356	12,875
	Labor	34,726	35,755	28,509	64,264	29,810
	Materials	36,781	26,868	23,453	50,321	24,780
	Business Expenses	470	69	54	123	55
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	70,806	69,517	55,731	125,248	58,131
5	Asset Relocation Program	43,682	39,875	53,695	93,570	57,449
	Contractor	17,184	14,331	19,202	33,533	20,532
	Labor	9,628	7,899	10,793	18,692	11,572
	Materials	5,343	4,264	5,730	9,994	6,127
	Business Expenses	67	97	110	207	115
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	11,460	13,284	17,860	31,144	19,103
6	Electric Other Program	6,410	7,689	15,702	23,390	14,731
	Contractor	1,822	1,194	3,707	4,901	2,736
	Labor	233	138	426	563	758
	Materials	3,446	5,645	9,301	14,946	9,291
	Business Expenses	2	2	63	65	5
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	908	710	2,204	2,915	1,941
7	<b>Total Capital</b>	<b>641,213</b>	<b>581,166</b>	<b>696,073</b>	<b>1,277,238</b>	<b>766,266</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Projected Capital Expenditures  
Electric Distribution  
Summary of 5yr Historical Electric Capital Expenditures  
(\$000)

Case No.: U-20963  
Exhibit No.: A-35 (RTB-2)  
Page: 1 of 1  
Witness: RTBlumenstock  
Date: March 2021

Line No.	(a) Program / Sub-Program	(b) Witness	(c) 2015 Actuals	(d) 2016 Actuals	(e) 2017 Actuals	(f) 2018 Actuals	(g) 2019 Actuals	(h) 5yr Average	(i) 2020 Projected Bridge Year	(j) 2021 Projected Bridge Year	(k) 2022 Projected Test Year	(l) Test Year vs 5yr Ave Variance (k - h)
1	Lines New Business - LVD	RTBlumenstock	45,644	43,039	65,878	87,057	83,474	65,018	86,260	93,113	98,546	33,528
2	Large New Business Projects	RTBlumenstock	29	(37)	-	-	-	(2)	-	-	-	2
3	Lines Strategic Customers - HVD	RTBlumenstock	7,035	27,864	7,113	(6,179)	6,464	8,459	6,036	17,281	10,000	1,541
4	Metering New Business - LVD	RTBlumenstock	5,171	5,266	8,075	9,396	13,637	8,309	10,519	7,703	9,326	1,017
5	Transformers New Business - LVD	RTBlumenstock	12,136	8,852	13,063	11,421	21,595	13,413	12,200	12,344	12,610	(803)
6	Metro New Business	RTBlumenstock	2,760	3,243	2,411	3,451	7,384	3,850	4,500	3,500	3,675	(175)
7	<b>New Business</b>		<b>72,775</b>	<b>88,227</b>	<b>96,540</b>	<b>105,146</b>	<b>132,554</b>	<b>99,048</b>	<b>119,515</b>	<b>133,942</b>	<b>134,158</b>	<b>35,109</b>
8	Lines Reliability - LVD	RTBlumenstock	25,092	48,617	37,877	36,866	35,745	36,839	30,684	40,658	45,862	9,023
9	Lines Reliability - HVD	RTBlumenstock	14,640	37,825	17,325	42,708	47,816	32,063	22,679	63,909	78,439	46,376
10	Substations Reliability - LVD	RTBlumenstock	8,936	11,135	14,112	10,198	13,577	11,592	13,060	13,307	15,500	3,908
11	Substations Reliability - HVD	RTBlumenstock	3,458	3,850	4,342	2,848	4,676	3,835	5,864	5,223	5,390	1,555
12	System Protection	RTBlumenstock	1,899	1,569	4,244	3,000	3,141	2,771	2,973	2,344	2,364	(407)
13	Repetitive Outages - LVD	RTBlumenstock	10,322	8,353	6,270	4,367	6,572	7,177	4,749	7,718	10,196	3,019
14	Metro Reliability	RTBlumenstock	4,209	2,518	949	969	3,263	2,382	3,250	5,647	5,575	3,193
15	Grid Capabilities: Automation	RTBlumenstock	13,758	17,601	13,924	22,620	40,805	21,742	44,457	56,832	61,495	39,753
16	Grid Capabilities: Advanced Technologies	RTBlumenstock	-	-	-	-	18,377	3,675	18,871	14,394	21,906	18,230
17	Substations Comm Upgrades	RTBlumenstock	508	1,324	11,903	24,114	30,871	13,744	8,252	300	-	(13,744)
18	Lines and Subs Rehabilitation HVD	RTBlumenstock	-	-	-	-	-	-	13,967	38,521	40,974	40,974
19	Substations Rehabilitation LVD	RTBlumenstock	-	-	-	-	-	-	8,900	14,500	13,500	13,500
20	Lines Rehabilitation - LVD	RTBlumenstock	-	-	-	31,949	22,403	27,176	21,397	36,183	53,666	26,490
21	Metro Rehabilitation	RTBlumenstock	-	-	-	-	-	-	4,355	4,353	4,570	4,570
22	Grid Storage	RTBlumenstock	-	-	-	-	5	3	3,810	5,980	10,000	9,997
23	<b>Reliability</b>		<b>82,822</b>	<b>132,792</b>	<b>110,946</b>	<b>179,639</b>	<b>227,252</b>	<b>146,690</b>	<b>207,267</b>	<b>309,869</b>	<b>369,437</b>	<b>222,746</b>
24	Lines Capacity - LVD	RTBlumenstock	16,871	14,517	18,332	12,295	4,691	13,341	9,238	11,321	13,184	(157)
25	Lines & Subs Capacity - HVD	RTBlumenstock	15,612	20,965	16,823	16,545	21,989	18,387	21,501	20,203	20,100	1,713
26	Substations Capacity - LVD	RTBlumenstock	7,209	18,044	13,696	15,890	11,197	13,207	9,890	14,000	14,000	793
27	Transformers Capacity - LVD	RTBlumenstock	3,944	3,219	4,610	3,221	2,852	3,569	813	823	841	(2,729)
28	New Business Cap - LVD	RTBlumenstock	-	-	-	10,260	16,515	5,355	14,559	12,187	12,411	7,056
29	Conservative Voltage Reduction CVR	RTBlumenstock	-	-	-	-	82	41	1,700	4,088	4,154	4,113
30	Interconnections - LVD Lines	RTBlumenstock	-	-	-	-	-	-	50	-	-	-
31	Interconnections - HVD Lines	RTBlumenstock	-	-	-	-	-	-	-	-	150	150
32	Interconnections - LVD Substations	RTBlumenstock	-	-	-	-	-	-	-	-	-	-
33	Interconnections - HVD Substations	RTBlumenstock	-	-	-	-	-	-	-	-	-	-
34	<b>Capacity</b>		<b>43,636</b>	<b>56,745</b>	<b>53,461</b>	<b>58,211</b>	<b>57,325</b>	<b>53,876</b>	<b>57,751</b>	<b>62,622</b>	<b>64,840</b>	<b>10,964</b>
35	Lines Failures - LVD	RTBlumenstock	76,151	66,860	84,508	66,302	95,719	77,908	106,079	82,540	84,031	6,123
36	Lines & Subs Failures - HVD	RTBlumenstock	14,877	13,206	17,623	27,756	24,889	19,670	8,180	4,180	4,120	(15,550)
37	Substations Failures - LVD	RTBlumenstock	7,613	9,399	15,451	20,039	20,718	14,644	8,293	7,001	7,000	(7,644)
38	Metering Failures - LVD	RTBlumenstock	5,719	7,272	11,805	11,632	10,989	9,483	10,361	9,842	11,818	2,335
39	Transformers Failures - LVD	RTBlumenstock	14,260	14,754	20,747	14,642	16,298	16,140	14,098	14,265	14,572	(1,568)
40	Streetlight-Mercury Vapor / LED	RTBlumenstock	2,701	2,193	2,080	1,840	2,373	2,237	1,057	-	-	(2,237)
41	Streetlighting Center Suspension	RTBlumenstock	-	-	-	-	-	-	-	1,315	3,000	3,000
42	Metro Failures	RTBlumenstock	1,517	5,047	3,643	2,547	3,003	3,152	1,000	1,100	1,110	(2,041)
43	<b>Demand Failures</b>		<b>122,838</b>	<b>118,731</b>	<b>155,857</b>	<b>144,758</b>	<b>173,990</b>	<b>143,235</b>	<b>149,068</b>	<b>120,243</b>	<b>125,651</b>	<b>(17,583)</b>
44	Lines Relocations - LVD	RTBlumenstock	19,368	14,362	23,154	34,092	40,449	26,285	35,685	48,945	52,506	26,221
45	Lines Relocations - HVD	RTBlumenstock	1,056	288	168	1,986	(382)	623	900	900	900	277
46	Metro Relocations	RTBlumenstock	7,325	4,854	4,791	4,428	3,615	5,003	3,290	3,850	4,043	(960)
47	<b>Asset Relocations</b>		<b>27,749</b>	<b>19,504</b>	<b>28,113</b>	<b>40,505</b>	<b>43,682</b>	<b>31,911</b>	<b>39,875</b>	<b>53,695</b>	<b>57,449</b>	<b>25,538</b>
48	Computer & Equipment	RTBlumenstock	113	76	430	77	2	139	25	75	75	(64)
49	Tools	RTBlumenstock	2,178	3,377	1,903	3,822	4,084	3,073	5,507	8,872	8,955	5,882
50	System Control Projects	RTBlumenstock	88	2	619	1,002	2,325	807	2,157	6,699	4,944	4,137
51	Facilities Security	RTBlumenstock	-	1	(1)	-	-	-	-	-	-	-
52	NERC/NESC Compliance	RTBlumenstock	-	-	-	-	-	-	-	-	-	-
53	Substation Fall Protection	RTBlumenstock	196	80	6	5	-	72	-	-	-	(72)
54	Grid Technologies	RTBlumenstock	-	-	-	-	-	-	-	56	757	757
55	<b>Electric Other</b>		<b>2,575</b>	<b>3,536</b>	<b>2,957</b>	<b>4,906</b>	<b>6,410</b>	<b>4,077</b>	<b>7,689</b>	<b>15,702</b>	<b>14,731</b>	<b>10,654</b>
56	<b>Total Capital Electric D&amp;T</b>		<b>352,395</b>	<b>419,535</b>	<b>447,874</b>	<b>533,167</b>	<b>641,213</b>	<b>478,837</b>	<b>581,166</b>	<b>696,073</b>	<b>766,266</b>	<b>287,429</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Projected Capital Expenditures  
 New Business Program  
 Summary of Actual and Projected Capital Expenditures  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-36 (RTB-3)  
 Page: 1 of 1  
 Witness: RTBlumenstock  
 Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Lines New Business - LVD	83,474	86,260	93,113	179,373	98,546
	Contractor	15,435	20,779	22,430	43,209	23,738
	Labor	24,299	19,159	20,681	39,840	21,888
	Materials	12,626	11,502	12,416	23,919	13,141
	Business Expenses	301	29	31	60	33
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	30,814	34,791	37,555	72,346	39,746
2	Large New Business Projects	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
3	Lines Strategic Customers - HVD	6,464	6,036	17,281	23,317	10,000
	Contractor	2,048	2,809	8,042	10,851	4,654
	Labor	244	860	2,461	3,321	1,424
	Materials	2,073	2,847	8,150	10,997	4,716
	Business Expenses	13	12	35	47	20
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	2,086	(491)	(1,407)	(1,898)	(814)
4	Metering New Business - LVD	13,637	10,519	7,703	18,222	9,326
	Contractor	0	-	-	-	-
	Labor	2,958	2,388	1,749	4,138	2,118
	Materials	5,987	4,121	3,018	7,139	3,654
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	4,692	4,010	2,936	6,946	3,555
5	Transformers New Business - LVD	21,595	12,200	12,344	24,545	12,610
	Contractor	-	-	-	-	-
	Labor	5,138	699	707	1,406	722
	Materials	8,960	7,136	7,220	14,356	7,376
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	7,497	4,365	4,417	8,782	4,512
6	Metro New Business	7,384	4,500	3,500	8,000	3,675
	Contractor	2,490	1,609	1,251	2,860	1,314
	Labor	781	356	277	632	290
	Materials	1,594	824	641	1,465	673
	Business Expenses	1	0	0	1	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	2,518	1,712	1,331	3,043	1,398
7	<b>Total Capital</b>	<u>132,554</u>	<u>119,515</u>	<u>133,942</u>	<u>253,457</u>	<u>134,158</u>

Line No	(a) Description	(b)	(c)	(d)	(e)	(f)
		Historical Year	Projected Bridge Year			Projected Test Year
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Lines Reliability - LVD	35,745	30,684	40,658	71,342	45,862
	Contractor	12,131	5,236	6,938	12,174	7,826
	Labor	5,066	7,021	9,304	16,325	10,495
	Materials	3,069	2,796	3,705	6,501	4,179
	Business Expenses	1,415	1,903	2,521	4,424	2,844
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	14,063	13,727	18,190	31,917	20,518
2	Lines Reliability - HVD	47,816	22,679	63,909	86,588	78,439
	Contractor	25,053	10,799	30,431	41,230	37,349
	Labor	1,254	867	2,444	3,312	3,000
	Materials	6,983	2,964	8,352	11,316	10,251
	Business Expenses	30	8	23	31	28
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	14,496	8,041	22,659	30,700	27,810
3	Substations Reliability - LVD	13,577	13,060	13,307	26,367	15,500
	Contractor	3,791	3,297	3,359	6,656	3,913
	Labor	1,120	1,826	1,860	3,686	2,167
	Materials	4,625	2,734	2,786	5,519	3,245
	Business Expenses	6	122	124	246	145
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	4,036	5,081	5,177	10,259	6,031
4	Substations Reliability - HVD	4,676	5,864	5,223	11,087	5,390
	Contractor	810	914	814	1,728	840
	Labor	901	856	763	1,619	787
	Materials	1,356	1,813	1,615	3,428	1,667
	Business Expenses	0	2	2	3	2
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	1,609	2,279	2,030	4,309	2,095
5	Grid Capabilities: Automation	40,805	44,457	56,832	101,289	61,495
	Contractor	11,236	13,964	17,852	31,816	19,316
	Labor	2,602	3,884	4,965	8,849	5,372
	Materials	14,188	11,253	14,385	25,638	15,566
	Business Expenses	(28)	14	18	33	20
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	12,807	15,341	19,611	34,952	21,220
6	Grid Capabilities: Advanced Technologies	18,377	18,871	14,394	33,265	21,906
	Contractor	12,570	13,085	9,981	23,066	15,189
	Labor	1,368	3,341	2,548	5,889	3,878
	Materials	1,352	202	154	356	234
	Business Expenses	2,202	86	66	152	100
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	884	2,157	1,645	3,802	2,504
7	Substations Comm Upgrades	30,871	8,252	300	8,552	-
	Contractor	16,951	3,878	141	4,019	-
	Labor	1,195	636	23	659	-
	Materials	2,035	204	7	212	-
	Business Expenses	35	5	0	5	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	10,655	3,529	128	3,657	-
8	System Protection	3,141	2,973	2,344	5,317	2,364
	Contractor	761	1,120	863	2,002	890
	Labor	333	374	295	668	297
	Materials	1,097	352	278	630	280
	Business Expenses	1	0	0	1	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	949	1,127	889	2,016	896
9	Repetitive Outages - LVD	6,572	4,749	7,718	12,466	10,196
	Contractor	1,486	444	721	1,165	952
	Labor	1,513	1,213	1,971	3,183	2,604
	Materials	658	747	1,215	1,962	1,605
	Business Expenses	1	5	8	13	11
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	2,914	2,340	3,803	6,144	5,025
10	Metro Reliability	3,263	3,250	5,647	8,897	5,575
	Contractor	1,433	1,367	2,376	3,743	2,346
	Labor	328	174	303	477	299
	Materials	463	538	935	1,473	923
	Business Expenses	50	0	0	0	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	990	1,170	2,034	3,204	2,008
11	Lines and Sub Rehab Rehabilitation HVD	-	13,967	38,521	52,488	40,974
	Contractor	-	5,336	14,717	20,054	15,654
	Labor	-	1,295	3,571	4,865	3,788
	Materials	-	2,184	6,023	8,207	6,407
	Business Expenses	-	26	71	96	75
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	5,127	14,139	19,266	15,040
12	Substations Rehabilitation LVD	-	8,900	14,500	23,400	13,500
	Contractor	-	1,141	1,858	2,999	1,730
	Labor	-	1,030	1,678	2,708	1,562
	Materials	-	3,305	5,385	8,690	5,014
	Business Expenses	-	27	44	70	41
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	3,397	5,535	8,933	5,153
13	Lines Rehabilitation - LVD	22,403	21,397	36,183	57,579	53,686
	Contractor	6,097	1,538	2,601	4,138	3,857
	Labor	4,418	6,766	11,442	18,208	16,971
	Materials	1,995	1,818	3,074	4,891	4,559
	Business Expenses	35	16	27	44	41
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	9,858	11,259	19,039	30,298	28,239
14	Metro Rehabilitation	-	4,355	4,353	8,708	4,570
	Contractor	-	2,157	2,155	4,312	2,263
	Labor	-	246	246	492	258
	Materials	-	362	361	723	379
	Business Expenses	-	4	4	8	4
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	1,587	1,586	3,174	1,666
15	Grid Storage	5	3,810	5,980	9,790	10,000
	Contractor	-	2,447	3,840	6,287	6,421
	Labor	-	68	108	176	180
	Materials	-	24	38	63	64
	Business Expenses	4	0	0	0	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	1	1,271	1,994	3,265	3,335
16	Total Capital	227,252	207,267	309,869	517,136	369,437

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Capital Expenditures

Capacity Program

Summary of Actual and Projected Capital Expenditures

(\$000)

Case No.: U-20963

Exhibit No.: A-38 (RTB-5)

Page: 1 of 1

Witness: RTBlumenstock

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year	Projected Bridge Year			Projected Test Year
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Lines Capacity - LVD	4,691	9,238	11,321	20,559	13,184
	Contractor	1,128	2,904	3,559	6,464	4,145
	Labor	873	1,097	1,344	2,441	1,565
	Materials	733	1,131	1,386	2,516	1,614
	Business Expenses	3	0	0	0	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	1,955	4,106	5,032	9,138	5,860
2	Lines & Subs Capacity - HVD	21,989	21,501	20,203	41,704	20,100
	Contractor	8,920	6,828	6,416	13,244	6,383
	Labor	1,057	1,363	1,280	2,643	1,274
	Materials	3,638	4,487	4,216	8,703	4,195
	Business Expenses	68	88	83	171	82
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	8,306	8,735	8,208	16,943	8,166
3	Substations Capacity - LVD	11,197	9,890	14,000	23,890	14,000
	Contractor	2,625	2,511	3,554	6,065	3,554
	Labor	835	831	1,177	2,008	1,177
	Materials	4,368	3,437	4,866	8,303	4,866
	Business Expenses	2	168	238	406	238
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	3,368	2,942	4,165	7,108	4,165
4	Transformers Capacity - LVD	2,852	813	823	1,636	841
	Contractor	-	-	-	-	-
	Labor	679	47	47	94	48
	Materials	1,183	476	481	957	492
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	990	291	294	585	301
5	Lines New Business Cap - LVD	16,515	14,559	12,187	26,746	12,411
	Contractor	5,057	3,044	2,548	5,591	2,594
	Labor	2,414	2,975	2,491	5,466	2,536
	Materials	2,430	1,740	1,457	3,197	1,483
	Business Expenses	7	7	6	13	6
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	6,607	6,793	5,686	12,479	5,791
6	Conservative Voltage Reduction CVR	82	1,700	4,088	5,788	4,154
	Contractor	4	395	950	1,345	965
	Labor	31	307	739	1,046	751
	Materials	5	281	676	957	687
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	42	717	1,724	2,441	1,751
7	Lines Solar Interconnections - LVD	-	50	-	50	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	50	-	50	-
8	Lines Solar Interconnections - HVD	-	-	-	-	150
	Contractor	-	-	-	-	100
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	50
9	Subs Solar Interconnections - LVD	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
10	Subs Solar Interconnections - HVD	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
11	<b>Total Capital</b>	<u>57,325</u>	<u>57,751</u>	<u>62,622</u>	<u>120,374</u>	<u>64,840</u>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Capital Expenditures

Demand Failures Program

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-39 (RTB-6)

Page: 1 of 1

Witness: RTBlumenstock

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Lines Failures - LVD	95,719	106,079	82,540	188,619	84,031
	Contractor	17,276	12,850	9,999	22,849	10,179
	Labor	23,228	29,486	22,943	52,429	23,357
	Materials	9,861	10,522	8,187	18,709	8,335
	Business Expenses	454	69	53	122	54
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	44,901	53,152	41,358	94,510	42,105
2	Lines & Subs Failures - HVD	24,889	8,180	4,180	12,360	4,120
	Contractor	9,842	3,076	1,572	4,648	1,549
	Labor	1,959	801	409	1,211	404
	Materials	5,575	1,277	652	1,929	643
	Business Expenses	11	0	0	0	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	7,502	3,025	1,546	4,571	1,524
3	Substations Failures - LVD	20,718	8,293	7,001	15,294	7,000
	Contractor	2,710	471	397	868	397
	Labor	2,190	1,567	1,323	2,889	1,322
	Materials	8,892	2,851	2,407	5,258	2,407
	Business Expenses	2	0	0	0	0
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	6,925	3,404	2,874	6,278	2,874
4	Metering Failures - LVD	10,989	10,361	9,842	20,204	11,818
	Contractor	0	-	-	-	-
	Labor	2,721	2,783	2,644	5,427	3,175
	Materials	4,408	3,566	3,388	6,954	4,068
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	3,860	4,012	3,811	7,823	4,576
5	Transformers Failures - LVD	16,298	14,098	14,265	28,363	14,572
	Contractor	-	-	-	-	-
	Labor	3,877	808	817	1,625	835
	Materials	6,762	8,246	8,343	16,589	8,523
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	5,658	5,044	5,104	10,148	5,214
6	Streetlight-Mercury Vapor / LED	2,373	1,057	-	1,057	-
	Contractor	216	137	-	137	-
	Labor	416	215	-	215	-
	Materials	829	205	-	205	-
	Business Expenses	1	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	912	500	-	500	-
7	Streetlighting Center Suspension Conversion	-	-	1,315	1,315	3,000
	Contractor	-	-	170	170	388
	Labor	-	-	268	268	612
	Materials	-	-	255	255	582
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	622	622	1,419
8	Metro Failures	3,003	1,000	1,100	2,100	1,110
	Contractor	1,165	326	358	684	361
	Labor	335	95	105	200	106
	Materials	453	200	221	421	223
	Business Expenses	1	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	1,049	379	416	795	420
9	<b>Total Capital</b>	<u>173,990</u>	<u>149,068</u>	<u>120,243</u>	<u>269,312</u>	<u>125,651</u>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Projected Capital Expenditures  
 Asset Relocation Program  
 Summary of Actual and Projected Capital Expenditures  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-40 (RTB-7)  
 Page: 1 of 1  
 Witness: RTBlumenstock  
 Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Lines Relocations - LVD	40,449	35,685	48,945	84,630	52,506
	Contractor	14,562	12,341	16,926	29,267	18,158
	Labor	9,819	7,730	10,603	18,333	11,374
	Materials	4,260	3,806	5,220	9,026	5,600
	Business Expenses	64	5	7	13	8
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	11,744	11,803	16,188	27,991	17,366
2	Lines Relocations - HVD	(382)	900	900	1,800	900
	Contractor	454	313	313	627	313
	Labor	(554)	43	43	86	43
	Materials	135	157	157	315	157
	Business Expenses	2	23	23	45	23
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	(419)	364	364	727	364
3	Metro Relocations	3,615	3,290	3,850	7,140	4,043
	Contractor	2,167	1,677	1,963	3,640	2,061
	Labor	363	125	147	272	154
	Materials	949	301	352	653	370
	Business Expenses	2	69	81	149	85
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	134	1,118	1,308	2,425	1,373
4	<b>Total Capital</b>	<u>43,682</u>	<u>39,875</u>	<u>53,695</u>	<u>93,570</u>	<u>57,449</u>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Projected Capital Expenditures  
 Electric Other Program  
 Summary of Actual and Projected Capital Expenditures  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-41 (RTB-8)  
 Page: 1 of 1  
 Witness: RTBlumenstock  
 Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Computer & Equipment	2	25	75	100	75
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	2	25	75	100	75
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
2	Tools	4,084	5,507	8,872	14,379	8,955
	Contractor	640	-	-	-	-
	Labor	39	1	1	1	1
	Materials	2,986	5,505	8,870	14,375	8,953
	Business Expenses	1	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	418	1	1	2	1
3	System Control Projects	2,325	2,157	6,699	8,856	4,944
	Contractor	1,182	1,194	3,707	4,901	2,736
	Labor	194	137	425	562	314
	Materials	459	115	356	471	263
	Business Expenses	0	2	7	10	5
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	490	710	2,203	2,913	1,626
4	Facilities Security	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
5	NERC/NESC Compliance	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
6	Substation Fall Protection	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
7	Grid Technologies	-	-	56	56	757
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	443
	Materials	-	-	-	-	-
	Business Expenses	-	-	56	56	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	314
8	<b>Total Capital</b>	<u>6,410</u>	<u>7,689</u>	<u>15,702</u>	<u>23,390</u>	<u>14,731</u>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual & Projected Electric & Common O&M Expenses  
For the Year 2019 & Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-42 (RTB-9)  
Page: 1 of 1  
Witness: RTBlumenstock  
Date: March 2021

Line No.	(a) Description	(b) 2019 Actual	(c) 2020 Projected	(d) 2021 Projected	(e) 12 Months Ending December 31, 2022 Projected
1	Electric Division Electric & Common O&M Expenses	\$ 174,012	\$ 138,948	\$ 141,080	\$ 185,039

**MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Summary of Actual & Projected Electric & Common O&M Expenses  
For the Year 2019 & Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-43 (RTB-10)  
Page: 1 of 1  
Witness: RTBlumenstock  
Date: March 2021

Line No.	(a) Description	(b) 2019 Actual	(c) 2020 Projected	(d) 2021 Projected	(e) 12 Months Ending December 31, 2022 Projected
1	Electric Operations	\$ 159,147	\$ 124,806	\$ 123,726	\$ 165,023
2	Electric Engineering & Support	\$ 14,865	\$ 14,142	\$ 17,354	\$ 20,016
3	<b>Total Electric &amp; Common O&amp;M Expenses</b>	<b>\$ 174,012</b>	<b>\$ 138,948</b>	<b>\$ 141,080</b>	<b>\$ 185,039</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual & Projected Electric & Common O&M Expenses  
For the Year 2019 & Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-44 (RTB-11)  
Page: 1 of 1  
Witness: RTBlumenstock  
Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Line No.	Description	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	5-Year Average	2020 Projected	2021 Projected	2022 Projected	2022 vs. 5-Year Average
1	O&M Assoc w/Construction	4,381	7,228	6,405	8,121	8,881	7,003	-	-	-	(7,003)
2	Transformer Credits	(6,146)	(6,134)	(8,925)	(7,247)	(10,587)	(7,808)	-	-	-	7,808
3	<b>O&amp;M Assoc w/Construction</b>	<b>(1,765)</b>	<b>1,094</b>	<b>(2,520)</b>	<b>874</b>	<b>(1,706)</b>	<b>(805)</b>	-	-	-	805
4	Lines Reliability - LVD	235	56	157	56	61	113	21	840	1,316	1,203
5	Lines Reliability - HVD	236	317	147	177	122	200	88	121	125	(75)
6	Substations Reliability - LVD	1,549	1,794	1,697	2,090	1,991	1,824	1,896	2,598	3,655	1,831
7	Substations Reliability - HVD	1,069	957	1,145	1,422	1,201	1,159	1,379	2,181	2,889	1,730
8	<b>Non-Forestry Reliability</b>	<b>3,089</b>	<b>3,124</b>	<b>3,146</b>	<b>3,745</b>	<b>3,375</b>	<b>3,296</b>	<b>3,384</b>	<b>5,739</b>	<b>7,985</b>	<b>4,689</b>
9	Lines Demand - HVD	1,167	533	785	1,681	313	896	756	750	988	92
10	Substations Demand - LVD	3,393	3,321	2,728	3,246	3,288	3,195	2,659	2,953	4,650	1,455
11	Substations Demand - HVD	2,420	2,150	2,054	2,496	2,190	2,262	2,087	2,160	3,780	1,518
12	Corrective Maintenance	8,519	3,483	4,586	5,007	4,919	5,303	5,191	4,205	4,905	(398)
13	Staking	3,868	3,221	3,285	3,466	2,969	3,362	2,970	3,017	3,730	368
14	Meter Services (and Credits)	5,705	2,992	437	1,020	299	2,091	(368)	4,699	4,383	2,293
15	Streetlighting	2,153	1,933	1,637	2,206	1,759	1,938	1,669	1,156	1,752	(185)
16	Service Calls	2,451	2,108	2,839	4,172	4,708	3,256	4,150	4,410	4,999	1,743
17	Alma Equipment Repair	980	1,136	1,058	1,242	982	1,080	873	957	1,003	(77)
18	Meter Reading	10,697	11,582	4,982	1,813	1,595	6,134	1,495	1,763	1,811	(4,323)
19	Meter Tech & Mgmt Sys Support	1,343	1,133	965	1,343	1,358	1,228	1,006	1,326	1,387	158
20	Smart Energy MTC - Elec	-	-	7,476	7,836	8,711	4,805	8,379	9,558	9,672	4,867
21	<b>Ops, Mtc &amp; Mtr w/o Svc Rest</b>	<b>42,697</b>	<b>33,592</b>	<b>32,832</b>	<b>35,529</b>	<b>33,089</b>	<b>35,548</b>	<b>30,866</b>	<b>36,953</b>	<b>43,059</b>	<b>7,511</b>
22	Service Restoration - LVD	38,167	35,504	50,172	53,924	92,129	53,979	65,327	47,300	74,359	20,380
23	<b>Service Restoration</b>	<b>38,167</b>	<b>35,504</b>	<b>50,172</b>	<b>53,924</b>	<b>92,129</b>	<b>53,979</b>	<b>65,327</b>	<b>47,300</b>	<b>74,359</b>	<b>20,380</b>
24	Training	6,047	4,174	6,075	6,160	6,376	5,766	4,439	10,247	12,609	6,842
25	Tools	1,920	1,811	1,461	1,900	1,442	1,707	1,376	1,415	1,595	(112)
26	Field Operations Expenses	2,346	2,360	2,604	2,691	2,450	2,490	1,532	2,031	2,589	99
27	Indirect Labor/Labor Variations	1,509	868	515	155	(516)	506	(1,538)	-	-	(506)
28	Supervision / Admin-Staff	6,556	6,063	6,725	7,634	7,642	6,924	5,206	4,801	6,622	(302)
29	Smart Energy Operations Center	-	-	1,166	1,183	1,036	677	430	-	-	(677)
30	Grid Management - Distr	2,807	2,778	4,073	4,091	3,793	3,508	3,891	4,958	5,382	1,874
31	<b>Field Operations</b>	<b>21,185</b>	<b>18,054</b>	<b>22,619</b>	<b>23,814</b>	<b>22,224</b>	<b>21,579</b>	<b>15,337</b>	<b>23,452</b>	<b>28,797</b>	<b>7,218</b>
32	Compliance and Controls	-	-	-	-	1,635	327	1,433	1,612	1,792	1,465
33	<b>Compliance and Controls</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,635</b>	<b>327</b>	<b>1,433</b>	<b>1,612</b>	<b>1,792</b>	<b>1,465</b>
34	Resource Planning & Closeout	-	39	495	365	325	245	203	193	197	(48)
35	Scheduling & Dispatch	3,249	3,605	5,273	5,390	4,895	4,482	4,059	4,430	4,790	308
36	Contract Administration	-	229	353	345	254	236	181	196	200	(36)
37	<b>Planning &amp; Scheduling</b>	<b>3,249</b>	<b>3,873</b>	<b>6,121</b>	<b>6,100</b>	<b>5,474</b>	<b>4,963</b>	<b>4,442</b>	<b>4,819</b>	<b>5,188</b>	<b>224</b>
38	OP Distribution & Generation	361	722	1,552	677	1,507	964	1,448	1,670	1,705	742
39	OP Business Services	230	255	202	1,229	-	479	-	-	-	(479)
40	<b>Operations Performance</b>	<b>591</b>	<b>977</b>	<b>1,754</b>	<b>1,906</b>	<b>1,507</b>	<b>1,347</b>	<b>1,448</b>	<b>1,670</b>	<b>1,705</b>	<b>358</b>
41	<b>Operations Management</b>	<b>3,415</b>	<b>2,640</b>	<b>1,167</b>	<b>1,673</b>	<b>1,420</b>	<b>2,063</b>	<b>2,570</b>	<b>1,534</b>	<b>1,568</b>	<b>(495)</b>
42	<b>Ops IT Projects</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>648</b>	<b>570</b>	<b>-</b>
43	<b>Total Electric Operations</b>	<b>110,628</b>	<b>98,858</b>	<b>115,291</b>	<b>127,566</b>	<b>159,147</b>	<b>122,298</b>	<b>124,806</b>	<b>123,726</b>	<b>165,023</b>	<b>42,725</b>
44	Strategy	-	-	57	102	96	51	-	-	-	(51)
45	Regulatory & Compliance-Elec	168	170	140	151	-	157	-	-	-	(157)
46	CES	499	360	354	362	428	400	416	432	445	44
47	<b>Engineering Support</b>	<b>667</b>	<b>529</b>	<b>550</b>	<b>616</b>	<b>524</b>	<b>577</b>	<b>416</b>	<b>432</b>	<b>445</b>	<b>(132)</b>
48	Geospatial Mgmt & Data Quality - Elec	253	385	598	107	-	336	-	-	-	(336)
49	Planning - LVD System	3,190	1,797	2,183	3,103	3,966	2,848	3,304	6,876	6,666	3,818
50	Planning - HVD System	2,715	3,270	3,972	3,139	3,150	3,249	3,476	3,778	4,236	987
51	System Protection	2,828	2,549	1,425	1,951	1,370	2,025	1,208	1,279	1,638	(387)
52	Planning Analytics	-	-	420	521	1,107	410	1,963	678	1,209	799
53	<b>Electric Planning</b>	<b>8,986</b>	<b>8,001</b>	<b>8,598</b>	<b>8,821</b>	<b>9,593</b>	<b>8,800</b>	<b>9,951</b>	<b>12,611</b>	<b>13,748</b>	<b>4,948</b>
54	Design - DER / I&C	-	-	-	-	279	56	203	442	619	563
55	Design - LVD	-	-	-	-	933	187	395	372	921	734
56	Design - HVD	1,522	1,209	1,287	1,544	1,090	1,330	566	750	1,307	(24)
57	Joint Pole Rental	1,791	1,789	1,805	1,857	1,975	1,844	2,199	2,239	2,351	507
58	Standards & Document Control	179	151	353	247	471	280	412	508	626	346
59	<b>Electric Design</b>	<b>3,492</b>	<b>3,149</b>	<b>3,445</b>	<b>3,648</b>	<b>4,748</b>	<b>3,696</b>	<b>3,775</b>	<b>4,311</b>	<b>5,823</b>	<b>2,127</b>
60	<b>Electric Engineering &amp; Support</b>	<b>13,144</b>	<b>11,679</b>	<b>12,593</b>	<b>13,084</b>	<b>14,865</b>	<b>13,073</b>	<b>14,142</b>	<b>17,354</b>	<b>20,016</b>	<b>6,943</b>
61	<b>Total O&amp;M</b>	<b>123,772</b>	<b>110,537</b>	<b>127,884</b>	<b>140,650</b>	<b>174,012</b>	<b>135,371</b>	<b>138,948</b>	<b>141,080</b>	<b>185,039</b>	<b>49,668</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

 Summary of Actual & Projected Electric & Common O&M Expenses  
 For the Year 2019 & Test Year 12 Months Ending December 31, 2022  
 (\$000)

 Case No.: U-20963  
 Exhibit No.: A-45 (RTB-12)  
 Page: 1 of 2  
 Witness: RTBlumenstock  
 Date: March 2021

Line No.	(a) Description	(b) 2019 Actual	(c) 2020 Projected	(d) 2021 Projected	(e) 12 Months Ending December 31, 2022 Projected
1	O&M Assoc w/Construction	8,881	-	-	-
2	Transformer Credits	(10,587)	-	-	-
3	<b>O&amp;M Assoc w/Construction</b>	<b>(1,706)</b>	<b>-</b>	<b>-</b>	<b>-</b>
4	Lines Reliability - LVD	61	21	840	1,316
5	Lines Reliability - HVD	122	88	121	125
6	Substations Reliability - LVD	1,991	1,896	2,598	3,655
7	Substations Reliability - HVD	1,201	1,379	2,181	2,889
8	<b>Non-Forestry Reliability</b>	<b>3,375</b>	<b>3,384</b>	<b>5,739</b>	<b>7,985</b>
9	Lines Demand - HVD	313	756	750	988
10	Substations Demand - LVD	3,288	2,659	2,953	4,650
11	Substations Demand - HVD	2,190	2,087	2,160	3,780
12	Corrective Maintenance	4,919	5,191	4,205	4,905
13	Staking	2,969	2,970	3,017	3,730
14	Meter Services (and Credits)	299	(368)	4,699	4,383
15	Streetlighting	1,759	1,669	1,156	1,752
16	Service Calls	4,708	4,150	4,410	4,999
17	Alma Equipment Repair	982	873	957	1,003
18	Meter Reading	1,595	1,495	1,763	1,811
19	Meter Tech & Mgmt Sys Support	1,358	1,006	1,326	1,387
20	Smart Energy MTC - Elec	8,711	8,379	9,558	9,672
21	<b>Ops, Mtc &amp; Mtr w/o Svc Rest</b>	<b>33,089</b>	<b>30,866</b>	<b>36,953</b>	<b>43,059</b>
22	Service Restoration - LVD	92,129	65,327	47,300	74,359
23	<b>Service Restoration</b>	<b>92,129</b>	<b>65,327</b>	<b>47,300</b>	<b>74,359</b>
24	Training	6,376	4,439	10,247	12,609
25	Tools	1,442	1,376	1,415	1,595
26	Field Operations Expenses	2,450	1,532	2,031	2,589
27	Indirect Labor/Labor Variations	(516)	(1,538)	-	-
28	Supervision / Admin-Staff	7,642	5,206	4,801	6,622
29	Smart Energy Operations Center	1,036	430	-	-
30	Grid Management - Distr	3,793	3,891	4,958	5,382
31	<b>Field Operations</b>	<b>22,224</b>	<b>15,337</b>	<b>23,452</b>	<b>28,797</b>
32	Compliance and Controls	1,635	1,433	1,612	1,792
33	<b>Compliance and Controls</b>	<b>1,635</b>	<b>1,433</b>	<b>1,612</b>	<b>1,792</b>
34	Resource Planning & Closeout	325	203	193	197
35	Scheduling & Dispatch	4,895	4,059	4,430	4,790
36	Contract Administration	254	181	196	200
37	<b>Planning &amp; Scheduling</b>	<b>5,474</b>	<b>4,442</b>	<b>4,819</b>	<b>5,188</b>
38	OP Distribution & Generation	1,507	1,448	1,670	1,705
39	OP Business Services				
40	<b>Operations Performance</b>	<b>1,507</b>	<b>1,448</b>	<b>1,670</b>	<b>1,705</b>
41	<b>Operations Management</b>	<b>1,420</b>	<b>2,570</b>	<b>1,534</b>	<b>1,568</b>
42	<b>Ops IT Projects</b>		<b>-</b>	<b>648</b>	<b>570</b>
43	<b>Total Electric Operations</b>	<b>159,147</b>	<b>124,806</b>	<b>123,726</b>	<b>165,023</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual & Projected Electric & Common O&M Expenses  
 For the Year 2019 & Test Year 12 Months Ending December 31, 2022  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-45 (RTB-12)  
 Page: 2 of 2  
 Witness: RTBlumenstock  
 Date: March 2021

Line No.	(a) Description	(b) 2019 Actual	(c) 2020 Projected	(d) 2021 Projected	(e) 12 Months Ending December 31, 2022 Projected
1	Strategy	96			
2	Regulatory & Compliance-Elec				
3	CES	428	416	432	445
4	<b>Engineering Support</b>	<b>524</b>	<b>416</b>	<b>432</b>	<b>445</b>
5	Geospatial Mgmt & Data Quality - Elec				
6	Planning - LVD System	3,966	3,304	6,876	6,666
7	Planning - HVD System	3,150	3,476	3,778	4,236
8	System Protection	1,370	1,208	1,279	1,638
9	Planning Analytics	1,107	1,963	678	1,209
10	<b>Electric Planning</b>	<b>9,593</b>	<b>9,951</b>	<b>12,611</b>	<b>13,748</b>
11	Design - DER / I&C	279	203	442	619
12	Design - LVD	933	395	372	921
13	Design - HVD	1,090	566	750	1,307
14	Joint Pole Rental	1,975	2,199	2,239	2,351
15	Standards & Document Control	471	412	508	626
16	<b>Electric Design</b>	<b>4,748</b>	<b>3,775</b>	<b>4,311</b>	<b>5,823</b>
17	<b>Electric Engineering &amp; Support</b>	<b>14,865</b>	<b>14,142</b>	<b>17,354</b>	<b>20,016</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Summary of Actual & Projected O&M Expenses  
Electric Distribution O&M  
(\$000)

Case No.: U-20963  
Exhibit No.: A-46 (RTB-13)  
Page: 1 of 6  
Witness: RTBlumenstock  
Date: March 2021

( a )		( b )	( c )	( d )	( e )	( f )
Line No.	Description	Historical Year	Projected Bridge Year			12 Mos Ending
		2019 Actual	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	Dec-31-2022 Projected
1	<b>O&amp;M Assoc w/Construction</b>	<b>8,881</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Labor	4,801	-	-	-	0
	Union Labor	-	-	-	-	0
	Material	0	-	-	-	0
	Contractor	0	-	-	-	0
	Non-Labor Overheads	-	-	-	-	0
	Non-Labor Other	4,079	-	-	-	0
2	<b>Transformer Credits</b>	<b>-10,587</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Labor	161	-	-	-	0
	Union Labor	-	-	-	-	0
	Material	0	-	-	-	0
	Contractor	575	-	-	-	0
	Non-Labor Overheads	0	-	-	-	0
	Non-Labor Other	(11,323)	-	-	-	0
3	<b>Lines Reliability - LVD</b>	<b>61</b>	<b>21</b>	<b>840</b>	<b>861</b>	<b>1,316</b>
	Labor	24	13	532	546	834
	Union Labor	6	5	206	211	323
	Material	(4)	0	6	6	10
	Contractor	24	-	-	-	-
	Non-Labor Overheads	3	2	95	98	149
	Non-Labor Other	8	0	0	0	0
4	<b>Lines Reliability - HVD</b>	<b>122</b>	<b>88</b>	<b>121</b>	<b>209</b>	<b>125</b>
	Labor	34	28	38	65	39
	Union Labor	46	34	46	80	48
	Material	7	2	2	4	2
	Contractor	28	1	1	2	1
	Non-Labor Overheads	11	7	10	17	10
	Non-Labor Other	(5)	17	23	39	24
5	<b>Substations Reliability - LVD</b>	<b>1,991</b>	<b>1,896</b>	<b>2,598</b>	<b>4,494</b>	<b>3,655</b>
	Labor	166	238	327	565	459
	Union Labor	1,232	1,095	1,500	2,595	2,110
	Material	38	25	35	60	49
	Contractor	364	326	446	772	628
	Non-Labor Overheads	183	186	255	442	359
	Non-Labor Other	8	26	35	61	49
6	<b>Substations Reliability - HVD</b>	<b>1,201</b>	<b>1,379</b>	<b>2,181</b>	<b>3,560</b>	<b>2,889</b>
	Labor	165	197	312	509	413
	Union Labor	840	865	1,367	2,232	1,811
	Material	15	14	23	37	30
	Contractor	21	133	210	343	279
	Non-Labor Overheads	132	141	223	365	296
	Non-Labor Other	28	29	45	74	60
7	<b>Lines Demand - HVD</b>	<b>313</b>	<b>756</b>	<b>750</b>	<b>1,506</b>	<b>988</b>
	Labor	30	36	36	72	47
	Union Labor	74	72	72	144	94
	Material	56	42	41	83	54
	Contractor	782	592	587	1,179	774
	Non-Labor Overheads	13	12	12	24	15
	Non-Labor Other	(642)	2	2	4	3
8	<b>Substations Demand - LVD</b>	<b>3,288</b>	<b>2,659</b>	<b>2,953</b>	<b>5,612</b>	<b>4,650</b>
	Labor	505	542	602	1,144	947
	Union Labor	2,086	1,526	1,694	3,220	2,668
	Material	146	165	183	348	288
	Contractor	175	114	126	240	199
	Non-Labor Overheads	335	269	299	567	470
	Non-Labor Other	41	44	49	93	77
9	<b>Substations Demand - HVD</b>	<b>2,190</b>	<b>2,087</b>	<b>2,160</b>	<b>4,247</b>	<b>3,780</b>
	Labor	297	344	357	701	624
	Union Labor	1,340	1,244	1,288	2,532	2,253
	Material	240	211	218	429	382
	Contractor	27	70	72	142	126

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Summary of Actual & Projected O&M Expenses  
Electric Distribution O&M  
(\$000)

Case No.: U-20963  
Exhibit No.: A-46 (RTB-13)  
Page: 2 of 6  
Witness: RTBlumenstock  
Date: March 2021

Line No.	( a ) Description	( b ) Historical Year	( c )	( d )	( e )	( f )
		2019 Actual	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending Dec-31-2022 Projected
	Non-Labor Overheads	212	207	215	422	376
	Non-Labor Other	74	10	11	21	19
10	<b>Corrective Maintenance</b>	<b>4,919</b>	<b>5,191</b>	<b>4,205</b>	<b>9,396</b>	<b>4,905</b>
	Labor	1,874	1,578	1,278	2,856	1,491
	Union Labor	2,468	2,680	2,171	4,852	2,533
	Material	51	78	63	141	74
	Contractor	281	626	507	1,132	591
	Non-Labor Overheads	925	880	713	1,593	831
	Non-Labor Other	(681)	(650)	(527)	(1,177)	(615)
11	<b>Staking</b>	<b>2,969</b>	<b>2,970</b>	<b>3,017</b>	<b>5,987</b>	<b>3,730</b>
	Labor	-	-	-	-	-
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	180	(222)	(225)	(447)	(278)
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	2,788	3,192	3,242	6,434	4,009
12	<b>Meter Services (and Credits)</b>	<b>299</b>	<b>-368</b>	<b>4,699</b>	<b>4,330</b>	<b>4,383</b>
	Labor	5,292	4,324	4,932	9,255	5,287
	Union Labor	2,747	2,468	2,816	5,284	3,018
	Material	41	24	28	52	30
	Contractor	29	133	151	284	162
	Non-Labor Overheads	1,227	1,154	1,316	2,469	1,411
	Non-Labor Other	(9,037)	(8,471)	(4,544)	(13,015)	(5,524)
13	<b>Streetlighting</b>	<b>1,759</b>	<b>1,669</b>	<b>1,156</b>	<b>2,825</b>	<b>1,752</b>
	Labor	628	551	381	932	578
	Union Labor	551	505	350	854	530
	Material	88	53	37	90	56
	Contractor	288	386	267	653	405
	Non-Labor Overheads	208	173	120	292	181
	Non-Labor Other	(5)	2	2	4	2
14	<b>Service Calls</b>	<b>4,708</b>	<b>4,150</b>	<b>4,410</b>	<b>8,560</b>	<b>4,999</b>
	Labor	1,710	1,241	1,318	2,559	1,494
	Union Labor	2,061	2,026	2,153	4,178	2,440
	Material	148	101	107	209	122
	Contractor	695	570	606	1,177	687
	Non-Labor Overheads	776	644	685	1,329	776
	Non-Labor Other	(681)	(432)	(459)	(891)	(520)
15	<b>Alma Equipment Repair</b>	<b>982</b>	<b>873</b>	<b>957</b>	<b>1,829</b>	<b>1,003</b>
	Labor	426	366	401	766	420
	Union Labor	283	309	339	648	355
	Material	61	30	32	62	34
	Contractor	78	79	86	165	91
	Non-Labor Overheads	122	104	114	217	119
	Non-Labor Other	12	(14)	(16)	(30)	(16)
16	<b>Meter Reading</b>	<b>1,595</b>	<b>1,495</b>	<b>1,763</b>	<b>3,257</b>	<b>1,811</b>
	Labor	1,269	1,308	1,543	2,851	1,585
	Union Labor	22	21	25	46	26
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	10	10	12	21	12
	Non-Labor Other	294	156	184	339	188
17	<b>Meter Tech &amp; Mgmt Sys Support</b>	<b>1,358</b>	<b>1,006</b>	<b>1,326</b>	<b>2,332</b>	<b>1,387</b>
	Labor	449	405	534	939	558
	Union Labor	759	545	718	1,262	751
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	150	56	74	131	78
18	<b>Smart Energy MTC - Elec</b>	<b>8,711</b>	<b>8,379</b>	<b>9,558</b>	<b>17,937</b>	<b>9,672</b>
	Labor	-	-	-	-	-
	Union Labor	-	-	-	-	-

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Case No.: U-20963  
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Line No.	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year	Projected Bridge Year			12 Mos Ending
		2019 Actual	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	Dec-31-2022 Projected
	Material	0	3	4	7	4
	Contractor	(256)	127	145	272	147
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	8,967	8,248	9,409	17,658	9,521
19	<b>Service Restoration - LVD</b>	<b>92,129</b>	<b>65,327</b>	<b>47,300</b>	<b>112,627</b>	<b>74,359</b>
	Labor	22,899	18,354	13,289	31,642	19,212
	Union Labor	18,153	12,952	9,378	22,331	15,441
	Material	2,062	1,467	1,062	2,529	1,686
	Contractor	39,018	25,369	18,368	43,737	29,101
	Non-Labor Overheads	6,872	4,488	3,250	7,738	6,065
	Non-Labor Other	3,125	2,697	1,953	4,650	2,854
20	<b>Training</b>	<b>6,376</b>	<b>4,439</b>	<b>10,247</b>	<b>14,686</b>	<b>12,609</b>
	Labor	(943)	(246)	(569)	(815)	(182)
	Union Labor	7,117	4,632	10,692	15,324	12,646
	Material	78	38	88	125	104
	Contractor	3	-	-	-	-
	Non-Labor Overheads	-	3	7	11	9
	Non-Labor Other	121	12	28	40	33
21	<b>Tools</b>	<b>1,442</b>	<b>1,376</b>	<b>1,415</b>	<b>2,790</b>	<b>1,595</b>
	Labor	98	125	129	254	145
	Union Labor	-	-	-	-	-
	Material	425	567	583	1,149	657
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	919	684	703	1,387	793
22	<b>Field Operations Expenses</b>	<b>2,450</b>	<b>1,532</b>	<b>2,031</b>	<b>3,563</b>	<b>2,589</b>
	Labor	(2)	1	1	2	1
	Union Labor	-	-	-	-	-
	Material	1	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	2,452	1,532	2,030	3,561	2,588
23	<b>Indirect Labor/Labor Variations</b>	<b>-516</b>	<b>-1,538</b>	<b>0</b>	<b>-1,538</b>	<b>0</b>
	Labor	(59,967)	(1,538)	-	(1,538)	-
	Union Labor	59,442	-	-	-	-
	Material	0	(0)	-	(0)	-
	Contractor	-	(0)	-	(0)	-
	Non-Labor Overheads	-	(0)	-	(0)	-
	Non-Labor Other	9	(0)	-	(0)	-
24	<b>Supervision / Admin-Staff</b>	<b>7,642</b>	<b>5,206</b>	<b>4,801</b>	<b>10,007</b>	<b>6,622</b>
	Labor	6,506	4,564	4,209	8,774	5,806
	Union Labor	-	-	-	-	-
	Material	-	1	1	2	2
	Contractor	1	-	-	-	-
	Non-Labor Overheads	13	1	1	1	1
	Non-Labor Other	1,121	640	590	1,230	814
25	<b>Smart Energy Operations Center</b>	<b>1,036</b>	<b>430</b>	<b>0</b>	<b>430</b>	<b>0</b>
	Labor	990	428	-	428	-
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	46	3	-	3	-
26	<b>Grid Management - Distr</b>	<b>3,793</b>	<b>3,891</b>	<b>4,958</b>	<b>8,849</b>	<b>5,382</b>
	Labor	3,092	3,443	4,387	7,830	4,762
	Union Labor	-	-	-	-	-
	Material	15	1	1	2	1
	Contractor	88	16	20	36	22
	Non-Labor Overheads	24	17	21	38	23
	Non-Labor Other	574	415	529	944	574
27	<b>Compliance and Controls</b>	<b>1,635</b>	<b>1,433</b>	<b>1,612</b>	<b>3,045</b>	<b>1,792</b>

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( a )		( b )	( c )	( d )	( e )	( f )
Line No.	Description	Historical Year	Projected Bridge Year			12 Mos Ending
		2019 Actual	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	Dec-31-2022 Projected
	Labor	1,503	1,334	1,501	2,835	1,669
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	132	99	111	210	123
28	<b>Resource Planning &amp; Closeout</b>	<b>325</b>	<b>203</b>	<b>193</b>	<b>395</b>	<b>197</b>
	Labor	278	176	167	343	171
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	47	27	25	52	26
29	<b>Scheduling &amp; Dispatch</b>	<b>4,895</b>	<b>4,059</b>	<b>4,430</b>	<b>8,489</b>	<b>4,790</b>
	Labor	4,352	3,835	4,186	8,021	4,526
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	543	224	244	468	264
30	<b>Contract Administration</b>	<b>254</b>	<b>181</b>	<b>196</b>	<b>377</b>	<b>200</b>
	Labor	213	156	168	324	172
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	41	25	27	53	28
31	<b>Operations Performance</b>	<b>1,507</b>	<b>1,448</b>	<b>1,670</b>	<b>3,118</b>	<b>1,705</b>
	Labor	1,326	1,246	1,437	2,683	1,468
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	182	202	233	435	238
32	<b>Operations Management</b>	<b>1,420</b>	<b>2,570</b>	<b>1,534</b>	<b>4,104</b>	<b>1,568</b>
	Labor	869	1,747	1,032	2,779	1,055
	Union Labor	-	-	-	-	-
	Material	34	78	29	107	30
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	517	745	472	1,218	483
33	<b>Ops - IT Projects</b>	<b>0</b>	<b>0</b>	<b>648</b>	<b>648</b>	<b>570</b>
	Labor	-	-	53	53	-
	Union Labor	-	-	-	-	-
	Material	-	-	61	61	305
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	5	5	-
	Non-Labor Other	-	-	530	530	265
34	<b>Strategy</b>	<b>96</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Labor	93	-	-	-	-
	Union Labor	-	-	-	-	-
	Material	0	-	-	-	-
	Contractor	0	-	-	-	-
	Non-Labor Overheads	0	-	-	-	-
	Non-Labor Other	2	-	-	-	-
35	<b>CES</b>	<b>428</b>	<b>416</b>	<b>432</b>	<b>849</b>	<b>445</b>
	Labor	324	341	354	695	364
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	105	76	79	154	81

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Line No.	( a ) Description	( b ) Historical Year	( c ) 12 Mos Ended	( d ) 12 Mos Ended	( e ) 24 Mos Ending	( f ) 12 Mos Ending
		2019 Actual	12/31/2020	12/31/2021	12/31/2021	Dec-31-2022 Projected
36	<b>Planning - LVD System</b>	<b>3,966</b>	<b>3,304</b>	<b>6,876</b>	<b>10,179</b>	<b>6,666</b>
	Labor	3,044	2,538	3,933	6,471	4,631
	Union Labor	-	-	-	-	-
	Material	-	24	36	61	54
	Contractor	-	414	1,311	1,726	643
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	922	327	1,596	1,922	1,338
37	<b>Planning - HVD System</b>	<b>3,150</b>	<b>3,476</b>	<b>3,778</b>	<b>7,254</b>	<b>4,236</b>
	Labor	1,314	1,429	1,553	2,982	1,741
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	1,836	2,047	2,225	4,272	2,494
38	<b>System Protection</b>	<b>1,370</b>	<b>1,208</b>	<b>1,279</b>	<b>2,487</b>	<b>1,638</b>
	Labor	540	869	921	1,790	1,179
	Union Labor	-	1	1	2	1
	Material	-	5	6	11	7
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	46	49	95	63
	Non-Labor Other	831	286	303	590	388
39	<b>Planning Analytics</b>	<b>1,107</b>	<b>1,963</b>	<b>678</b>	<b>2,641</b>	<b>1,209</b>
	Labor	1,139	477	165	641	294
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	1,450	500	1,950	892
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	(32)	37	13	50	23
40	<b>Design - DER / I&amp;C</b>	<b>279</b>	<b>203</b>	<b>442</b>	<b>644</b>	<b>619</b>
	Labor	267	247	539	786	755
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	11	(44)	(97)	(141)	(136)
41	<b>Design - LVD</b>	<b>933</b>	<b>395</b>	<b>372</b>	<b>767</b>	<b>921</b>
	Labor	1,391	391	368	759	912
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	(457)	4	4	7	9
42	<b>Design - HVD</b>	<b>1,090</b>	<b>566</b>	<b>750</b>	<b>1,316</b>	<b>1,307</b>
	Labor	813	473	627	1,100	1,092
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	277	93	123	216	215
43	<b>Joint Pole Rental</b>	<b>1,975</b>	<b>2,199</b>	<b>2,239</b>	<b>4,438</b>	<b>2,351</b>
	Labor	-	-	-	-	-
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	1,975	2,199	2,239	4,438	2,351
44	<b>Standards &amp; Document Control</b>	<b>471</b>	<b>412</b>	<b>508</b>	<b>920</b>	<b>626</b>
	Labor	384	353	435	788	536
	Union Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Contractor	-	-	-	-	-

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Line No.	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 2019 Actual	Projected Bridge Year			12 Mos Ending Dec-31-2022 Projected
			12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	
	Non-Labor Overheads	-	-	-	-	-
	Non-Labor Other	87	59	73	132	90
45	<b>Total "Description of Area" O&amp;M Expenses</b>	<b>\$ 174,012</b>	<b>\$ 138,948</b>	<b>\$ 141,080</b>	<b>\$ 280,028</b>	<b>\$ 185,039</b>
	Labor	8,353	51,912	51,474	103,387	65,086
	Union Labor	99,227	30,979	34,815	65,794	47,047
	Material	3,504	2,928	2,646	5,574	3,979
	Contractor	42,403	30,183	23,181	53,364	34,469
	Non-Labor Overheads	11,065	8,344	7,400	15,744	11,167
	Non-Labor Other	9,459	14,602	21,563	36,165	23,290

Summary of O&M Expenses Projected Using Inflation  
Electric Distribution O&M  
(\$000)

Line No.	Description	2019 Actual	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j)	
			Base O&M for Inflation		Inflation		Inflation		Inflation		Inflation		Inflation		Inflation		Inflation		Other Adjustments		Projected O&M	
			12 Mos Ending Dec 31, 2019	12 Mos Ending Dec 31, 2020	(c) * Inflation Rate	12 Mos Ending Dec 31, 2020	12 Mos Ending Dec 31, 2021	(e) * Inflation Rate	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021
1	O&M Assoc w/Construction																					
	Labor	8,881	0	0		0	0		0	0	0	0	0	0	0	0	0	0	-8,881	0	0	0
	Union Labor	4,801	0	0		0	0		0	0	0	0	0	0	0	0	0	0	-4,801	0	0	0
	Material	-	0	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Contractor	0	0	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Non-Labor Overheads	-	0	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Transformer Credits																					
	Labor	-10,587	0	0		0	0		0	0	0	0	0	0	0	0	0	0	10,587	0	0	0
	Union Labor	161	0	0		0	0		0	0	0	0	0	0	0	0	0	0	-161	0	0	0
	Material	-	0	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Contractor	575	0	0		0	0		0	0	0	0	0	0	0	0	0	0	-575	0	0	0
	Non-Labor Overheads	0	0	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Lines Reliability - LVD																					
	Labor	61	54	1		56	2		57	2	57	2	57	2	57	2	57	2	1,251	0	1,316	0
	Union Labor	24	24	1		24	1		25	1	25	1	25	1	25	1	25	1	834	0	834	0
	Material	6	0	0		0	0		0	0	0	0	0	0	0	0	0	0	316	0	323	0
	Contractor	(4)	(4)	0		-4	0		-4	0	-4	0	-4	0	-4	0	-4	0	14	0	10	0
	Non-Labor Overheads	24	24	0		24	1		25	1	25	1	25	1	25	1	25	1	-26	0	148	0
4	Lines Reliability - HVD																					
	Labor	122	76	2		78	2		80	2	80	2	80	2	80	2	80	2	-3	0	125	0
	Union Labor	34	34	1		36	1		37	1	37	1	37	1	37	1	37	1	1	0	39	0
	Material	46	0	0		0	0		0	0	0	0	0	0	0	0	0	0	2	0	48	0
	Contractor	7	7	0		7	0		8	0	8	0	8	0	8	0	8	0	-5	0	2	0
	Non-Labor Overheads	28	28	0		29	1		29	1	29	1	29	1	29	1	29	1	-29	0	1	0
5	Substations Reliability - LVD																					
	Labor	1,991	759	12		771	20		791	20	791	20	791	20	791	20	791	20	1,611	0	3,655	0
	Union Labor	166	166	5		172	5		177	5	177	5	177	5	177	5	177	5	277	0	459	0
	Material	1,232	0	0		0	0		0	0	0	0	0	0	0	0	0	0	878	0	2,110	0
	Contractor	38	38	0		38	1		39	1	39	1	39	1	39	1	39	1	9	0	49	0
	Non-Labor Overheads	364	364	4		369	9		378	9	378	9	378	9	378	9	378	9	241	0	628	0
6	Substations Reliability - HVD																					
	Labor	183	183	2		185	5		189	5	189	5	189	5	189	5	189	5	166	0	359	0
	Union Labor	8	8	0		8	0		8	0	8	0	8	0	8	0	8	0	41	0	49	0
	Material	1,201	361	8		369	10		380	10	380	10	380	10	380	10	380	10	1,659	0	2,889	0
	Contractor	165	165	5		171	5		176	5	176	5	176	5	176	5	176	5	231	0	413	0
	Non-Labor Overheads	840	0	0		0	0		0	0	0	0	0	0	0	0	0	0	972	0	1,811	0
7	Lines Demand - HVD																					
	Labor	313	239	3		242	6		248	6	248	6	248	6	248	6	248	6	660	0	988	0
	Union Labor	30	30	1		31	1		32	1	32	1	32	1	32	1	32	1	14	0	47	0
	Material	74	0	0		0	0		0	0	0	0	0	0	0	0	0	0	20	0	94	0
	Contractor	56	56	1		57	1		58	1	58	1	58	1	58	1	58	1	-5	0	54	0
	Non-Labor Overheads	782	782	9		791	20		811	20	811	20	811	20	811	20	811	20	-56	0	774	0
8	Substations Demand - LVD																					
	Labor	3,288	1,203	25		1,227	34		1,261	34	1,261	34	1,261	34	1,261	34	1,261	34	1,269	0	4,650	0
	Union Labor	505	505	16		521	17		537	17	537	17	537	17	537	17	537	17	947	0	947	0
	Material	2,086	0	0		0	0		0	0	0	0	0	0	0	0	0	0	582	0	2,668	0
	Contractor	-	-	-8		-650	-16		-666	-16	-666	-16	-666	-16	-666	-16	-666	-16	684	0	3	0
	Non-Labor Overheads	(642)	(642)	-8		-650	-16		-666	-16	-666	-16	-666	-16	-666	-16	-666	-16	684	0	3	0



Summary of O&M Expenses Projected Using Inflation  
Electric Distribution O&M  
(\$000)

Line No.	(a) Description	(b) 2019 Actual	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)											
			Base O&M for Inflation		Inflation	Base O&M for Inflation	Inflation	Base O&M for Inflation	Inflation	Base O&M for Inflation	Inflation for the	Other Adjustments	Projected O&M	
			12 Mos Ending	Dec 31, 2019	12 Mos Ending	Dec 31, 2020	12 Mos Ending	Dec 31, 2020	12 Mos Ending	Dec 31, 2021	12 Mos Ending	Dec 31, 2022	12 Mos Ending	Dec 31, 2022
16	Meter Reading	1,595	1,573	44	1,617	50	1,667	50	72	1,811				
	Labor	1,269	1,269	41	1,310	42	1,352	43	190	1,585				
	Union Labor	22	0	0	0	0	0	0	4	26				
	Material	-	-	0	0	0	0	0	0	0				
	Contractor	-	-	0	0	0	0	0	0	0				
17	Non-Labor Overheads	10	10	0	10	0	10	0	0	0				
	Non-Labor Other	294	294	4	297	7	305	7	-123	188				
	Meter Tech & Mgmt Sys Support	1,358	598	16	614	19	633	19	-25	1,387				
	Labor	449	449	14	463	15	478	15	65	558				
	Union Labor	759	0	0	0	0	0	0	-9	751				
18	Material	-	-	0	0	0	0	0	0	0				
	Contractor	-	-	0	0	0	0	0	0	0				
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0				
	Non-Labor Other	150	150	2	152	4	155	4	-81	78				
	Smart Energy MTC - Elec	8,711	8,711	105	8,815	220	9,036	208	428	9,672				
19	Labor	-	-	0	0	0	0	0	0	0				
	Union Labor	-	-	0	0	0	0	0	0	0				
	Material	0	0	0	0	0	0	0	0	0				
	Contractor	(256)	(256)	-3	-260	-6	-266	-6	419	147				
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0				
20	Non-Labor Other	8,967	8,967	108	9,075	227	9,302	214	6	9,521				
	Service Restoration - LVD	92,129	0	0	55,905	1,524	57,429	1,488	-20,782	74,359				
	Labor	22,899	-	0	18,039	577	18,616	596	-4,860	19,212				
	Union Labor	18,153	0	0	0	0	0	0	-2,712	15,441				
	Material	2,062	-	0	1,608	40	1,648	38	-454	1,686				
21	Contractor	39,018	-	0	27,752	694	28,446	654	-11,266	29,101				
	Non-Labor Overheads	6,872	-	0	5,784	145	5,929	136	-1,088	6,065				
	Non-Labor Other	3,125	-	0	2,722	68	2,790	64	-403	2,854				
	Training	6,376	-741	-28	-769	-26	-795	-27	6,314	12,609				
	Labor	(943)	(943)	-30	-973	-31	-1,004	-32	854	-182				
22	Union Labor	7,117	-	0	0	0	0	0	5,528	12,646				
	Material	78	78	1	79	2	80	2	21	104				
	Contractor	3	3	0	3	0	3	0	-4	0				
	Non-Labor Overheads	-	-	0	0	0	0	0	9	9				
	Non-Labor Other	121	121	1	122	3	125	3	-95	33				
23	Tools	1,442	1,442	19	1,461	37	1,499	35	61	1,595				
	Labor	98	98	3	101	3	104	3	38	145				
	Union Labor	-	-	0	0	0	0	0	0	0				
	Material	425	425	5	431	11	441	10	205	657				
	Contractor	-	-	0	0	0	0	0	0	0				
24	Non-Labor Overheads	-	-	0	0	0	0	0	0	0				
	Non-Labor Other	919	919	11	930	23	953	22	-182	793				
	Field Operations Expenses	2,450	2,450	29	2,479	62	2,541	58	-11	2,589				
	Labor	(2)	(2)	0	-3	0	-3	0	4	1				
	Union Labor	-	-	0	0	0	0	0	0	0				
25	Material	1	1	0	1	0	1	0	-1	0				
	Contractor	-	-	0	0	0	0	0	0	0				
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0				
	Non-Labor Other	2,452	2,452	29	2,481	62	2,543	58	-14	2,588				
	Indirect Labor/Labor Variations	-516	0	0	0	0	0	0	516	0				
26	Labor	-	-	0	0	0	0	0	0	0				
	Union Labor	(525)	-	0	0	0	0	0	525	0				
	Material	0	-	0	0	0	0	0	0	0				
	Contractor	-	-	0	0	0	0	0	0	0				
	Non-Labor Other	-	-	0	0	0	0	0	0	0				

Line No.	Description	2019		Base O&M for Inflation		Inflation		Inflation		Inflation		Inflation		Inflation		Projected O&M	
		Actual	12 Mos Ending Dec 31, 2019	12 Mos Ending Dec 31, 2020	12 Mos Ending Dec 31, 2020	12 Mos Ending Dec 31, 2020	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2021	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	12 Mos Ending Dec 31, 2022	
24	Non-Labor Overheads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Non-Labor Other	9	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	<b>Supervision / Admin-Staff</b>	<b>7,642</b>	<b>7,642</b>	<b>222</b>	<b>7,864</b>	<b>244</b>	<b>8,108</b>	<b>249</b>	<b>-1,734</b>	<b>-1,734</b>	<b>-1,734</b>	<b>-1,734</b>	<b>-1,734</b>	<b>-1,734</b>	<b>-1,734</b>	<b>6,622</b>	
	Labor	6,506	6,506	208	6,715	215	6,930	222	-1,345	-1,345	-1,345	-1,345	-1,345	-1,345	-1,345	5,806	
	Union Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
25	Contractor	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
	Non-Labor Overheads	13	13	0	14	0	14	0	-1	-1	-1	-1	-1	-1	-1	0	
	Non-Labor Other	1,121	1,121	13	1,135	28	1,163	27	-376	-376	-376	-376	-376	-376	-376	814	
	<b>Smart Energy Operations Center</b>	<b>1,036</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-1,036</b>	<b>-1,036</b>	<b>-1,036</b>	<b>-1,036</b>	<b>-1,036</b>	<b>-1,036</b>	<b>-1,036</b>	<b>0</b>	
	Labor	990	-	0	0	0	0	0	-990	-990	-990	-990	-990	-990	-990	0	
26	Union Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Contractor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Non-Labor Overheads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	Non-Labor Other	46	-	0	0	0	0	0	-46	-46	-46	-46	-46	-46	-46	0	
	<b>Grid Management - Distr</b>	<b>3,793</b>	<b>3,793</b>	<b>107</b>	<b>3,901</b>	<b>120</b>	<b>4,020</b>	<b>122</b>	<b>1,240</b>	<b>1,240</b>	<b>1,240</b>	<b>1,240</b>	<b>1,240</b>	<b>1,240</b>	<b>1,240</b>	<b>5,382</b>	
27	Labor	3,092	3,092	99	3,191	102	3,293	105	1,363	1,363	1,363	1,363	1,363	1,363	1,363	4,762	
	Union Labor	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Material	15	15	0	15	0	15	0	-15	-15	-15	-15	-15	-15	-15	1	
	Contractor	88	88	1	89	2	91	2	-72	-72	-72	-72	-72	-72	-72	22	
	Non-Labor Overheads	24	24	0	25	1	25	1	-23	-23	-23	-23	-23	-23	-23	23	
	Non-Labor Other	574	574	7	581	15	595	14	-35	-35	-35	-35	-35	-35	-35	574	
28	<b>Compliance and Controls</b>	<b>1,635</b>	<b>1,635</b>	<b>50</b>	<b>1,685</b>	<b>53</b>	<b>1,738</b>	<b>54</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,792</b>	
	Labor	1,503	1,503	48	1,551	50	1,600	51	17	17	17	17	17	17	17	1,669	
	Union Labor	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Material	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Contractor	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Non-Labor Other	132	132	2	134	3	137	3	-17	-17	-17	-17	-17	-17	-17	123	
29	<b>Resource Planning &amp; Closeout</b>	<b>325</b>	<b>325</b>	<b>9</b>	<b>335</b>	<b>10</b>	<b>345</b>	<b>11</b>	<b>-158</b>	<b>-158</b>							

Summary of O&M Expenses Projected Using Inflation  
Electric Distribution O&M  
(\$000)

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Line No.	2019 Actual	Base O&M for Inflation 12 Mos Ending Dec 31, 2019	Inflation 12 Mos Ending Dec 31, 2020	Base O&M for Inflation 12 Mos Ending Dec 31, 2020	Inflation 12 Mos Ending Dec 31, 2021	Base O&M for Inflation 12 Mos Ending Dec 31, 2021	Inflation for the 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
32	Union Labor	-	-	0	0	0	0	0	0
	Material	-	-	0	0	0	0	0	0
	Contractor	-	-	0	0	0	0	0	0
	Non-Labor Overheads	-	-	0	0	0	0	0	0
	Non-Labor Other	182	182	2	184	5	188	4	45
	Operations Management	1,420	1,420	34	1,454	43	1,497	43	28
	Labor	869	869	28	897	29	926	30	100
	Material	-	-	0	0	0	0	0	0
	Contractor	34	34	0	34	1	35	1	-6
	Non-Labor Overheads	-	-	0	0	0	0	0	0
33	Non-Labor Other	517	517	6	523	13	536	12	-66
	Ops - IT Projects	0	0	0	0	0	0	0	570
	Labor	0	0	0	0	0	0	0	0
	Union Labor	0	0	0	0	0	0	0	0
	Material	0	0	0	0	0	0	0	305
	Contractor	0	0	0	0	0	0	0	0
	Non-Labor Overheads	0	0	0	0	0	0	0	0
	Non-Labor Other	0	0	0	0	0	0	0	265
	Strategy	96	0	0	0	0	0	0	-96
	Labor	93	0	0	0	0	0	0	-93
34	Union Labor	-	0	0	0	0	0	0	0
	Material	0	0	0	0	0	0	0	0
	Contractor	0	0	0	0	0	0	0	0
	Non-Labor Overheads	0	0	0	0	0	0	0	0
	Non-Labor Other	2	0	0	0	0	0	0	-2
	CES	428	428	12	440	13	453	14	-22
	Labor	324	324	10	334	11	345	11	8
	Union Labor	-	-	0	0	0	0	0	0
	Material	-	-	0	0	0	0	0	0
	Contractor	-	-	0	0	0	0	0	0
35	Non-Labor Overheads	-	-	0	0	0	0	0	0
	Non-Labor Other	105	105	1	106	3	108	2	-30
	Planning - LVD System	3,966	3,966	108	4,074	124	4,198	126	2,341
	Labor	3,044	3,044	97	3,141	101	3,242	104	1,285
	Material	-	-	0	0	0	0	0	0
	Contractor	-	-	0	0	0	0	0	54
	Non-Labor Overheads	-	-	0	0	0	0	0	643
	Non-Labor Other	922	922	11	933	23	957	22	360
	Planning - HVD System	3,150	3,150	64	3,214	90	3,304	89	843
	Labor	1,314	1,314	42	1,356	43	1,399	45	297
36	Material	-	-	0	0	0	0	0	0
	Contractor	-	-	0	0	0	0	0	0
	Non-Labor Overheads	-	-	0	0	0	0	0	0
	Non-Labor Other	1,836	1,836	22	1,858	46	1,905	44	546
	System Protection	1,370	1,370	27	1,397	39	1,436	38	163
	Labor	540	540	17	557	18	575	18	586
	Union Labor	-	-	0	0	0	0	0	1
	Material	-	-	0	0	0	0	0	7
	Contractor	-	-	0	0	0	0	0	0
	Non-Labor Overheads	-	-	0	0	0	0	0	63
37	Non-Labor Other	831	831	10	840	21	861	20	-493

Summary of O&M Expenses Projected Using Inflation  
Electric Distribution O&M  
(\$000)

Line No.	Description	2019 Actual	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)									
			Base O&M for Inflation 12 Mos Ending Dec 31, 2019	Inflation 12 Mos Ending Dec 31, 2020	Inflation 12 Mos Ending Dec 31, 2020	Inflation 12 Mos Ending Dec 31, 2021	Inflation 12 Mos Ending Dec 31, 2021	Inflation for the 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022		
39	<b>Planning Analytics</b>	<b>1,107</b>	<b>1,107</b>	<b>36</b>	<b>1,143</b>	<b>37</b>	<b>1,180</b>	<b>38</b>	<b>-9</b>	<b>1,209</b>		
	Labor	1,139	1,139	36	1,175	38	1,213	39	-958	294		
	Union Labor	-	-	0	0	0	0	0	0	0		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	892	892		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
40	<b>Design - DER / I&amp;C</b>	<b>(32)</b>	<b>(32)</b>	<b>0</b>	<b>-33</b>	<b>-1</b>	<b>-33</b>	<b>-1</b>	<b>57</b>	<b>23</b>		
	Labor	279	279	9	287	9	297	9	313	619		
	Union Labor	267	267	9	276	9	285	9	461	755		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	0	0		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
41	<b>Design - LVD</b>	<b>933</b>	<b>933</b>	<b>39</b>	<b>972</b>	<b>34</b>	<b>1,007</b>	<b>36</b>	<b>-123</b>	<b>921</b>		
	Labor	1,391	1,391	45	1,435	46	1,481	47	-617	912		
	Union Labor	-	-	0	0	0	0	0	0	0		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	0	0		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
42	<b>Design - HVD</b>	<b>1,090</b>	<b>1,090</b>	<b>29</b>	<b>1,119</b>	<b>34</b>	<b>1,153</b>	<b>34</b>	<b>119</b>	<b>1,307</b>		
	Labor	813	813	26	839	27	866	28	198	1,092		
	Union Labor	-	-	0	0	0	0	0	0	0		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	0	0		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
43	<b>Joint Pole Rental</b>	<b>277</b>	<b>277</b>	<b>3</b>	<b>280</b>	<b>7</b>	<b>287</b>	<b>7</b>	<b>-79</b>	<b>215</b>		
	Labor	1,975	1,975	24	1,999	50	2,049	47	255	2,351		
	Union Labor	-	-	0	0	0	0	0	0	0		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	0	0		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
44	<b>Standards &amp; Document Control</b>	<b>471</b>	<b>471</b>	<b>13</b>	<b>485</b>	<b>15</b>	<b>499</b>	<b>15</b>	<b>112</b>	<b>626</b>		
	Labor	384	384	12	396	13	409	13	114	536		
	Union Labor	-	-	0	0	0	0	0	0	0		
	Material	-	-	0	0	0	0	0	0	0		
	Contractor	-	-	0	0	0	0	0	0	0		
	Non-Labor Overheads	-	-	0	0	0	0	0	0	0		
45	<b>Total "Description of Area" O&amp;M Expenses</b>	<b>\$ 174,011</b>	<b>\$ 61,341</b>	<b>\$ 1,524</b>	<b>\$ 118,770</b>	<b>\$ 3,380</b>	<b>\$ 122,150</b>	<b>\$ 3,354</b>	<b>\$ 2,770</b>	<b>\$ 185,039</b>		
	Labor	68,320	39,375	1,260	58,674	1,878	60,552	1,938	-8,309	65,086		
	Union Labor	39,261	0	0	0	0	0	0	7,787	47,047		
	Material	3,504	1,442	17	3,087	77	3,144	72	309	3,979		
	Contractor	42,403	2,809	34	30,596	765	31,360	721	-9,454	34,469		
	Non-Labor Overheads	11,065	4,192	50	10,027	251	10,278	236	-435	11,167		
		9,459	13,522	162	16,406	410	16,816	387	12,872	23,291		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability</b>					
1	LVD Lines Reliability	EXIT ASHMAN CIRCLE/ASHMAN		9	1 Project	Circuit Exit Projects
2		EXIT ASHMAN CIRCLE/SUGNET		9	1 Project	Circuit Exit Projects
3		EXIT ATLAS/GALE		14	1 Project	Circuit Exit Projects
4		EXIT BABCOCK/FRANCISCO		13	1 Project	Circuit Exit Projects
5		EXIT BALZER/COMSTOCK		8	1 Project	Circuit Exit Projects
6		EXIT BARNUM CREEK/6 MILE		39	1 Project	Circuit Exit Projects
7		EXIT BELSAY/BELSAY		9	1 Project	Circuit Exit Projects
8		EXIT BLISSFIELD/SUGAR MILL		26	1 Project	Circuit Exit Projects
9		EXIT BOSTON SQUARE/MULICK PARK		7	1 Project	Circuit Exit Projects
10		EXIT BRIDGEPORT/DIXIE		10	1 Project	Circuit Exit Projects
11		EXIT BROADMOOR/NORTH		25	1 Project	Circuit Exit Projects
12		EXIT BYRON CENTER/RAILSIDE		52	1 Project	Circuit Exit Projects
13		EXIT CALVIN/WOODCLIFF		7	1 Project	Circuit Exit Projects
14		EXIT CASCADE/THORNCREST		8	1 Project	Circuit Exit Projects
15		EXIT CENTREVILLE/BUSINESS		26	1 Project	Circuit Exit Projects
16		EXIT CHAPIN/MARION		8	1 Project	Circuit Exit Projects
17		EXIT CHICAGO/CHICAGO		64	1 Project	Circuit Exit Projects
18		EXIT CLARKSVILLE/CLARKSVILLE		15	1 Project	Circuit Exit Projects
19		EXIT CLIMAX/AGGREGATES		39	1 Project	Circuit Exit Projects
20		EXIT CORUNNA/COURTHOUSE		45	1 Project	Circuit Exit Projects
21		EXIT CRANBROOK/11 MILE ROAD		32	1 Project	Circuit Exit Projects
22		EXIT CURTIS/MAGRUDDER		9	1 Project	Circuit Exit Projects
23		EXIT DALE ROAD/BEAR CREEK		9	1 Project	Circuit Exit Projects
24		EXIT DALE ROAD/M-18		9	1 Project	Circuit Exit Projects
25		EXIT DAVENPORT/CONGRESS		10	1 Project	Circuit Exit Projects
26		EXIT DAVISON/POTTER LAKE		12	1 Project	Circuit Exit Projects
27		EXIT DEER LAKE/BALL AVENUE		9	1 Project	Circuit Exit Projects
28		EXIT DEER LAKE/CRANBERRY LAKE		9	1 Project	Circuit Exit Projects
29		EXIT DUFFIELD/DUFFIELD		50	1 Project	Circuit Exit Projects
30		EXIT DURAND/GAINES		31	1 Project	Circuit Exit Projects
31		EXIT ENGLISHVILLE/ENGLISHVILLE		8	1 Project	Circuit Exit Projects
32		EXIT ENGLISHVILLE/PINE ISLAND		8	1 Project	Circuit Exit Projects
33		EXIT GILSON/ROCK LAKE		9	1 Project	Circuit Exit Projects
34		EXIT GILSON/WYMAN		9	1 Project	Circuit Exit Projects
35		EXIT GLADWIN/CEDAR		9	1 Project	Circuit Exit Projects
36		EXIT GLADWIN/RURAL		9	1 Project	Circuit Exit Projects
37		EXIT GRAND LEDGE/ACADEMY		44	1 Project	Circuit Exit Projects
38		EXIT GRANT/GRANT		10	1 Project	Circuit Exit Projects
39		EXIT HARRISON/DODGE CITY		9	1 Project	Circuit Exit Projects
40		EXIT HARRISON/HARRISON		9	1 Project	Circuit Exit Projects
41		EXIT HARRISON/LILLEY LAKE		9	1 Project	Circuit Exit Projects
42		EXIT HARRISON/STOCKWELL		9	1 Project	Circuit Exit Projects
43		EXIT HASKELITE/RICHMOND		19	1 Project	Circuit Exit Projects
44		EXIT HENDERSHOT/CENTENNIAL		16	1 Project	Circuit Exit Projects
45		EXIT HUBBARD LAKE/HUBBARD LAKE		25	1 Project	Circuit Exit Projects
46		EXIT HUDSONVILLE/HUDSONVILLE		13	1 Project	Circuit Exit Projects
47		EXIT IRISH ROAD/BELLE MEADE		11	1 Project	Circuit Exit Projects
48		EXIT KAWKAWLIN/WHEELER ROAD		9	1 Project	Circuit Exit Projects
49		EXIT LAINGSBURG/LELAND ROAD		16	1 Project	Circuit Exit Projects
50		EXIT LAKE LEANN/LAKE LEANN		16	1 Project	Circuit Exit Projects
		<b>LVD Lines Reliability Subtotal</b>		<b>875</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Reliability (cont.)	EXIT LEFFINGWELL/MICHIGAN OAKS	16	1	Project	Circuit Exit Projects
2		EXIT LESLIE/BUSINESS	26	1	Project	Circuit Exit Projects
3		EXIT LESLIE INDUSTRIAL/INDUSTRIAL	16	1	Project	Circuit Exit Projects
4		EXIT LOGISTIC/FELCH	2	1	Project	Circuit Exit Projects
5		EXIT MACATAWA/RAILYARD	32	1	Project	Circuit Exit Projects
6		EXIT MANISTEE/PARKDALE	40	1	Project	Circuit Exit Projects
7		EXIT MANNSIDING/CEDAR	9	1	Project	Circuit Exit Projects
8		EXIT MANNSIDING/MANNSIDING	9	1	Project	Circuit Exit Projects
9		EXIT MAYFAIR/SHERATON	10	1	Project	Circuit Exit Projects
10		EXIT MCCracken/LEON	25	1	Project	Circuit Exit Projects
11		EXIT MIDLAND/BUTTLES	9	1	Project	Circuit Exit Projects
12		EXIT MIDLAND/COMMERCIAL	9	1	Project	Circuit Exit Projects
13		EXIT NESTROM/SOUTH SHORE	7	1	Project	Circuit Exit Projects
14		EXIT NIAGARA/NIAGARA	10	1	Project	Circuit Exit Projects
15		EXIT NORTH MUSKEGON/DALTON	10	1	Project	Circuit Exit Projects
16		EXIT ORIOLE/HAMLIN	16	1	Project	Circuit Exit Projects
17		EXIT OSCODA/OSCODA	9	1	Project	Circuit Exit Projects
18		EXIT PATTERSON/PATTERSON	9	1	Project	Circuit Exit Projects
19		EXIT PIGEON LAKE/PIGEON	17	1	Project	Circuit Exit Projects
20		EXIT PULLMAN/CHICORA	29	1	Project	Circuit Exit Projects
21		EXIT SHATTUCK/FOX GLEN	10	1	Project	Circuit Exit Projects
22		EXIT ST CHARLES/SAGINAW	10	1	Project	Circuit Exit Projects
23		EXIT STARKS/HOMER	9	1	Project	Circuit Exit Projects
24		EXIT STARKS/LEE	9	1	Project	Circuit Exit Projects
25		EXIT SUMMIT/FRANCIS STREET	10	1	Project	Circuit Exit Projects
26		EXIT SURREY/MAIN STREET	9	1	Project	Circuit Exit Projects
27		EXIT TAWAS/TAWAS	9	1	Project	Circuit Exit Projects
28		EXIT TWELFTH STREET/WESTFIELD	30	1	Project	Circuit Exit Projects
29		EXIT ULMER/BURT ROAD	10	1	Project	Circuit Exit Projects
30		EXIT WYOMING PARK/PORTER	19	1	Project	Circuit Exit Projects
31		POLE ALABAMA/KING ROAD	309	34	Poles	Pole Replacements
32		POLE BEADLE/SPAULDING	156	17	Poles	Pole Replacements
33		POLE BRIDGEPORT/BRIDGEPORT	64	7	Poles	Pole Replacements
34		POLE BRIDGEPORT/DIXIE	146	16	Poles	Pole Replacements
35		POLE BURR OAK/DOUGLAS	65	7	Poles	Pole Replacements
36		POLE CASCADE/THORNCREST	693	80	Poles	Pole Replacements
37		POLE COOLEY/NORTH STREET	1,355	137	Poles	Pole Replacements
38		POLE CERESCO/RURAL	90	8	Poles	Pole Replacements
39		POLE DAVENPORT/CONGRESS	62	7	Poles	Pole Replacements
40		POLE DELTON/DELTON	1,587	164	Poles	Pole Replacements
41		POLE DUNBAR/HULL	33	4	Poles	Pole Replacements
42		POLE EASTWOOD/NAZARETH	202	22	Poles	Pole Replacements
43		POLE ELEVENTH STREET/BASELINE	914	88	Poles	Pole Replacements
44		POLE EMERALD/BANBURY	171	19	Poles	Pole Replacements
45		POLE FORDYCE/BAMBER	36	4	Poles	Pole Replacements
46		POLE FORDYCE/LINCOLN	36	4	Poles	Pole Replacements
47		POLE GLENDALE/HERCULES	273	30	Poles	Pole Replacements
48		POLE GLENDALE/KEYES	251	28	Poles	Pole Replacements
49		POLE GOGUAC/LAKEVIEW	45	3	Poles	Pole Replacements
50		POLE GOODALE/ROOSEVELT	415	32	Poles	Pole Replacements
		<b>LVD Lines Reliability Subtotal</b>	<b>7,332</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Reliability (cont.)	POLE GRANDVILLE/GRANDVILLE	528	42 Poles		Pole Replacements
2		POLE HOGSBACK/PINE TREE	805	83 Poles		Pole Replacements
3		POLE HUDSON/WATER WORKS	472	105 Poles		Pole Replacements
4		POLE ISABELLA/REMUS	36	1 Poles		Pole Replacements
5		POLE LAKE ODESSA/LAKE	382	42 Poles		Pole Replacements
6		POLE LEITH STREET/FRANKLIN	62	7 Poles		Pole Replacements
7		POLE LIBERTY/WASHINGTON	159	18 Poles		Pole Replacements
8		POLE MANCHESTER/MANCHESTER	273	25 Poles		Pole Replacements
9		POLE NORTH LANSING/VALLEY FARMS	8	1 Poles		Pole Replacements
10		POLE OAKWOOD/HILLCREST	568	71 Poles		Pole Replacements
11		POLE ORCHARD ROAD/ST ANDREWS	964	102 Poles		Pole Replacements
12		POLE OSCODA/BUTLER HEIGHTS	137	15 Poles		Pole Replacements
13		POLE OTSEGO/OTSEGO	124	14 Poles		Pole Replacements
14		POLE PALMER/HEALY	16	2 Poles		Pole Replacements
15		POLE PALMER/REED	127	28 Poles		Pole Replacements
16		POLE PHILLIPS/ALCOTT	486	38 Poles		Pole Replacements
17		POLE PLAINFIELD/BELMONT	377	53 Poles		Pole Replacements
18		POLE SARANAC/KEENE	182	4 Poles		Pole Replacements
19		POLE SAUGATUCK/SAUGATUCK	347	86 Poles		Pole Replacements
20		POLE SPRINGFIELD/HELMER	10	1 Poles		Pole Replacements
21		POLE SPRINGFIELD/UPTON	27	3 Poles		Pole Replacements
22		POLE WATKINS/HAMILTON	145	16 Poles		Pole Replacements
23		POLE WOODLAND/BARNUM	684	56 Poles		Pole Replacements
24		RLBY EIGHT POINT/New Circuit Sub	374	1 Project		Targeted Circuit Improvements
25		RLBY FOOTE HYDRO/DISTRIBUTION Sub	450	1 Project		Targeted Circuit Improvements
26		RLBY STANWOOD/RIVERSWAY	1,082	1 Project		Targeted Circuit Improvements
27		RLBY AMPERSEE/BORGESS Sub	38	1 Project		Targeted Circuit Improvements
28		RLBY AU GRES/AU GRES 544	635	1 Project		Targeted Circuit Improvements
29		RLBY AU GRES/AU GRES 836	175	1 Project		Targeted Circuit Improvements
30		RLBY BEADLE/SPAULDING 257	90	1 Project		Targeted Circuit Improvements
31		RLBY BROADWAY/PHILLIPS 731	126	1 Project		Targeted Circuit Improvements
32		RLBY COOLEY/NORTH STREET Sub	207	1 Project		Targeted Circuit Improvements
33		RLBY ELM STREET/PORTER 980	200	1 Project		Targeted Circuit Improvements
34		RLBY FRANKFORT/CRYSTALLIA 9031	90	1 Project		Targeted Circuit Improvements
35		RLBY GERRISH/GOLF CLUB 676	175	1 Project		Targeted Circuit Improvements
36		RLBY GOODALE/HUBBARD 260	150	1 Project		Targeted Circuit Improvements
37		RLBY HARRIETTA/BOON 411	152	1 Project		Targeted Circuit Improvements
38		RLBY HARRIETTA/BOON 636	168	1 Project		Targeted Circuit Improvements
39		RLBY LEVEL PARK/COLLIER 279	50	1 Project		Targeted Circuit Improvements
40		RLBY LIBERTY/WASHINGTON 264	86	1 Project		Targeted Circuit Improvements
41		RLBY MONA LAKE/AIRPORT 574	203	1 Project		Targeted Circuit Improvements
42		RLBY MORGAN/ST MARYS 240	150	1 Project		Targeted Circuit Improvements
43		RLBY PHILLIPS/ALCOTT Sub	187	1 Project		Targeted Circuit Improvements
44		RLBY PHILLIPS/FACTORY Sub	408	1 Project		Targeted Circuit Improvements
45		RLBY SPRINGFIELD/BISCUIT 722	75	1 Project		Targeted Circuit Improvements
46		RLBY SPRINGFIELD/UPTON 309	86	1 Project		Targeted Circuit Improvements
47		RLBY BRONSON/INDUSTRIAL Sub	490	1 Project		Targeted Circuit Improvements
48		RLBY ALAMO/PINE GROVE 646	95	1 Project		Targeted Circuit Improvements
49		RLBY ALDEN/CLAM 7009	102	1 Project		Targeted Circuit Improvements
50		RLBY ALGER/FOREST LAKE 802	590	1 Project		Targeted Circuit Improvements
		<b>LVD Lines Reliability Subtotal</b>	<b>13,556</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Reliability (cont.)	RLBY ALGER/SKIDWAY 507	30	1 Project		Targeted Circuit Improvements
2		RLBY ALGER/SKIDWAY Sub	350	1 Project		Targeted Circuit Improvements
3		RLBY ALPINE/ALPINE 807	355	1 Project		Targeted Circuit Improvements
4		RLBY ALTO/MCCORDS 704	517	1 Project		Targeted Circuit Improvements
5		RLBY ASHMAN CIRCLE/ASHMAN 765	73	1 Project		Targeted Circuit Improvements
6		RLBY AU GRES/POINT LOOK-OUT 824	205	1 Project		Targeted Circuit Improvements
7		RLBY AUBURN/AUBURN Sub	103	1 Project		Targeted Circuit Improvements
8		RLBY AUBURN/ELEVATOR Sub	138	1 Project		Targeted Circuit Improvements
9		RLBY BALDWIN/BALDWIN 113	124	1 Project		Targeted Circuit Improvements
10		RLBY BALDWIN/IDLEWILD SUB	930	1 Project		Targeted Circuit Improvements
11		RLBY BATH/BATH Sub	51	1 Project		Targeted Circuit Improvements
12		RLBY BELLA VISTA/BLAKELY 545	656	1 Project		Targeted Circuit Improvements
13		RLBY BELLEVUE/ASSYRIA 7	300	1 Project		Targeted Circuit Improvements
14		RLBY BLACK RIVER/FILLMORE 643	200	1 Project		Targeted Circuit Improvements
15		RLBY BLUE STAR/GANGES 408	400	1 Project		Targeted Circuit Improvements
16		RLBY BOSTON SQUARE/NELAND 51	175	1 Project		Targeted Circuit Improvements
17		RLBY BROGAN/SOUTH 103	58	1 Project		Targeted Circuit Improvements
18		RLBY CAMDEN/CAMDEN 246	200	1 Project		Targeted Circuit Improvements
19		RLBY CARLETON ROAD/GAIGE ROAD 650	50	1 Project		Targeted Circuit Improvements
20		RLBY CEDAR SPRINGS/NELSON 150	575	1 Project		Targeted Circuit Improvements
21		RLBY CEDAR SPRINGS/WHITE CREEK 902	94	1 Project		Targeted Circuit Improvements
22		RLBY CHAUVEZ/PARK 302	487	1 Project		Targeted Circuit Improvements
23		RLBY COOPER/NAGEL 30	305	1 Project		Targeted Circuit Improvements
24		RLBY COWAN LAKE/RAMSDALL 829	139	1 Project		Targeted Circuit Improvements
25		RLBY DUQUITE/PINE RIVER 556	115	1 Project		Targeted Circuit Improvements
26		RLBY EIGHT POINT/LAKE GEORGE 861	570	1 Project		Targeted Circuit Improvements
27		RLBY FERGUSON/KIBBY 21	100	1 Project		Targeted Circuit Improvements
28		RLBY FOREMAN/VERGENNES 673	200	1 Project		Targeted Circuit Improvements
29		RLBY FOURTEENTH STREET/LIBERTY STREET 793	320	1 Project		Targeted Circuit Improvements
30		RLBY FRANKFORT/CRYSTALLIA 363	250	1 Project		Targeted Circuit Improvements
31		RLBY GALESBURG/CHARLESTON 453	220	1 Project		Targeted Circuit Improvements
32		RLBY GREGORY/UNADILLA 934	125	1 Project		Targeted Circuit Improvements
33		RLBY HARRIETTA/BOON 717	658	1 Project		Targeted Circuit Improvements
34		RLBY HARRIETTA/CABERFAE Sub	131	1 Project		Targeted Circuit Improvements
35		RLBY HOLTON/HOLTON 488	911	1 Project		Targeted Circuit Improvements
36		RLBY HOMESTEAD/BEULAH 195	330	1 Project		Targeted Circuit Improvements
37		RLBY HOUGHTON HEIGHTS/PRUDENVILLE 983	82	1 Project		Targeted Circuit Improvements
38		RLBY HOWARD CITY/MORLEY Sub	730	1 Project		Targeted Circuit Improvements
39		RLBY JUDD ROAD/AINSWORTH Sub	360	1 Project		Targeted Circuit Improvements
40		RLBY KNAPP/PERKINS 687	200	1 Project		Targeted Circuit Improvements
41		RLBY KRAFT AVENUE/CENTENNIAL 119	140	1 Project		Targeted Circuit Improvements
42		RLBY LABARGE/BLODGETT LAKE Sub	77	1 Project		Targeted Circuit Improvements
43		RLBY LAKE ODESSA/LAKE 585	93	1 Project		Targeted Circuit Improvements
44		RLBY LEFFINGWELL/BRADFORD Sub	250	1 Project		Targeted Circuit Improvements
45		RLBY LEFFINGWELL/NOTTINGHAM Sub	716	1 Project		Targeted Circuit Improvements
46		RLBY MACATAWA/BEE LINE 636	80	1 Project		Targeted Circuit Improvements
47		RLBY MARION/GASCOM 14	266	1 Project		Targeted Circuit Improvements
48		RLBY MARKEY/FOREST ESTATES 452	227	1 Project		Targeted Circuit Improvements
49		RLBY MARTIN/SHELBYVILLE	80	1 Project		Targeted Circuit Improvements
50		RLBY MCCracken/LEON Sub	21	1 Project		Targeted Circuit Improvements
		<b>LVD Lines Reliability Subtotal</b>	<b>13,767</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Distribution Projects  
Summary Projected Electric Capital Expenditures  
For the Test Year 12 Months Ending December 31, 2022  
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Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
<b>Reliability (cont.)</b>						
1	LVD Lines Reliability (cont.)	RLBY MEADOWBROOK/CHERRY 460	92	1 Project		Targeted Circuit Improvements
2		RLBY NAPOLEON/STONE LAKE Sub	170	1 Project		Targeted Circuit Improvements
3		RLBY NEFF ROAD/LEWIS ROAD 119	100	1 Project		Targeted Circuit Improvements
4		RLBY NESTROM/SOUTH SHORE 550	33	1 Project		Targeted Circuit Improvements
5		RLBY NORTH ADAMS/JEROME 832	121	1 Project		Targeted Circuit Improvements
6		RLBY NORTH MUSKEGON/DALTON 244	248	1 Project		Targeted Circuit Improvements
7		RLBY NORTH MUSKEGON/DALTON 347	152	1 Project		Targeted Circuit Improvements
8		RLBY NORTHPORT/LIGHTHOUSE 598	295	1 Project		Targeted Circuit Improvements
9		RLBY PECK ROAD/M-91 473	212	1 Project		Targeted Circuit Improvements
10		RLBY PIGEON LAKE/OLIVE Sub	260	1 Project		Targeted Circuit Improvements
11		RLBY PINCONNING/PINCONNING 221	74	1 Project		Targeted Circuit Improvements
12		RLBY RAMONA/REEDS LAKE Sub	210	1 Project		Targeted Circuit Improvements
13		RLBY RANGER LAKE/GOODAR 158	305	1 Project		Targeted Circuit Improvements
14		RLBY READING/CAMBRIA 603	110	1 Project		Targeted Circuit Improvements
15		RLBY ROCKFORD/TANNERY Sub	205	1 Project		Targeted Circuit Improvements
16		RLBY RODNEY/RODNEY 99	400	1 Project		Targeted Circuit Improvements
17		RLBY RODNEY/RODNEY 452	240	1 Project		Targeted Circuit Improvements
18		RLBY SCENIC LAKE/SCENIC LAKE 306	90	1 Project		Targeted Circuit Improvements
19		RLBY SILVER LAKE/SECOR 5452	220	1 Project		Targeted Circuit Improvements
20		RLBY ST HELEN/ARTESIA 16	100	1 Project		Targeted Circuit Improvements
21		RLBY TEXAS/EAGLE LAKE 764	100	1 Project		Targeted Circuit Improvements
22		RLBY VIRGINIA PARK/MACATAWA Sub	25	1 Project		Targeted Circuit Improvements
23		RLBY WARNER/BURCHETT 315	130	1 Project		Targeted Circuit Improvements
24		RLBY WESTERN AVENUE/WEST BUSINESS 168	230	1 Project		Targeted Circuit Improvements
25		RLBY WHITEHALL/ALICE 874	314	1 Project		Targeted Circuit Improvements
26		UINJ Cable Injection	1,660	1 Project		Targeted Circuit Improvements
27		Right of Way, Salary, and Outside Service Capital Costs for LVD Lines Reliability	4,235			Right of Way
28		<b>LVD Lines Reliability Subtotal</b>	<b>10,332</b>			
29		<b>LVD Lines Reliability Total</b>	<b>45,862</b>			
30	HVD Lines Reliability	Hughes Rd	\$78	0.1 Miles		HVD Line Rebuilds
31		Union City	\$930	5.3 Miles		HVD Line Rebuilds
32		Morrice	\$1,209	6.5 Miles		HVD Line Rebuilds
33		Morrice Perry Sub Tap	\$9	0 Miles		HVD Line Rebuilds
34		Hammond Rd	\$1,135	6.1 Miles		HVD Line Rebuilds
35		Van Slyke #1	\$981	3.7 Miles		HVD Line Rebuilds
36		Atherton / GMI / Aldrich	\$1,246	2.7 Miles		HVD Line Rebuilds
37		Wayland	\$2,108	9.9 Miles		HVD Line Rebuilds
38		Rosebush	\$3,255	9 Miles		HVD Line Rebuilds
39		Niagara	\$667	1.4 Miles		HVD Line Rebuilds
40		Hodenpyl	\$2,139	4.6 Miles		HVD Line Rebuilds
41		Merrill	\$2,139	4.6 Miles		HVD Line Rebuilds
42		Remus	\$3,720	8 Miles		HVD Line Rebuilds
43		Wirtz Rd	\$3,720	8 Miles		HVD Line Rebuilds
44		Big Rapids	\$3,441	7.4 Miles		HVD Line Rebuilds
45		Maple City	\$3,348	7.2 Miles		HVD Line Rebuilds
46		Cooper	\$279	0.6 Miles		HVD Line Rebuilds
47		Sonoma	\$326	0.7 Miles		HVD Line Rebuilds
48		Greenville	\$837	1.8 Miles		HVD Line Rebuilds
49		Dietz - Gaylord	\$1,256	2.4 Miles		HVD Line Rebuilds
50		Saranac	\$1,070	2.3 Miles		HVD Line Rebuilds
		<b>HVD Lines Reliability Subtotal</b>	<b>33,890</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	HVD Lines Reliability (cont.)	Goodale	1,349	2.9 Miles		HVD Line Rebuilds
2		Shelby	1,880	0 Miles		HVD Line Rebuilds
3		Morrice 2	1,969	0 Miles		HVD Line Rebuilds
4		Hodenpyl 2	1,721	0 Miles		HVD Line Rebuilds
5		Nashville	3,013	0 Miles		HVD Line Rebuilds
6		Nashville Casite Sub Tap	13	0 Miles		HVD Line Rebuilds
7		Union City 2	1,763	0 Miles		HVD Line Rebuilds
8		Cement City	698	1.5 Miles		HVD Line Rebuilds
9		Saranac	698	7.5 Miles		Pole Top Rehabilitation
10		Hudsonville	1,488	16 Miles		Pole Top Rehabilitation
11		Tustin	1,116	12 Miles		Pole Top Rehabilitation
12		Bellevue	1,149	10.7 Miles		Pole Top Rehabilitation
13		Bellevue 2	547	5.9 Miles		Pole Top Rehabilitation
14		Mancelona	837	9 Miles		Pole Top Rehabilitation
15		Mancelona 2	725	7.8 Miles		Pole Top Rehabilitation
16		Mancelona 3	363	3.9 Miles		Pole Top Rehabilitation
17		Erie	744	8 Miles		Pole Top Rehabilitation
18		Gerrish	298	3.2 Miles		Pole Top Rehabilitation
19		Gerrish 2	37	0.4 Miles		Pole Top Rehabilitation
20		Knight	158	1.7 Miles		Pole Top Rehabilitation
21		Stauffer	65	0.7 Miles		Pole Top Rehabilitation
22		Stern	670	7.2 Miles		Pole Top Rehabilitation
23		Sunfield	140	1.5 Miles		Pole Top Rehabilitation
24		Oakwood	149	1.6 Miles		Pole Top Rehabilitation
25		Tekonsha	725	7.8 Miles		Pole Top Rehabilitation
26		Tekonsha 2	260	2.8 Miles		Pole Top Rehabilitation
27		Silver Lake	242	2.6 Miles		Pole Top Rehabilitation
28		Greenville	158	1.7 Miles		Pole Top Rehabilitation
29		Greenville 2	112	1.2 Miles		Pole Top Rehabilitation
30		Greenville 3	140	1.5 Miles		Pole Top Rehabilitation
31		Metro	186	2 Miles		Pole Top Rehabilitation
32		Metro 2	186	2 Miles		Pole Top Rehabilitation
33		Metro 3	214	2.3 Miles		Pole Top Rehabilitation
34		Getty	1,004	10.8 Miles		Pole Top Rehabilitation
35		Pole Replacements	18,585	880 Poles		Pole Replacements
36		ABS Replacements	652	7 Switches		Switch Replacements
37		MOABS SCADA	499	11 Switches		Switch Replacements
38		<b>HVD Lines Reliability Subtotal</b>	<b>44,549</b>			
39		<b>HVD Lines Reliability Total</b>	<b>78,439</b>			
40	LVD Substations Reliability	ANGELL	750	1 Substation		Rebuild Substation
41		EIGHT POINT	850	1 Substation		Rebuild Substation
42		SHELBY	600	1 Substation		Rebuild Substation
43		BUCKEYE	1,250	1 Substation		New Substation
44		MOBILE #24	3,360	1 Substation		New Mobile Substation
45		AGNEW	90	1 Projects		Animal Mitigation
46		BIG RAPIDS	90	1 Projects		Animal Mitigation
47		BILMAR	120	1 Projects		Animal Mitigation
48		BROGAN	90	1 Projects		Animal Mitigation
49		CHAUNCEY	90	1 Projects		Animal Mitigation
50		CLARKSVILLE	90	1 Projects		Animal Mitigation
51		FENNVILLE	90	1 Projects		Animal Mitigation
52		<b>LVD Substations Reliability Subtotal</b>	<b>7,470</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Substations Reliability (cont.)	FINE LAKE	90	1	Projects	Animal Mitigation
2		HOPKINS	90	1	Projects	Animal Mitigation
3		LAWRENCE	90	1	Projects	Animal Mitigation
4		MANCELONA	90	1	Projects	Animal Mitigation
5		MONTAGUE	150	1	Projects	Animal Mitigation
6		NORTH ALLEGAN	90	1	Projects	Animal Mitigation
7		PENINSULA	90	1	Projects	Animal Mitigation
8		PICKEREL	90	1	Projects	Animal Mitigation
9		PIERSON	90	1	Projects	Animal Mitigation
10		PORT CALCITE	120	1	Projects	Animal Mitigation
11		STADIUM	90	1	Projects	Animal Mitigation
12		TEKONSHA	90	1	Projects	Animal Mitigation
13		TRAVIS	90	1	Projects	Animal Mitigation
14		COTTAGE GROVE	180	1	Projects	Animal Mitigation
15		DAVENPORT	90	1	Projects	Animal Mitigation
16		FRANKENMUTH	90	1	Projects	Animal Mitigation
17		HAGADORN	90	1	Projects	Animal Mitigation
18		HEMLOCK	90	1	Projects	Animal Mitigation
19		ITHACA	90	1	Projects	Animal Mitigation
20		LAUNDRA	90	1	Projects	Animal Mitigation
21		LITCHFIELD	90	1	Projects	Animal Mitigation
22		LOVEJOY	90	1	Projects	Animal Mitigation
23		MASON	90	1	Projects	Animal Mitigation
24		PARNALL	90	1	Projects	Animal Mitigation
25		READING	90	1	Projects	Animal Mitigation
26		SHIELDS	90	1	Projects	Animal Mitigation
27		SOUTH WASHINGTON AVE	90	1	Projects	Animal Mitigation
28		STERNS ROAD	90	1	Projects	Animal Mitigation
29		THAYER	90	1	Projects	Animal Mitigation
30		THOMAS	90	1	Projects	Animal Mitigation
31		TINSMAN	90	1	Projects	Animal Mitigation
32		WALDO	90	1	Projects	Animal Mitigation
33		WEBSTER	90	1	Projects	Animal Mitigation
34		CHEESMAN	90	3	Regulators	Regulator Replacement
35		COURT	150	3	Regulators	Regulator Replacement
36		MCGRAW	90	3	Regulators	Regulator Replacement
37		BOSTON SQUARE	550	1	Transformers	Transformer Replacements
38		HARLEM	700	1	Transformers	Transformer Replacements
39		KEARSLEY	1,600	2	Transformers	Transformer Replacements
40		PELLSTON	600	1	Transformers	Transformer Replacements
41		STEVENS	550	1	Transformers	Transformer Replacements
42		WYOMING PARK	550	1	Transformers	Transformer Replacements
43		<b>LVD Substations Reliability Subtotal</b>	<b>8,030</b>			
44		<b>LVD Substations Reliability Total</b>	<b>15,500</b>			

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	HVD Substations Reliability	Charlotte Replace O+C	135	1	Projects	Transformer Bushing Replacements
2		Ethanol Replace O+C	135	1	Projects	Transformer Bushing Replacements
3		Grand Ledge Replace O+C	135	1	Projects	Transformer Bushing Replacements
4		Beech Nut Replace Type U	135	1	Projects	Transformer Bushing Replacements
5		Grace Road Replace Type U	135	1	Projects	Transformer Bushing Replacements
6		Orbital Replace Type U	135	1	Projects	Transformer Bushing Replacements
7		Agnew Replace O+C	135	1	Projects	Transformer Bushing Replacements
8		Chauncey Replace Type U	50	1	Projects	Transformer Bushing Replacements
9		WD0507 DETROIT GASKET 46kV MOAB & REPL	24		Locations	Switches / MOAB SCADA
10		WD0046 Bullock Replace 46kV Breakers	450	3	Breakers	Circuit Breaker/Switcher Replacements
11		WD1449 Iva Road Replace 46kV Breakers & Switches	375	2	Breakers	Circuit Breaker/Switcher Replacements
12		WD0211 Black River Replace 46kV Breakers & Switches	720	4	Breakers	Circuit Breaker/Switcher Replacements
13		WD1068 Willard Replace 46kV Breakers	465	3	Breakers	Circuit Breaker/Switcher Replacements
14		WD1448 Port Sheldon Replace 46kV Breakers & Switches	540	3	Breakers	Circuit Breaker/Switcher Replacements
15		WD1090 Scott Lake Replace 46kV Breakers & Switches	710	4	Breakers	Circuit Breaker/Switcher Replacements
16		Station Power and PT Replacements	1,111	26	Potential Transformers	Other
17		<b>HVD Substations Reliability Total</b>	<b>5,390</b>			
18	System Protection	Beveridge (7 of 13 units to be completed in 2022)	490	7	Relay Packages	Line Exit Relay Replacements
19		Aldrich	280	4	Relay Packages	Line Exit Relay Replacements
20		Hemphill	420	6	Relay Packages	Line Exit Relay Replacements
21		Engine Plant	140	2	Relay Packages	Line Exit Relay Replacements
22		Van Slyke	140	2	Relay Packages	Line Exit Relay Replacements
23		Eureka	70	1	Relay Packages	Line Exit Relay Replacements
24		Black River (9 of 16 units to be completed in 2022)	824	9	Relay Packages	Line Exit Relay Replacements
25		<b>System Protection Total</b>	<b>2,364</b>			
26	Metro Reliability	ELEANOR ST UPGRADES	2,000	1	Project	Obsolete or Needed Civil Assets
27		ELEANOR ST UPGRADES	420	1	Project	Obsolete or Needed Electrical Assets
28		OTTAWA AVE ALLEY	100	1	Project	Obsolete or Needed Electrical Assets
29		GRCC FOUNTAIN TIE LINE	280	1	Project	Obsolete or Needed Electrical Assets
30		JC PENNY VAULT DEADFRONT	200	1	Project	Dead Fronting Equipment
31		RAVE THEATER VAULT	350	1	Project	Dead Fronting Equipment
32		MORLEY VAULTS	225	1	Project	Dead Fronting Equipment
33		MOBILE VAULTS	2,000	1	Project	New Technologies
34		<b>Metro Reliability Total</b>	<b>5,575</b>			

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Repetitive Outages	RPOUT BYRON CENTER/CARLISLE SUB	24	1	Project	Repetitive Outage Projects
2		RPOUT WYOMING PARK/PORTER SUB	43	1	Project	Repetitive Outage Projects
3		RPOUT LETTS ROAD /WALKER SUB	23	1	Project	Repetitive Outage Projects
4		RPOUT WALKER/ROSALIE 709	25	1	Project	Repetitive Outage Projects
5		RPOUT CHAPIN/MARION SUB	72	1	Project	Repetitive Outage Projects
6		RPOUT KNAPP /PERKINS 86	35	1	Project	Repetitive Outage Projects
7		RPOUT QUINCY/BLACKHAWK SUB	45	1	Project	Repetitive Outage Projects
8		RPOUT MORENCI /CITY SUB	29	1	Project	Repetitive Outage Projects
9		RPOUT DOEHLER JARVIS/SEYMOUR SUB	26	1	Project	Repetitive Outage Projects
10		RPOUT CONKLIN PARK/CROTON 946	64	1	Project	Repetitive Outage Projects
11		RPOUT OAKWOOD /PARKVIEW 677	43	1	Project	Repetitive Outage Projects
12		RPOUT DELTON/CLOVERDALE 910	51	1	Project	Repetitive Outage Projects
13		RPOUT BATTEESE /PLEASANT LAKESUB	71	1	Project	Repetitive Outage Projects
14		RPOUT MORGAN/ST MARY 421	44	1	Project	Repetitive Outage Projects
15		RPOUT BRADFORD /DISTRIBUTIONSUB	68	1	Project	Repetitive Outage Projects
16		RPOUT FRANKFORT/CRYSTALLIA 397	20	1	Project	Repetitive Outage Projects
17		RPOUT FRANKFORT/CRYSTALLIA 5032	51	1	Project	Repetitive Outage Projects
18		RPOUT DEAN ROAD/PARSHALLVILLE382	28	1	Project	Repetitive Outage Projects
19		RPOUT KOLASSA /KOSMERICK 158	26	1	Project	Repetitive Outage Projects
20		RPOUT DUPONT/OLDCHANNEL 644	53	1	Project	Repetitive Outage Projects
21		RPOUT ALAMO /PINE GROVE 89	83	1	Project	Repetitive Outage Projects
22		RPOUT PIGEON LAKE/PIGEON SUB	42	1	Project	Repetitive Outage Projects
23		RPOUT FROST /LONG LAKE 267	79	1	Project	Repetitive Outage Projects
24		RPOUT BLACKMAN /MEIJERS SUB	47	1	Project	Repetitive Outage Projects
25		RPOUT CANNONSBURG/WEST CANNON 317	29	1	Project	Repetitive Outage Projects
26		RPOUT HUBBARDSTON ROAD/HUBBARDSTON 253	86	1	Project	Repetitive Outage Projects
27		RPOUT PRICE /PRICE 153	49	1	Project	Repetitive Outage Projects
28		RPOUT SMITH CREEK/SKIPARK (WEST)66	54	1	Project	Repetitive Outage Projects
29		RPOUT SHEPHERD /SHEPHERD SUB	83	1	Project	Repetitive Outage Projects
30		RPOUT CADILLAC /BERRY LAKE 998	66	1	Project	Repetitive Outage Projects
31		RPOUT TAWAS /TAWAS 193	34	1	Project	Repetitive Outage Projects
32		RPOUT HOMESTEAD/BEULAH 734	57	1	Project	Repetitive Outage Projects
33		RPOUT MEADOWBROOKE/CHERRY SUB	57	1	Project	Repetitive Outage Projects
34		RPOUT CLARKSVILLE/MORRISON L 605	36	1	Project	Repetitive Outage Projects
35		RPOUT DURAND/CITY 551	39	1	Project	Repetitive Outage Projects
36		RPOUT WILDWOOD /MACKLIN SUB	30	1	Project	Repetitive Outage Projects
37		RPOUT MENDON/M-60 127	31	1	Project	Repetitive Outage Projects
38		RPOUT BEALS ROAD /CLYDE PARK 867	22	1	Project	Repetitive Outage Projects
39		RPOUT DOEHLER JARVIS/GRIGGS STREET457	12	1	Project	Repetitive Outage Projects
40		RPOUT AUSTIN/WEST LAKE 479	20	1	Project	Repetitive Outage Projects
41		RPOUT AUSTIN/WEST LAKE 611	27	1	Project	Repetitive Outage Projects
42		RPOUT ONEKAMA /ONEKAMA 798	31	1	Project	Repetitive Outage Projects
43		RPOUT OSHTIMO /HURD 242	66	1	Project	Repetitive Outage Projects
44		RPOUT CEDAR SPRINGS/WHITECREEK 821	54	1	Project	Repetitive Outage Projects
45		RPOUT VANDERCOOK LAKE/VANDERCOOK LAKE280	24	1	Project	Repetitive Outage Projects
46		RPOUT FREEPORT /BOWNE CN 256	30	1	Project	Repetitive Outage Projects
47		RPOUT HULL STREET/LIME LAKE 800	47	1	Project	Repetitive Outage Projects
48		RPOUT HOUGHTON HEIGHTS/PRUDENVILLE 407	11	1	Project	Repetitive Outage Projects
49		RPOUT GULL LAKE/WILLOW BCH 309	45	1	Project	Repetitive Outage Projects
50		RPOUT ELSIE /CARLAND 477	74	1	Project	Repetitive Outage Projects
51		<b>LVD Repetitive Outages Subtotal</b>	<b>2,203</b>			

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Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Repetitive Outages (cont.)	RPOUT KELLOGGSVILLE/KELOGSVLLE 84	30	1 Project	Repetitive Outage Projects	
2		RPOUT WHITTUM /PETRIEVILLE SUB	9	1 Project	Repetitive Outage Projects	
3		RPOUT MONTAGUE /NORTHSHORE SUB	44	1 Project	Repetitive Outage Projects	
4		RPOUT HASKELITE/ANN STREET SUB	48	1 Project	Repetitive Outage Projects	
5		RPOUT NORTH PARK /LAMBERTON 518	7	1 Project	Repetitive Outage Projects	
6		RPOUT NESTROM /SOUTHSHORE 557	40	1 Project	Repetitive Outage Projects	
7		RPOUT NESTROM /SOUTHSHORE 629	20	1 Project	Repetitive Outage Projects	
8		RPOUT NESTROM /SOUTHSHORE 689	19	1 Project	Repetitive Outage Projects	
9		RPOUT ORIOLE/HAMLIN 728	6	1 Project	Repetitive Outage Projects	
10		RPOUT ORIOLE/HAMLIN 5076	56	1 Project	Repetitive Outage Projects	
11		RPOUT LEONARD /NEWBERRY SUB	17	1 Project	Repetitive Outage Projects	
12		RPOUT POTTERVILLE/M-78 486	45	1 Project	Repetitive Outage Projects	
13		RPOUT GENESEEVILLE/GENESEE 181	63	1 Project	Repetitive Outage Projects	
14		RPOUT THORNAPPLE /HEADLEY 583	27	1 Project	Repetitive Outage Projects	
15		RPOUT THORNAPPLE /RIX STREET 917	51	1 Project	Repetitive Outage Projects	
16		RPOUT PRINCETON/BROWNLIE SUB	78	1 Project	Repetitive Outage Projects	
17		RPOUT FRANKFORT/CRYSTALLIA 9027	21	1 Project	Repetitive Outage Projects	
18		RPOUT BROADWAY /PHILLIPS 803	17	1 Project	Repetitive Outage Projects	
19		RPOUT INTERLOCHEN/ARTS CAMP 811	23	1 Project	Repetitive Outage Projects	
20		RPOUT BROOKLYN /FORD SUB	6	1 Project	Repetitive Outage Projects	
21		RPOUT MCCracken/LEON 187	30	1 Project	Repetitive Outage Projects	
22		RPOUT DEAN ROAD/SHANNON LAKE648	21	1 Project	Repetitive Outage Projects	
23		RPOUT DEAN ROAD/PARSHALLVILLESUB	67	1 Project	Repetitive Outage Projects	
24		RPOUT FERGUSON /KIBBY ROAD SUB	9	1 Project	Repetitive Outage Projects	
25		RPOUT KALKASKA /RUGG 222	36	1 Project	Repetitive Outage Projects	
26		RPOUT STEVENS /ALBANY SUB	28	1 Project	Repetitive Outage Projects	
27		RPOUT BURLINGAME /MICHAEL 442	18	1 Project	Repetitive Outage Projects	
28		RPOUT MAPLE GROVE/SUMMIT AVE SUB	63	1 Project	Repetitive Outage Projects	
29		RPOUT JUDD ROAD/MANDEVILLE 895	24	1 Project	Repetitive Outage Projects	
30		RPOUT CURTIS/MAGRUDDER 247	36	1 Project	Repetitive Outage Projects	
31		RPOUT FOX FARM /LINKE 544	85	1 Project	Repetitive Outage Projects	
32		RPOUT HONOR /PLATTE SUB	10	1 Project	Repetitive Outage Projects	
33		RPOUT AMPERSEE /NORTH COMM 924	33	1 Project	Repetitive Outage Projects	
34		RPOUT NEWAYGO /QUARTLINE SUB	34	1 Project	Repetitive Outage Projects	
35		RPOUT RANKIN/TRAPANI 318	46	1 Project	Repetitive Outage Projects	
36		RPOUT FILLMORE /N BLENDON 602	53	1 Project	Repetitive Outage Projects	
37		RPOUT FILLMORE /N BLENDON SUB	52	1 Project	Repetitive Outage Projects	
38		RPOUT ROUND LAKE /ASPHALT 302	46	1 Project	Repetitive Outage Projects	
39		RPOUT ALAMO /PINE GROVE 638	39	1 Project	Repetitive Outage Projects	
40		RPOUT PIGEON LAKE/PIGEON 146	67	1 Project	Repetitive Outage Projects	
41		RPOUT PIGEON LAKE/PIGEON 858	59	1 Project	Repetitive Outage Projects	
42		RPOUT CASCADE /CASCADE 296	43	1 Project	Repetitive Outage Projects	
43		RPOUT WIRTZ ROAD /WILDWOOD 259	17	1 Project	Repetitive Outage Projects	
44		RPOUT MCKEIGHAN/SHARON ROAD 304	35	1 Project	Repetitive Outage Projects	
45		RPOUT BRETON/PLYMOUTH 480	17	1 Project	Repetitive Outage Projects	
46		RPOUT SPRUCE ROAD/EAST BAY 597	79	1 Project	Repetitive Outage Projects	
47		RPOUT DUQUITE /PINE RIVER 596	37	1 Project	Repetitive Outage Projects	
48		RPOUT EAST TAWAS /LINCOLN STREET38	77	1 Project	Repetitive Outage Projects	
49		RPOUT TALLMAN /WRIGHT ROAD SUB	32	1 Project	Repetitive Outage Projects	
50		RPOUT WATKINS /KNAPP 771	22	1 Project	Repetitive Outage Projects	
51		<b>LVD Repetitive Outages Subtotal</b>	<b>1,841</b>			

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Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Repetitive Outages (cont.)	RPOUT FOREMAN /CUMBERLAND SUB	61	1	Project	Repetitive Outage Projects
2		RPOUT TWILIGHT /GULL ROAD 39	51	1	Project	Repetitive Outage Projects
3		RPOUT WARNER/MILO 658	76	1	Project	Repetitive Outage Projects
4		RPOUT CRAHEN/GREENBRIER SUB	30	1	Project	Repetitive Outage Projects
5		RPOUT ELEVENTH STREET/BASELINE 315	48	1	Project	Repetitive Outage Projects
6		RPOUT ELEVENTH STREET/BASELINE 743	65	1	Project	Repetitive Outage Projects
7		RPOUT EAST JACKSON/TROJAN 633	29	1	Project	Repetitive Outage Projects
8		RPOUT HARVARD LAKE/HARVARD LAKE411	72	1	Project	Repetitive Outage Projects
9		RPOUT PRICE /MERIDIAN 513	43	1	Project	Repetitive Outage Projects
10		RPOUT ROLLIN/BURTON 191	56	1	Project	Repetitive Outage Projects
11		RPOUT MUSKEGON HEIGHTS/MUSKEGON 120	30	1	Project	Repetitive Outage Projects
12		RPOUT BEAVERTON/TOBACCO 763	23	1	Project	Repetitive Outage Projects
13		RPOUT MAUMEE/LENAAWEE ST 367	49	1	Project	Repetitive Outage Projects
14		RPOUT CLIO /WEST CLIO SUB	69	1	Project	Repetitive Outage Projects
15		RPOUT HUDSON/CITY 190	17	1	Project	Repetitive Outage Projects
16		RPOUT WEALTHY STREET/NORTHWEST 561	31	1	Project	Repetitive Outage Projects
17		RPOUT WEALTHY STREET/NORTHWEST SUB	49	1	Project	Repetitive Outage Projects
18		RPOUT GRAND LEDGE/HARTEL 112	8	1	Project	Repetitive Outage Projects
19		RPOUT GLADWIN /CEDAR SUB	89	1	Project	Repetitive Outage Projects
20		RPOUT HASTINGS /HANOVER 173	1	1	Project	Repetitive Outage Projects
21		RPOUT ITHACA/FAIRGROUND 490	33	1	Project	Repetitive Outage Projects
22		RPOUT LEELANAU /OMENA BAY 668	36	1	Project	Repetitive Outage Projects
23		RPOUT SANFORD DAM/OLSON 661	17	1	Project	Repetitive Outage Projects
24		RPOUT GRANDVILLE /GEORGETOWN 833	14	1	Project	Repetitive Outage Projects
25		RPOUT SPRING LAKE/SPRINGLAKE 281	38	1	Project	Repetitive Outage Projects
26		RPOUT SPRING LAKE/SPRINGLAKE 354	27	1	Project	Repetitive Outage Projects
27		RPOUT GREENVILLE /WASHINGTON 544	18	1	Project	Repetitive Outage Projects
28		RPOUT CONVIS/WALNUT PT 88	64	1	Project	Repetitive Outage Projects
29		RPOUT CONVIS/MAR CREEK 507	79	1	Project	Repetitive Outage Projects
30		RPOUT PATTERSON/PATTERSON 979	12	1	Project	Repetitive Outage Projects
31		RPOUT GOGUAC/LAKEVIEW 363	50	1	Project	Repetitive Outage Projects
32		RPOUT COOPER/NAGEL 137	35	1	Project	Repetitive Outage Projects
33		RPOUT COOPER/COOPER 224	34	1	Project	Repetitive Outage Projects
34		RPOUT LAKE MITCHELL/CANAL 51	41	1	Project	Repetitive Outage Projects
35		RPOUT LAKE MITCHELL/CANAL 57	28	1	Project	Repetitive Outage Projects
36		RPOUT MONTROSE /MCKINLEY 808	36	1	Project	Repetitive Outage Projects
37		RPOUT ONEKAMA /BEAR LAKE SUB	82	1	Project	Repetitive Outage Projects
38		RPOUT GRANT /GRANT 355	49	1	Project	Repetitive Outage Projects
39		RPOUT BRIDGEPORT /DIXIE 684	37	1	Project	Repetitive Outage Projects
40		RPOUT CONKLIN PARK/HOLLY 161	75	1	Project	Repetitive Outage Projects
41		RPOUT CONKLIN PARK/HOLLY SUB	7	1	Project	Repetitive Outage Projects
42		RPOUT DIXIE /GEORGE STREETSUB	38	1	Project	Repetitive Outage Projects
43		RPOUT HAGER PARK /WELLINGTON 536	19	1	Project	Repetitive Outage Projects
44		RPOUT MICHIGAN CENTER/BALLARD 590	53	1	Project	Repetitive Outage Projects
45		RPOUT KEARSLEY /COVERT ROAD 421	5	1	Project	Repetitive Outage Projects
46		RPOUT HOLTON/HOLTON 190	16	1	Project	Repetitive Outage Projects
47		RPOUT HOLTON/HOLTON 624	55	1	Project	Repetitive Outage Projects
48		RPOUT HOLTON/HOLTON 835	51	1	Project	Repetitive Outage Projects
49		RPOUT HOLTON/MAPLE ISLAND121	61	1	Project	Repetitive Outage Projects
50		RPOUT HOLTON/MAPLE ISLAND389	77	1	Project	Repetitive Outage Projects
51		<b>LVD Repetitive Outages Subtotal</b>	<b>2,080</b>			

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Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Repetitive Outages (cont.)	RPOUT ORLEANS /LONG LAKE 406	23	1	Project	Repetitive Outage Projects
2		RPOUT SHIELDS /SHIELDS 325	43	1	Project	Repetitive Outage Projects
3		RPOUT LINCOLN /LOST LAKE 487	46	1	Project	Repetitive Outage Projects
4		RPOUT RIVERTOWN/POTOMAC 976	14	1	Project	Repetitive Outage Projects
5		RPOUT EAST MUSKEGON/MILL IRON 664	68	1	Project	Repetitive Outage Projects
6		RPOUT EAST MUSKEGON/QUARTERLIN 682	26	1	Project	Repetitive Outage Projects
7		RPOUT BOSTON SQUARE/KALAMAZOO SUB	14	1	Project	Repetitive Outage Projects
8		RPOUT COMSTOCK /TUNIER 823	31	1	Project	Repetitive Outage Projects
9		RPOUT VAN BUREN/VAN BUREN 29	11	1	Project	Repetitive Outage Projects
10		RPOUT LITCHFIELD /QUAKER LAKE 311	51	1	Project	Repetitive Outage Projects
11		RPOUT HUDSONVILLE/32ND 627	17	1	Project	Repetitive Outage Projects
12		RPOUT FRONTIER /TAMARACK ROADSUB	42	1	Project	Repetitive Outage Projects
13		RPOUT LIBERTY /WASHINGTON 68	24	1	Project	Repetitive Outage Projects
14		RPOUT OTTAWA BEACH/PORTSHELDN 766	58	1	Project	Repetitive Outage Projects
15		RPOUT BATTEESE /MUNITH 878	70	1	Project	Repetitive Outage Projects
16		RPOUT HESPERIA /HESPERIA SUB	2	1	Project	Repetitive Outage Projects
17		RPOUT GRASS LAKE /MT HOPE 27	19	1	Project	Repetitive Outage Projects
18		RPOUT ROCKFORD /SUMMIT 161	83	1	Project	Repetitive Outage Projects
19		RPOUT GULL LAKE/WILLOW BCH 422	68	1	Project	Repetitive Outage Projects
20		RPOUT MERSON/MERSON SUB	44	1	Project	Repetitive Outage Projects
21		RPOUT MERSON/DUCK LAKE 920	38	1	Project	Repetitive Outage Projects
22		RPOUT SYLVAN/RURAL 405	80	1	Project	Repetitive Outage Projects
23		RPOUT NORTH ADAMS/NORTH ADAM 366	17	1	Project	Repetitive Outage Projects
24		RPOUT BEADLE/CREST 173	42	1	Project	Repetitive Outage Projects
25		RPOUT BEADLE/SPAULDING 269	42	1	Project	Repetitive Outage Projects
26		RPOUT KINDERHOOK /GILEAD 466	24	1	Project	Repetitive Outage Projects
27		RPOUT RUSSELLVILLE/VASSAR ROAD 170	36	1	Project	Repetitive Outage Projects
28		RPOUT LAKE ODESSA/LAKE 348	25	1	Project	Repetitive Outage Projects
29		RPOUT LATIMER /CARR LAKE 291	81	1	Project	Repetitive Outage Projects
30		RPOUT LATIMER /CARR LAKE 722	16	1	Project	Repetitive Outage Projects
31		RPOUT CENTRAL LAKE/CENTRAL LAKE981	80	1	Project	Repetitive Outage Projects
32		RPOUT CHEBOYGAN/SEYMOUR 250	61	1	Project	Repetitive Outage Projects
33		RPOUT CHEBOYGAN/ALVERNO 765	74	1	Project	Repetitive Outage Projects
34		RPOUT RODNEY/RODNEY 720	35	1	Project	Repetitive Outage Projects
35		RPOUT MORGAN/ORCHARD 24	81	1	Project	Repetitive Outage Projects
36		RPOUT ARCADIA /PLEASANTON 268	55	1	Project	Repetitive Outage Projects
37		RPOUT CRYSTAL /CRYSTAL ROAD468	50	1	Project	Repetitive Outage Projects
38		RPOUT HASKELITE/RICHMOND SUB	70	1	Project	Repetitive Outage Projects
39		RPOUT HASKELITE/BISSELL 188	1	1	Project	Repetitive Outage Projects
40		RPOUT BELDING /CITY 513	69	1	Project	Repetitive Outage Projects
41		RPOUT NESTROM /SOUTHSHORE SUB	8	1	Project	Repetitive Outage Projects
42		RPOUT SAUGATUCK/DOUGLAS 573	26	1	Project	Repetitive Outage Projects
43		RPOUT BOYNE CITY /BOYNE CITY 378	29	1	Project	Repetitive Outage Projects
44		RPOUT GLEN LAKE/BURDICKVIL 772	43	1	Project	Repetitive Outage Projects
45		RPOUT GLEN LAKE/BURDICKVIL 783	69	1	Project	Repetitive Outage Projects
46		RPOUT TWIN LAKE/TWIN LAKE 503	89	1	Project	Repetitive Outage Projects
47		RPOUT SPRINGPORT /DEVEREAUX SUB	29	1	Project	Repetitive Outage Projects
48		RPOUT ALDEN /CLAM 19	82	1	Project	Repetitive Outage Projects
49		RPOUT LEONARD /IONIA 425	3	1	Project	Repetitive Outage Projects
50		RPOUT BELLAIRE /DOWNTOWN 871	27	1	Project	Repetitive Outage Projects
51		<b>LVD Repetitive Outages Subtotal</b>	<b>2,133</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Repetitive Outages (cont.)	RPOUT BALDWIN /IDLEWILD 49	76	1	Project	Repetitive Outage Projects
2		RPOUT OHMAN ROAD /SEARS 733	46	1	Project	Repetitive Outage Projects
3		RPOUT PENINSULA/MCKINLEY 8	19	1	Project	Repetitive Outage Projects
4		RPOUT PENINSULA/MAPLETON 341	26	1	Project	Repetitive Outage Projects
5		RPOUT TEMPERANCE /WOOD ROAD 559	7	1	Project	Repetitive Outage Projects
6		RPOUT TEMPERANCE /CRABB ROAD 622	32	1	Project	Repetitive Outage Projects
7		RPOUT BREEDSVILLE/GRAND JCT 853	28	1	Project	Repetitive Outage Projects
8		RPOUT NUNICA/WILSON SUB	47	1	Project	Repetitive Outage Projects
9		RPOUT RIVERDALE/RIVERDALE 209	81	1	Project	Repetitive Outage Projects
10		RPOUT PRINCETON/WATTLES 706	21	1	Project	Repetitive Outage Projects
11		RPOUT FRANKFORT/CRYSTALLIA 16	11	1	Project	Repetitive Outage Projects
12		RPOUT FRANKFORT/ELBERTA 811	17	1	Project	Repetitive Outage Projects
13		RPOUT BROADWAY /PHILLIPS 489	7	1	Project	Repetitive Outage Projects
14		RPOUT PLAINFIELD /KUTTSHILL 282	14	1	Project	Repetitive Outage Projects
15		RPOUT PARNALL /PARNALL 395	36	1	Project	Repetitive Outage Projects
16		RPOUT TEKONSHA /TEKONSHA 249	47	1	Project	Repetitive Outage Projects
17		RPOUT WALLOON /DISTRIBUTION303	66	1	Project	Repetitive Outage Projects
18		RPOUT MAYFAIR /PIERSON SUB	45	1	Project	Repetitive Outage Projects
19		RPOUT O-AT-KA /PINE GROVE 648	58	1	Project	Repetitive Outage Projects
20		RPOUT EAST JORDAN/IRONTON 531	23	1	Project	Repetitive Outage Projects
21		RPOUT LEHRING /MYERS LAKE 818	1	1	Project	Repetitive Outage Projects
22		RPOUT CUTLERVILLE/68TH STREET 172	0	1	Project	Repetitive Outage Projects
23		RPOUT ENSLEY/DISTRIBUTION707	67	1	Project	Repetitive Outage Projects
24		RPOUT MCCracken/LEON 365	17	1	Project	Repetitive Outage Projects
25		RPOUT HOGAN ROAD /ROLSTON SUB	86	1	Project	Repetitive Outage Projects
26		RPOUT WALKER/ROSALIE 781	73	1	Project	Repetitive Outage Projects
27		RPOUT FERGUSON /BROWNS LAKE 583	40	1	Project	Repetitive Outage Projects
28		RPOUT MARTIN/SHELBYVILLE 97	66	1	Project	Repetitive Outage Projects
29		RPOUT BURLINGAME /BURLINGAME SUB	81	1	Project	Repetitive Outage Projects
30		RPOUT EIGHT POINT/WHITE BRCH SUB	37	1	Project	Repetitive Outage Projects
31		RPOUT MONA LAKE/AIRPORT 574	28	1	Project	Repetitive Outage Projects
32		RPOUT DONTZ ROAD /PORTAGE 356	12	1	Project	Repetitive Outage Projects
33		RPOUT DONTZ ROAD /PORTAGE 729	24	1	Project	Repetitive Outage Projects
34		RPOUT MAPLE GROVE/SHAW BOX 341	78	1	Project	Repetitive Outage Projects
35		RPOUT WISNER/MONROE SUB	37	1	Project	Repetitive Outage Projects
36		RPOUT HONOR /PLATTE 84	29	1	Project	Repetitive Outage Projects
37		RPOUT ALPINE/ALPINE 108	15	1	Project	Repetitive Outage Projects
38		RPOUT LEE STREET /LEE SUB	23	1	Project	Repetitive Outage Projects
39		RPOUT LEFFINGWELL/RAPIDSTAN SUB	64	1	Project	Repetitive Outage Projects
40		RPOUT ROUND LAKE /ROUND LAKE 518	37	1	Project	Repetitive Outage Projects
41		RPOUT HANSEN/HANSEN 249	38	1	Project	Repetitive Outage Projects
42		RPOUT HANSEN/HANSEN SUB	59	1	Project	Repetitive Outage Projects
43		RPOUT CASCADE /CASCADE SUB	53	1	Project	Repetitive Outage Projects
44		RPOUT MASON /BUSINESS SUB	1	1	Project	Repetitive Outage Projects
45		RPOUT LAWRENCE /CHRISTIE LAKE684	31	1	Project	Repetitive Outage Projects
46		RPOUT BAILEY/CHERRY SUB	56	1	Project	Repetitive Outage Projects
47		RPOUT BRETON/KEN-O-SHA 108	18	1	Project	Repetitive Outage Projects
48		RPOUT WARNER/BURCHETT 490	27	1	Project	Repetitive Outage Projects
49		RPOUT IRISH ROAD /BELLE MEAD SUB	50	1	Project	Repetitive Outage Projects
50		RPOUT DORR CORNERS/RED RUN 256	58	1	Project	Repetitive Outage Projects
51		RPOUT HILL ROAD/PINE WAY SUB	17	1	Project	Repetitive Outage Projects
52		RPOUT SUMMIT/SOUTH ST SUB	9	1	Project	Repetitive Outage Projects
53		<b>LVD Repetitive Outages Subtotal</b>	<b>1,938</b>			
54		<b>LVD Repetitive Outages Total</b>	<b>10,196</b>			

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
<b>Reliability (cont.)</b>						
1	HVD Lines and	WD1696 CELERY NEW 138/46KV SUB - Completion	3,500	1	Projects	HVD Substation Replacement Projects
2	Substations Rehabilitation	WD0036 HIGGINS RBLD SUB - Completion	8,200	1	Projects	HVD Substation Replacement Projects
3		Broadmoor #1 Transformer Replacement	1,950	1	Projects	HVD Substation Replacement Projects
4		Beecher #5 Transformer Replacement	1,950	1	Projects	HVD Substation Replacement Projects
5		Wayland Sub Rebuild Part 1	5,500	1	Projects	HVD Substation Replacement Projects
6		North Belding Sub Rebuild Part 1	4,600	1	Projects	HVD Substation Replacement Projects
7		WD0525 RIGGSVILLE REPL CAP #2 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
8		WD1211 BARD RD REPL CAP #1 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
9		WD1250 RANSOM REPL CAP #2 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
10		WD0088 QUINCY REPL CAP #1 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
11		WD1068 WILLARD REPL CAP #1 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
12		WD0940 BARRY REPL CAP #2 CTRL 46KV	53	1	Projects	HVD Substation Replacement Projects
13		LN016B Replace 5712 ABS	44	1	Locations	Switch (inc. MOAB) replacements
14		LN016B Replace 5724 ABS	44	1	Locations	Switch (inc. MOAB) replacements
15		LN0281 Replace 5907 ABS	44	1	Locations	Switch (inc. MOAB) replacements
16		LN029T Replace 5147 ABS	44	1	Locations	Switch (inc. MOAB) replacements
17		LN029T Replace 5226 ABS	44	1	Locations	Switch (inc. MOAB) replacements
18		LN033H Replace 5961 ABS	44	1	Locations	Switch (inc. MOAB) replacements
19		LN033H Replace 5949 ABS	44	1	Locations	Switch (inc. MOAB) replacements
20		LN033K Replace 5955 ABS	44	1	Locations	Switch (inc. MOAB) replacements
21		LN033N Replace 5537 ABS	44	1	Locations	Switch (inc. MOAB) replacements
22		LN037E Replace 6089 ABS	44	1	Locations	Switch (inc. MOAB) replacements
23		LN037E Replace 6101 ABS	44	1	Locations	Switch (inc. MOAB) replacements
24		LN042D Replace 5264 ABS	44	1	Locations	Switch (inc. MOAB) replacements
25		LN042N Replace 5272 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
26		LN047P Replace 5056 ABS	44	1	Locations	Switch (inc. MOAB) replacements
27		LN047P Replace 5091 ABS	44	1	Locations	Switch (inc. MOAB) replacements
28		LN070V Replace 5213 ABS	44	1	Locations	Switch (inc. MOAB) replacements
29		LN072A Replace 5271 ABS	44	1	Locations	Switch (inc. MOAB) replacements
30		LN072V Replace 6555 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
31		LN072V Replace 6543 ABS	44	1	Locations	Switch (inc. MOAB) replacements
32		LN081K Replace 6352 ABS	44	1	Locations	Switch (inc. MOAB) replacements
33		LN086AJ Replace 6453 ABS	44	1	Locations	Switch (inc. MOAB) replacements
34		LN088M Replace 5553 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
35		LN023B Replace 5654 ABS	44	1	Locations	Switch (inc. MOAB) replacements
36		LN028N Replace 6043 ABS	44	1	Locations	Switch (inc. MOAB) replacements
37		LN033A Replace 5475 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
38		LN037AE Replace 6172 ABS	44	1	Locations	Switch (inc. MOAB) replacements
39		LN069A Replace 5693 ABS	44	1	Locations	Switch (inc. MOAB) replacements
40		LN069A Replace 5681 ABS	44	1	Locations	Switch (inc. MOAB) replacements
41		LN069H Replace 5999 ABS	44	1	Locations	Switch (inc. MOAB) replacements
42		LN069H Replace 6011 ABS	44	1	Locations	Switch (inc. MOAB) replacements
43		LN072A Replace 6225 ABS	44	1	Locations	Switch (inc. MOAB) replacements
44		LN072A Replace 6213 ABS	44	1	Locations	Switch (inc. MOAB) replacements
45		LN072AR Replace 6191 ABS	44	1	Locations	Switch (inc. MOAB) replacements
46		LN072AR Replace 6179 ABS	44	1	Locations	Switch (inc. MOAB) replacements
47		LN082L Replace 5277 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
48		LN095A Replace 6293 ABS	44	1	Locations	Switch (inc. MOAB) replacements
49		LN095A Replace 6307 ABS	44	1	Locations	Switch (inc. MOAB) replacements
50		LN108A Replace 5821 ABS	44	1	Locations	Switch (inc. MOAB) replacements
51		LN111AB Replace 6300 MOAB	72	1	Locations	Switch (inc. MOAB) replacements
52		HVD Pole Replacements Identified by Inspections	5,987	275	Poles	HVD Pole Replacements
53		HVD Pole Top Replacements Identified by Inspections	1,840	296	Pole Top Assemblies	HVD Pole Top Assembly Replacements
54		HVD Lines Misc and other replacements identified by Inspections	560	7	Projects	HVD Line Misc and Other Replacements
55		HVD Substation Rehabilitation Projects identified by inspections	4,685		Projects	HVD Substation Replacement Projects
56		<b>HVD Lines and Substations Rehabilitation Total</b>	<b>40,974</b>			
57	LVD Substations Rehabilitation	HASTINGS	600	1	Transformers	Allis Chalmers Substation Transformers
58		BELLAIRE	750	1	Transformers	Allis Chalmers Substation Transformers
59		CONKUN PARK	600	1	Transformers	Allis Chalmers Substation Transformers
60		GODFREY	600	1	Transformers	Allis Chalmers Substation Transformers
61		HANNAH	600	1	Transformers	Allis Chalmers Substation Transformers
62		LIBERTY	750	1	Transformers	Allis Chalmers Substation Transformers
63		MERSON	600	1	Transformers	Allis Chalmers Substation Transformers
64		STANTON	750	1	Transformers	Allis Chalmers Substation Transformers
65		WILSON	750	1	Transformers	Allis Chalmers Substation Transformers
66		FIFTEEN MILE ROAD	825	1	Transformers	Allis Chalmers Substation Transformers
67		KINGSLEY	600	1	Transformers	Allis Chalmers Substation Transformers
68		HALLS LAKE	600	1	Transformers	Allis Chalmers Substation Transformers
69		SUTTONS BAY	825	1	Transformers	Allis Chalmers Substation Transformers
70		DALE ROAD	600	1	Transformers	Allis Chalmers Substation Transformers
71		DEXTER TRAIL	600	1	Transformers	Allis Chalmers Substation Transformers
72		GENESSEVILLE	600	1	Transformers	Allis Chalmers Substation Transformers
73		GRAND RIVER	600	1	Transformers	Allis Chalmers Substation Transformers
74		LEITH STREET	1,200	2	Transformers	Allis Chalmers Substation Transformers
75		WESTERVELT	600	1	Transformers	Allis Chalmers Substation Transformers
76		KENT CITY	150	1	Projects	Equipment Replacement and Regulatory
77		MILLERS POINT	300	1	Projects	Equipment Replacement and Regulatory
78		<b>LVD Substations Rehabilitation Total</b>	<b>13,500</b>			
79	Metro Rehabilitation	METROREHAB GR WEALTHY SUB COMBINED - Wealthy Sub Civil	718	1	Project	Crushed Duct Replacements
80		METROREHAB GR WEALTHY SUB COMBINED - Godfrey Circuit	207	1	Project	Crushed Duct Replacements
81		METROREHAB GR WEALTHY SUB COMBINED - Butterworth Circuit	207	1	Project	Crushed Duct Replacements
82		SAGINAW JAMES AVENUE	1,353	1	Project	Crushed Duct Replacements
83		MREHAB CORTLAND ST CIVIL & ELECTRIC REBUILD	2,085	1	Project	Vault or Manhole Rehabilitation
84		<b>Metro Rehabilitation Total</b>	<b>4,570</b>			
85	Grid Storage	Cadillac Solar Farm Battery - 2022 Work	50	1	Project	Solar Farm Battery
86		Ft Custer Islanded Battery - 2022 Work	1,252	1	Project	Islanded Battery
87		Distribution Automation Battery - 2022 Work	8,698	1	Project	Distribution Automation Battery
88		<b>Grid Storage Total</b>	<b>10,000</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation	Imminent Rehabilitation Projects (Demand) <i>See Exhibit RTB-18 for list of Imminent Rehab projects</i>	11,715	795	Orders	Imminent Rehabilitation
2		INSP ABBE/HWY 33	28	1	Project	Security Assessment Repairs
3		INSP ABERDEEN/ABERDEEN	836	1	Project	Security Assessment Repairs
4		INSP AGNEW/WEYBURN	65	1	Project	Security Assessment Repairs
5		INSP ALCONA DAM/CURTISVILLE	180	1	Project	Security Assessment Repairs
6		INSP ALCONA DAM/GLENNIE	160	1	Project	Security Assessment Repairs
7		INSP ALGER/FOREST LAKE	58	1	Project	Security Assessment Repairs
8		INSP ATLAS/GOODRICH	127	1	Project	Security Assessment Repairs
9		INSP AU GRES/AU GRES	174	1	Project	Security Assessment Repairs
10		INSP AUBIL LAKE/	30	1	Project	Security Assessment Repairs
11		INSP BABCOCK/FRANCISCO	140	1	Project	Security Assessment Repairs
12		INSP BALCOM/BANKERS	52	1	Project	Security Assessment Repairs
13		INSP BALDWIN/BALDWIN	11	1	Project	Security Assessment Repairs
14		INSP BALDWIN/IDLEWILD	61	1	Project	Security Assessment Repairs
15		INSP BARNARD/WEISS	11	1	Project	Security Assessment Repairs
16		INSP BASS LAKE/CARTER	65	1	Project	Security Assessment Repairs
17		INSP BASS LAKE/KISTLER	65	1	Project	Security Assessment Repairs
18		INSP BAVARIAN/JEFFERSON	196	1	Project	Security Assessment Repairs
19		INSP BAVARIAN/WEISS	72	1	Project	Security Assessment Repairs
20		INSP BEADLE/CREST	194	1	Project	Security Assessment Repairs
21		INSP BEADLE/SPAULDING	97	1	Project	Security Assessment Repairs
22		INSP BEALS ROAD/ALGER	781	1	Project	Security Assessment Repairs
23		INSP BEALS ROAD/BURTON HEIGHTS	248	1	Project	Security Assessment Repairs
24		INSP BEALS ROAD/CLYDE PARK	245	1	Project	Security Assessment Repairs
25		INSP BEALS ROAD/EXPRESSWAY	298	1	Project	Security Assessment Repairs
26		INSP BEALS ROAD/GODWIN HEIGHTS	250	1	Project	Security Assessment Repairs
27		INSP BECK ROAD/CONSEAR	174	1	Project	Security Assessment Repairs
28		INSP BECK ROAD/OTTAWA	58	1	Project	Security Assessment Repairs
29		INSP BEECH-NUT/BEECH-NUT	91	1	Project	Security Assessment Repairs
30		INSP BEECH-NUT/BEECH-NUT	146	1	Project	Security Assessment Repairs
31		INSP BEECH-NUT/HOLAGAN	146	1	Project	Security Assessment Repairs
32		INSP BEERS/SHARP	137	1	Project	Security Assessment Repairs
33		INSP BELL ROAD/ALBEE	58	1	Project	Security Assessment Repairs
34		INSP BENNETT/DOBIE ROAD	25	1	Project	Security Assessment Repairs
35		INSP BENNETT/JOLLY ROAD	30	1	Project	Security Assessment Repairs
36		INSP BENNETT/KNOB HILL	4	1	Project	Security Assessment Repairs
37		INSP BESSINGER/QUARRY	146	1	Project	Security Assessment Repairs
38		INSP BLACK RIVER/FILLMORE	9	1	Project	Security Assessment Repairs
39		INSP BOSTON SQUARE/NELAND	682	1	Project	Security Assessment Repairs
40		INSP BRETON/BRETON	6	1	Project	Security Assessment Repairs
41		INSP BRIDGE STREET/HUPP AVENUE	194	1	Project	Security Assessment Repairs
42		INSP BRIDGE STREET/WATER STREET	194	1	Project	Security Assessment Repairs
43		INSP BRIDGEPORT/BRIDGEPORT	502	1	Project	Security Assessment Repairs
44		INSP BRIDGEPORT/DIXIE	524	1	Project	Security Assessment Repairs
45		INSP BROADMOOR/AIRWEST	6	1	Project	Security Assessment Repairs
46		INSP BROADMOOR/BARDEN	41	1	Project	Security Assessment Repairs
47		INSP BROGAN/BROGAN	278	1	Project	Security Assessment Repairs
48		INSP BROUGHWELL/MINARD	52	1	Project	Security Assessment Repairs
49		INSP BROUGHWELL/ONONDAGA	146	1	Project	Security Assessment Repairs
50		INSP BURLINGAME/BURLINGAME	35	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>19,841</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

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Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP BURR OAK/DOUGLAS	13	1	Project	Security Assessment Repairs
2		INSP CADMUS/BAKER	182	1	Project	Security Assessment Repairs
3		INSP CALEDONIA/92ND STREET	117	1	Project	Security Assessment Repairs
4		INSP CALVIN/WOODCLIFF	91	1	Project	Security Assessment Repairs
5		INSP CAMDEN/MONTGOMERY	146	1	Project	Security Assessment Repairs
6		INSP CASCADE/CASCADE	218	1	Project	Security Assessment Repairs
7		INSP CEDAR LAKE/KINGS CORNER	212	1	Project	Security Assessment Repairs
8		INSP CEDAR SPRINGS/NELSON	55	1	Project	Security Assessment Repairs
9		INSP CENTREVILLE/COVERED BRIDGE	146	1	Project	Security Assessment Repairs
10		INSP CENTREVILLE/INDUSTRIAL	146	1	Project	Security Assessment Repairs
11		INSP CERESCO/CERESCO	84	1	Project	Security Assessment Repairs
12		INSP CHAUNCEY/AUSTIN	273	1	Project	Security Assessment Repairs
13		INSP CHEYENNE/GREEN ACRES	92	1	Project	Security Assessment Repairs
14		INSP COCHRAN/SNOW	52	1	Project	Security Assessment Repairs
15		INSP COLEMAN/BROWN MACHINE	324	1	Project	Security Assessment Repairs
16		INSP COLEMAN/COLEMAN	324	1	Project	Security Assessment Repairs
17		INSP COLEMAN/RURAL	324	1	Project	Security Assessment Repairs
18		INSP CONVIS/CONVIS	198	1	Project	Security Assessment Repairs
19		INSP CONVIS/WALNUT POINT	130	1	Project	Security Assessment Repairs
20		INSP COURT/KENT	137	1	Project	Security Assessment Repairs
21		INSP CRANBROOK/11 MILE ROAD	91	1	Project	Security Assessment Repairs
22		INSP CRAWFORD/WINN	532	1	Project	Security Assessment Repairs
23		INSP DAVENPORT/CONGRESS	30	1	Project	Security Assessment Repairs
24		INSP DEAN ROAD/HOGAN	29	1	Project	Security Assessment Repairs
25		INSP DELTON/DELTON	6	1	Project	Security Assessment Repairs
26		INSP DEWITT/GENEVA LAKE	265	1	Project	Security Assessment Repairs
27		INSP DOBSON ROAD/HALF MOON	33	1	Project	Security Assessment Repairs
28		INSP DONTZ ROAD/PORTAGE	18	1	Project	Security Assessment Repairs
29		INSP DORR CORNERS/100TH STREET	136	1	Project	Security Assessment Repairs
30		INSP DORR CORNERS/RED RUN	176	1	Project	Security Assessment Repairs
31		INSP DUNBAR/HULL	30	1	Project	Security Assessment Repairs
32		INSP EAST GENESEE AVE/BAGLEY	168	1	Project	Security Assessment Repairs
33		INSP EAST GENESEE AVE/GENESEE	280	1	Project	Security Assessment Repairs
34		INSP EAST GENESEE AVE/OUTER DRIVE	220	1	Project	Security Assessment Repairs
35		INSP EAST LAKE/CHEMICAL	41	1	Project	Security Assessment Repairs
36		INSP EAST MUSKEGON/QUARTERLINE ROAD	26	1	Project	Security Assessment Repairs
37		INSP EAST MUSKEGON/SHERIDAN	65	1	Project	Security Assessment Repairs
38		INSP EASTWOOD/TEXEL	52	1	Project	Security Assessment Repairs
39		INSP EIGHT POINT/LAKE GEORGE	324	1	Project	Security Assessment Repairs
40		INSP EIGHT POINT/WHITE BIRCH	194	1	Project	Security Assessment Repairs
41		INSP FENTON/SILVER LAKE	23	1	Project	Security Assessment Repairs
42		INSP FIVE CHANNELS HYDRO/DISTRIBUTION	58	1	Project	Security Assessment Repairs
43		INSP FOOTE HYDRO/DISTRIBUTION	176	1	Project	Security Assessment Repairs
44		INSP FOURTEENTH STREET/LIBERTY STREET	13	1	Project	Security Assessment Repairs
45		INSP FOURTEENTH STREET/LIPPINCOTT STREET	13	1	Project	Security Assessment Repairs
46		INSP FOURTEENTH STREET/TOBIAS STREET	5	1	Project	Security Assessment Repairs
47		INSP FOX FARM/LINKE	7	1	Project	Security Assessment Repairs
48		INSP FRANKENMUTH/DEHMEL	20	1	Project	Security Assessment Repairs
49		INSP FRANKENMUTH/INDUSTRIAL	48	1	Project	Security Assessment Repairs
50		INSP FRANKENMUTH/MAIN STREET	104	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>6,446</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP FROST/LONG LAKE	324	1	Project	Security Assessment Repairs
2		INSP GLEN LAKE/BURDICKVILLE	243	1	Project	Security Assessment Repairs
3		INSP GLENDALE/KEYES	50	1	Project	Security Assessment Repairs
4		INSP GRAND VALLEY/TALLMADGE	1	1	Project	Security Assessment Repairs
5		INSP GRASS LAKE/MT HOPE	146	1	Project	Security Assessment Repairs
6		INSP GRAYLING/RIVER	9	1	Project	Security Assessment Repairs
7		INSP GREENVILLE/WASHINGTON ST	146	1	Project	Security Assessment Repairs
8		INSP GREENVILLE/WILLIAMS ST	39	1	Project	Security Assessment Repairs
9		INSP HAGADORN/HAGADORN	12	1	Project	Security Assessment Repairs
10		INSP HARLEM/HARLEM	26	1	Project	Security Assessment Repairs
11		INSP HARRISON/STOCKWELL	324	1	Project	Security Assessment Repairs
12		INSP HARVEY STREET/FULLER	234	1	Project	Security Assessment Repairs
13		INSP HASKELITE/3 MILE	47	1	Project	Security Assessment Repairs
14		INSP HASKELITE/RICHMOND	10	1	Project	Security Assessment Repairs
15		INSP HAYES STREET/BUCCANEER	65	1	Project	Security Assessment Repairs
16		INSP HESPERIA/HESPERIA	93	1	Project	Security Assessment Repairs
17		INSP HESPERIA/RURAL	347	1	Project	Security Assessment Repairs
18		INSP HICKORY/DOGWOOD	65	1	Project	Security Assessment Repairs
19		INSP HOGSBACK/PINE TREE	52	1	Project	Security Assessment Repairs
20		INSP HOUGHTON HEIGHTS/MERRITT	144	1	Project	Security Assessment Repairs
21		INSP HUBBARDSTON ROAD/HUBBARDSTON	34	1	Project	Security Assessment Repairs
22		INSP ISABELLA/PICKARD	116	1	Project	Security Assessment Repairs
23		INSP ISABELLA/REMUS	131	1	Project	Security Assessment Repairs
24		INSP JASPER/JASPER	284	1	Project	Security Assessment Repairs
25		INSP JEFFS ROAD/ADLER ROAD	307	1	Project	Security Assessment Repairs
26		INSP JONESVILLE/MILNES	146	1	Project	Security Assessment Repairs
27		INSP KELLOGGSVILLE/HOME ACRES	450	1	Project	Security Assessment Repairs
28		INSP LAWRENCE/CHRISTIE LAKE	7	1	Project	Security Assessment Repairs
29		INSP LEE STREET/CENTURY	1	1	Project	Security Assessment Repairs
30		INSP LEE STREET/KIRTLAND	15	1	Project	Security Assessment Repairs
31		INSP LEE STREET/LEE	35	1	Project	Security Assessment Repairs
32		INSP LEITH STREET/DAVISON ROAD	137	1	Project	Security Assessment Repairs
33		INSP LELAND/LELAND	425	1	Project	Security Assessment Repairs
34		INSP LENNON ROAD/BROBECK	137	1	Project	Security Assessment Repairs
35		INSP LENNON ROAD/KETZLER	137	1	Project	Security Assessment Repairs
36		INSP LENNON ROAD/OTTERBURN	137	1	Project	Security Assessment Repairs
37		INSP LENNON ROAD/SHOPPERS	137	1	Project	Security Assessment Repairs
38		INSP LEVEL PARK/COLLIER	15	1	Project	Security Assessment Repairs
39		INSP LEVELY/ALLBRIGHT	100	1	Project	Security Assessment Repairs
40		INSP LOMBARD/LOMBARD	91	1	Project	Security Assessment Repairs
41		INSP LOMBARD/SHERIDAN	292	1	Project	Security Assessment Repairs
42		INSP LOMBARD/SHERIDAN	437	1	Project	Security Assessment Repairs
43		INSP MACATAWA/RAILYARD	146	1	Project	Security Assessment Repairs
44		INSP MANISTEE/FILER CITY	15	1	Project	Security Assessment Repairs
45		INSP MAPLE CITY/CEDAR	814	1	Project	Security Assessment Repairs
46		INSP MARION/GASCOM	408	1	Project	Security Assessment Repairs
47		INSP MARKEY/CARRICK	437	1	Project	Security Assessment Repairs
48		INSP MARKEY/MONTYVILLE	12	1	Project	Security Assessment Repairs
49		INSP MARTIN/SHELBYVILLE	259	1	Project	Security Assessment Repairs
50		INSP MENDON/KIRBY	18	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>8,050</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP MENDON/PINHOOK	26	1	Project	Security Assessment Repairs
2		INSP MERRILL/CHAPIN	128	1	Project	Security Assessment Repairs
3		INSP MICHIGAN/LOOKOUT	27	1	Project	Security Assessment Repairs
4		INSP MILL GROVE/DUMONT	146	1	Project	Security Assessment Repairs
5		INSP MONTAGUE/NORTH SHORE	21	1	Project	Security Assessment Repairs
6		INSP MORGAN/ORCHARD	26	1	Project	Security Assessment Repairs
7		INSP MORGAN/ST MARYS	146	1	Project	Security Assessment Repairs
8		INSP NEELEY/DOSTER	143	1	Project	Security Assessment Repairs
9		INSP NESTROM/SCENIC DRIVE	26	1	Project	Security Assessment Repairs
10		INSP NESTROM/SOUTH SHORE	162	1	Project	Security Assessment Repairs
11		INSP NORTHERN FIBRE/CAREERLINE	93	1	Project	Security Assessment Repairs
12		INSP NORTHERN FIBRE/FIBRE	146	1	Project	Security Assessment Repairs
13		INSP NORTON/HILE ROAD	78	1	Project	Security Assessment Repairs
14		INSP OAKWOOD/BROADWAY	57	1	Project	Security Assessment Repairs
15		INSP OHMAN ROAD/HERSEY	9	1	Project	Security Assessment Repairs
16		INSP ORCHARD ROAD/ST ANDREWS	68	1	Project	Security Assessment Repairs
17		INSP OSCODA/BUTLER HEIGHTS	184	1	Project	Security Assessment Repairs
18		INSP OTISVILLE/STATE ROAD	137	1	Project	Security Assessment Repairs
19		INSP PARMA/PARMA	146	1	Project	Security Assessment Repairs
20		INSP PECK ROAD/ORE-IDA	120	1	Project	Security Assessment Repairs
21		INSP PECK ROAD/WISE ROAD	97	1	Project	Security Assessment Repairs
22		INSP PELLSTON/BURT LAKE	420	1	Project	Security Assessment Repairs
23		INSP PENNFIELD/CLEAR LAKE	219	1	Project	Security Assessment Repairs
24		INSP PORTER/PARTS	42	1	Project	Security Assessment Repairs
25		INSP PRESCOTT/LOGAN	28	1	Project	Security Assessment Repairs
26		INSP PRICE ROAD/MERIDIAN	56	1	Project	Security Assessment Repairs
27		INSP QUINCY/CHICAGO ROAD	292	1	Project	Security Assessment Repairs
28		INSP QUINCY/QUINCY	146	1	Project	Security Assessment Repairs
29		INSP READING/CAMBRIA	26	1	Project	Security Assessment Repairs
30		INSP RIVERDALE/RIVERDALE	937	1	Project	Security Assessment Repairs
31		INSP RIVERDALE/SUMNER	415	1	Project	Security Assessment Repairs
32		INSP RIX ROAD/FAIRLANE	58	1	Project	Security Assessment Repairs
33		INSP RODNEY/HORSE HEAD LAKE	33	1	Project	Security Assessment Repairs
34		INSP SARANAC/KEENE	65	1	Project	Security Assessment Repairs
35		INSP SAUGATUCK/DOUGLAS	146	1	Project	Security Assessment Repairs
36		INSP SAUGATUCK/SAUGATUCK	36	1	Project	Security Assessment Repairs
37		INSP SAUGATUCK/SILVER LAKE	146	1	Project	Security Assessment Repairs
38		INSP SCOTTS/SCOTTS	143	1	Project	Security Assessment Repairs
39		INSP SCOTTS/WHITE	166	1	Project	Security Assessment Repairs
40		INSP SHEPHERD/SHEPHERD	459	1	Project	Security Assessment Repairs
41		INSP SHERMAN/SHERMAN	48	1	Project	Security Assessment Repairs
42		INSP SMITH CREEK/SKIPARK (WEST)	40	1	Project	Security Assessment Repairs
43		INSP SMITH CREEK/WRIGHT (EAST)	29	1	Project	Security Assessment Repairs
44		INSP SPRINGFIELD/HELMER	6	1	Project	Security Assessment Repairs
45		INSP ST CHARLES/SAGINAW	284	1	Project	Security Assessment Repairs
46		INSP ST HELEN/ST HELEN	146	1	Project	Security Assessment Repairs
47		INSP STANDALE/CHESTERFIELD	51	1	Project	Security Assessment Repairs
48		INSP STANDALE/VILLAGE	1	1	Project	Security Assessment Repairs
49		INSP STANDISH/STANDISH	282	1	Project	Security Assessment Repairs
50		INSP SURREY/SURREY	130	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>6,830</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP SYLVAN/RURAL	146	1	Project	Security Assessment Repairs
2		INSP TERRACE/SPRING	146	1	Project	Security Assessment Repairs
3		INSP TEXAS/BASS LAKE	52	1	Project	Security Assessment Repairs
4		INSP TEXAS/EAGLE LAKE	97	1	Project	Security Assessment Repairs
5		INSP THORNAPPLE/RIX ST	50	1	Project	Security Assessment Repairs
6		INSP TITUS LAKE/CASINO	146	1	Project	Security Assessment Repairs
7		INSP TITUS LAKE/TENTH STREET	972	1	Project	Security Assessment Repairs
8		INSP TOWN LINE/FRASER	142	1	Project	Security Assessment Repairs
9		INSP TURNER/GATES	144	1	Project	Security Assessment Repairs
10		INSP TURNER/GROVE	23	1	Project	Security Assessment Repairs
11		INSP TUSTIN/LUTHER	112	1	Project	Security Assessment Repairs
12		INSP TWELFTH STREET/RUDGATE	19	1	Project	Security Assessment Repairs
13		INSP TWELFTH STREET/WESTFIELD	45	1	Project	Security Assessment Repairs
14		INSP TWILIGHT/EAST TOWNE	146	1	Project	Security Assessment Repairs
15		INSP TWILIGHT/GULL ROAD	146	1	Project	Security Assessment Repairs
16		INSP TWILIGHT/RICHLAND FARMS	146	1	Project	Security Assessment Repairs
17		INSP UNIVERSITY/HARRISON	22	1	Project	Security Assessment Repairs
18		INSP VENTURA/LOW PUMP	146	1	Project	Security Assessment Repairs
19		INSP WAGER/MARENGO	137	1	Project	Security Assessment Repairs
20		INSP WALLOON/DISTRIBUTION	145	1	Project	Security Assessment Repairs
21		INSP WALNUT/GILKEY	11	1	Project	Security Assessment Repairs
22		INSP WATKINS/HAMILTON	65	1	Project	Security Assessment Repairs
23		INSP WEBB ROAD/PLAINFIELD	68	1	Project	Security Assessment Repairs
24		INSP WEBSTER/COLDWATER	137	1	Project	Security Assessment Repairs
25		INSP WEIDMAN/WEIDMAN	97	1	Project	Security Assessment Repairs
26		INSP WEST ROAD/MARFITT	73	1	Project	Security Assessment Repairs
27		INSP WHITTEMORE/M-65	428	1	Project	Security Assessment Repairs
28		INSP WILLIAMS/CRESENT	146	1	Project	Security Assessment Repairs
29		INSP WILLIAMS/ELY	146	1	Project	Security Assessment Repairs
30		INSP WILLIAMS/LINCOLN	146	1	Project	Security Assessment Repairs
31		INSP WIRTZ ROAD/WILDWOOD	389	1	Project	Security Assessment Repairs
32		INSP WITHEY LAKE/HENDERSON	108	1	Project	Security Assessment Repairs
33		INSP WOODLAND/BARNUM	320	1	Project	Security Assessment Repairs
34		INSP NINETEEN MILE RD/INDUSTRIAL PARK	24	1	Project	Security Assessment Repairs
35		INSP ALABAMA/KING ROAD	62	1	Project	Security Assessment Repairs
36		INSP ALABAMA/YANKEE	58	1	Project	Security Assessment Repairs
37		INSP ALBER/ALBER	78	1	Project	Security Assessment Repairs
38		INSP BAILEY/BAILEY	26	1	Project	Security Assessment Repairs
39		INSP BEECHER/TOLEDO ROAD	109	1	Project	Security Assessment Repairs
40		INSP BEHNKE/ANGOLA ROAD	16	1	Project	Security Assessment Repairs
41		INSP BEHNKE/RIVER RD	19	1	Project	Security Assessment Repairs
42		INSP BELSAY/RAYMOND	2	1	Project	Security Assessment Repairs
43		INSP BIL-MAR/PIERCE	16	1	Project	Security Assessment Repairs
44		INSP BLACK RIVER/ZEELAND	13	1	Project	Security Assessment Repairs
45		INSP BLISSFIELD/SUGAR MILL	131	1	Project	Security Assessment Repairs
46		INSP BLUEGRASS/SUMMERTON	13	1	Project	Security Assessment Repairs
47		INSP BRECKENRIDGE/WHEELER	178	1	Project	Security Assessment Repairs
48		INSP BRETON/TOWERS	71	1	Project	Security Assessment Repairs
49		INSP CALEDONIA/CALEDONIA	110	1	Project	Security Assessment Repairs
50		INSP CARLETON ROAD/BECK ROAD	26	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>6,064</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP CASCO/BLUFF	40	1	Project	Security Assessment Repairs
2		INSP CASCO/HAWKHEAD	70	1	Project	Security Assessment Repairs
3		INSP CHESANING/CHESANING	228	1	Project	Security Assessment Repairs
4		INSP CLARE/CLARE	13	1	Project	Security Assessment Repairs
5		INSP CLARE/FARWELL	65	1	Project	Security Assessment Repairs
6		INSP COGGINS/ALMEDA	26	1	Project	Security Assessment Repairs
7		INSP COLON/PALMER	16	1	Project	Security Assessment Repairs
8		INSP COOPER/NAGEL	57	1	Project	Security Assessment Repairs
9		INSP CRYSTAL/CRYSTAL ROAD	108	1	Project	Security Assessment Repairs
10		INSP CURTIS/MAGRUDDER	112	1	Project	Security Assessment Repairs
11		INSP DEAN ROAD/KELSEY-HAYES	6	1	Project	Security Assessment Repairs
12		INSP DEERFIELD/RODESILER	311	1	Project	Security Assessment Repairs
13		INSP DIMONDALE/DIMONDALE	13	1	Project	Security Assessment Repairs
14		INSP DIMONDALE/M-99	13	1	Project	Security Assessment Repairs
15		INSP DIMONDALE/ROSSMAN	16	1	Project	Security Assessment Repairs
16		INSP DUQUITE/JOHNSFIELD	16	1	Project	Security Assessment Repairs
17		INSP DUQUITE/SAGANING	37	1	Project	Security Assessment Repairs
18		INSP EAST MUSKEGON/MILL IRON	65	1	Project	Security Assessment Repairs
19		INSP EASTWOOD/EAST	10	1	Project	Security Assessment Repairs
20		INSP EASTWOOD/NAZARETH	13	1	Project	Security Assessment Repairs
21		INSP EDDY/WADSWORTH	58	1	Project	Security Assessment Repairs
22		INSP ENSLEY/DISTRIBUTION	63	1	Project	Security Assessment Repairs
23		INSP ERIE/PERE MARQUETTE	97	1	Project	Security Assessment Repairs
24		INSP FAIRFIELD/JASPER	455	1	Project	Security Assessment Repairs
25		INSP FERRIS STREET/LUNA	26	1	Project	Security Assessment Repairs
26		INSP FIFTEEN MILE ROAD/A DRIVE	97	1	Project	Security Assessment Repairs
27		INSP FRANKENMUTH/GERA	37	1	Project	Security Assessment Repairs
28		INSP FREELAND/FREELAND	20	1	Project	Security Assessment Repairs
29		INSP 0746/01	24	1	Project	Security Assessment Repairs
30		INSP FULTON/RIPPLING	48	1	Project	Security Assessment Repairs
31		INSP GEDDES/VAN WORMER	5	1	Project	Security Assessment Repairs
32		INSP GRASS LAKE/MT HOPE	194	1	Project	Security Assessment Repairs
33		INSP GULL LAKE/WILLOW BEACH	10	1	Project	Security Assessment Repairs
34		INSP HAMILTON/HAWKEYE	40	1	Project	Security Assessment Repairs
35		INSP HAMILTON/OVERISEL	15	1	Project	Security Assessment Repairs
36		INSP HUNT ROAD/HUNT ROAD	182	1	Project	Security Assessment Repairs
37		INSP HUNT ROAD/MOORE ROAD	91	1	Project	Security Assessment Repairs
38		INSP IRON STREET/ATHERTON ROAD	3	1	Project	Security Assessment Repairs
39		INSP IRON STREET/DORT HIGHWAY	2	1	Project	Security Assessment Repairs
40		INSP JACKMAN/LIBERTY CORNERS	449	1	Project	Security Assessment Repairs
41		INSP JEFFS ROAD/ADLER ROAD	307	1	Project	Security Assessment Repairs
42		INSP JONESVILLE/JONESVILLE	26	1	Project	Security Assessment Repairs
43		INSP DEWEY/WIDDICOMB	14	1	Project	Security Assessment Repairs
44		INSP LAWRENCE/LAWRENCE	4	1	Project	Security Assessment Repairs
45		INSP LESLIE INDUSTRIAL/INDUSTRIAL	65	1	Project	Security Assessment Repairs
46		INSP LINDEN/NORTH LINDEN	13	1	Project	Security Assessment Repairs
47		INSP LONG LAKE/TORREY RD	26	1	Project	Security Assessment Repairs
48		INSP MANISTEE/LAKE MICHIGAN	39	1	Project	Security Assessment Repairs
49		INSP MAPLE GROVE/HENRY STREET	16	1	Project	Security Assessment Repairs
50		INSP MARTIN/HYBELS	6	1	Project	Security Assessment Repairs
51		<b>LVD Lines Rehabilitation Subtotal</b>	<b>3,667</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation (cont.)	INSP MIDDLETON/MIDDLETON	130	1	Project	Security Assessment Repairs
2		INSP MIDDLEVILLE/BUSINESS	3	1	Project	Security Assessment Repairs
3		INSP MIDDLEVILLE/LAFAYETTE	3	1	Project	Security Assessment Repairs
4		INSP MILL GROVE/ALLEGAN HYDRO	10	1	Project	Security Assessment Repairs
5		INSP MISSION/THREE LEAVES	10	1	Project	Security Assessment Repairs
6		INSP NEW LOTHROP/BYRON ROAD	6	1	Project	Security Assessment Repairs
7		INSP NEW LOTHROP/REED ROAD	26	1	Project	Security Assessment Repairs
8		INSP NIAGARA/ADAMS	44	1	Project	Security Assessment Repairs
9		INSP NORTON/PONTALUNA ROAD	49	1	Project	Security Assessment Repairs
10		INSP OSHTIMO/ALMENA	16	1	Project	Security Assessment Repairs
11		INSP PINCONNING/PINCONNING	26	1	Project	Security Assessment Repairs
12		INSP PINCONNING/WHITE FEATHER	26	1	Project	Security Assessment Repairs
13		INSP PORTER/KNOLLWOOD	23	1	Project	Security Assessment Repairs
14		INSP POTTERVILLE/M-78	194	1	Project	Security Assessment Repairs
15		INSP POTTERVILLE/POTTERVILLE	162	1	Project	Security Assessment Repairs
16		INSP PRICE ROAD/PRICE	60	1	Project	Security Assessment Repairs
17		INSP RAVENNA/MOORLAND	285	1	Project	Security Assessment Repairs
18		INSP RENTON/WATKINS	26	1	Project	Security Assessment Repairs
19		INSP ROSCOMMON/SOUTH BRANCH	18	1	Project	Security Assessment Repairs
20		INSP RUTLAND/TANNER LAKE	19	1	Project	Security Assessment Repairs
21		INSP SANFORD DAM/AVERILL	136	1	Project	Security Assessment Repairs
22		INSP SEIDEL/BROCKWAY	52	1	Project	Security Assessment Repairs
23		INSP ST HELEN/ARTESIA	82	1	Project	Security Assessment Repairs
24		INSP STEVENS/CAMPAU	128	1	Project	Security Assessment Repairs
25		INSP SURREY/MAIN STREET	45	1	Project	Security Assessment Repairs
26		INSP TEKONSHA/WAGNER	26	1	Project	Security Assessment Repairs
27		INSP THOMAS/FROST	128	1	Project	Security Assessment Repairs
28		INSP TRIPP ROAD/TRIPP ROAD	364	1	Project	Security Assessment Repairs
29		INSP WEBB ROAD/HALE	58	1	Project	Security Assessment Repairs
30		INSP WOODLAND/WOODBURY	8	1	Project	Security Assessment Repairs
31		INSP PARMA/BALDWIN	52	1	Project	Security Assessment Repairs
32		INSP PARMA/PARMA	52	1	Project	Security Assessment Repairs
33		INSP HUBBARDSTON ROAD/STONEY CREEK	6	1	Project	Security Assessment Repairs
34		INSP KALARAMA/ANGLING	41	1	Project	Security Assessment Repairs
35		INSP DEWITT/GENEVA LAKE	215	1	Project	Security Assessment Repairs
36		INSP GRAND LEDGE/HARTEL ROAD	238	1	Project	Security Assessment Repairs
37		<b>LVD Lines Rehabilitation Subtotal</b>	<b>2,768</b>			
38		<b>LVD Lines Rehabilitation Total</b>	<b>53,666</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line			Projected 2022			
No.	Sub-Program	Project Description, Line, Substation, or Location	Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization	ALAMO	218	1	Substation	Automation - DSCADA
2		ATHERTON	218	1	Substation	Automation - DSCADA
3		BAILEY	218	1	Substation	Automation - DSCADA
4		BALDWIN	218	1	Substation	Automation - DSCADA
5		BATES	218	1	Substation	Automation - DSCADA
6		BEAVER	218	1	Substation	Automation - DSCADA
7		BESSINGER	218	1	Substation	Automation - DSCADA
8		BIL -MAR	218	1	Substation	Automation - DSCADA
9		BRICKER	218	1	Substation	Automation - DSCADA
10		CANNONSBURG	218	1	Substation	Automation - DSCADA
11		CENTER ROAD	218	1	Substation	Automation - DSCADA
12		CLIO	218	1	Substation	Automation - DSCADA
13		COMSTOCK	218	1	Substation	Automation - DSCADA
14		CONVIS	218	1	Substation	Automation - DSCADA
15		COOPER	218	1	Substation	Automation - DSCADA
16		COURT	218	1	Substation	Automation - DSCADA
17		DAVENPORT	218	1	Substation	Automation - DSCADA
18		DAVISON	218	1	Substation	Automation - DSCADA
19		DIETZ ROAD	218	1	Substation	Automation - DSCADA
20		DUNBAR	218	1	Substation	Automation - DSCADA
21		EAST GRANT	218	1	Substation	Automation - DSCADA
22		EDGEWOOD	218	1	Substation	Automation - DSCADA
23		FAIRFIELD	218	1	Substation	Automation - DSCADA
24		FILLMORE	218	1	Substation	Automation - DSCADA
25		FULTON	218	1	Substation	Automation - DSCADA
26		GLADWIN	218	1	Substation	Automation - DSCADA
27		GLEN LAKE	218	1	Substation	Automation - DSCADA
28		GREENSPIRE	218	1	Substation	Automation - DSCADA
29		HALEY ROAD	218	1	Substation	Automation - DSCADA
30		HALLS LAKE	218	1	Substation	Automation - DSCADA
31		HARRIET	218	1	Substation	Automation - DSCADA
32		HARRIETTA	218	1	Substation	Automation - DSCADA
33		HOTCHKISS	218	1	Substation	Automation - DSCADA
34		INGERSOLL	218	1	Substation	Automation - DSCADA
35		IONIA MANUFACTURING	218	1	Substation	Automation - DSCADA
36		JAMESTOWN	218	1	Substation	Automation - DSCADA
37		JANES	218	1	Substation	Automation - DSCADA
38		JASPER	218	1	Substation	Automation - DSCADA
39		JONESVILLE	218	1	Substation	Automation - DSCADA
40		KALKASKA	218	1	Substation	Automation - DSCADA
41		KENDRICK	218	1	Substation	Automation - DSCADA
42		KENT CITY	218	1	Substation	Automation - DSCADA
43		KINGSLEY	218	1	Substation	Automation - DSCADA
44		LAKE MITCHELL	218	1	Substation	Automation - DSCADA
45		LAUNDRA	218	1	Substation	Automation - DSCADA
46		LAWRENCE	218	1	Substation	Automation - DSCADA
47		LEELANAU	218	1	Substation	Automation - DSCADA
48		LEVEL PARK	218	1	Substation	Automation - DSCADA
49		LINDEN	218	1	Substation	Automation - DSCADA
50		LITCHFIELD	218	1	Substation	Automation - DSCADA
51		<b>Grid Modernization Subtotal</b>	<b>10,897</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	MANITOU BEACH	218	1	Substation	Automation - DSCADA
2		MANTON	218	1	Substation	Automation - DSCADA
3		MARSH MONUMENT	218	1	Substation	Automation - DSCADA
4		MCGRAW	218	1	Substation	Automation - DSCADA
5		MCKEIGHAN	218	1	Substation	Automation - DSCADA
6		MESICK	218	1	Substation	Automation - DSCADA
7		METRO	218	1	Substation	Automation - DSCADA
8		MILBOURNE	218	1	Substation	Automation - DSCADA
9		MIO DAM	218	1	Substation	Automation - DSCADA
10		MORLEY	218	1	Substation	Automation - DSCADA
11		MUSKEGON HEIGHTS	218	1	Substation	Automation - DSCADA
12		NEFF ROAD	218	1	Substation	Automation - DSCADA
13		NEWAYGO	218	1	Substation	Automation - DSCADA
14		NORTHERN FIBRE	218	1	Substation	Automation - DSCADA
15		OHMAN ROAD	218	1	Substation	Automation - DSCADA
16		OSCODA	218	1	Substation	Automation - DSCADA
17		PELLSTON	218	1	Substation	Automation - DSCADA
18		PENINSULA	218	1	Substation	Automation - DSCADA
19		PEWAMO	218	1	Substation	Automation - DSCADA
20		PISTON RING	218	1	Substation	Automation - DSCADA
21		PORT CALCITE	218	1	Substation	Automation - DSCADA
22		PRESCOTT	218	1	Substation	Automation - DSCADA
23		RENTON	218	1	Substation	Automation - DSCADA
24		RIVERDALE	218	1	Substation	Automation - DSCADA
25		ROUND LAKE	218	1	Substation	Automation - DSCADA
26		SALZBURG	218	1	Substation	Automation - DSCADA
27		SCHUSS MOUNTAIN	218	1	Substation	Automation - DSCADA
28		SCIPIO	218	1	Substation	Automation - DSCADA
29		SEIDEL	218	1	Substation	Automation - DSCADA
30		SHANTY CREEK	218	1	Substation	Automation - DSCADA
31		SHERIDAN	218	1	Substation	Automation - DSCADA
32		SPRINGFIELD	218	1	Substation	Automation - DSCADA
33		SQUIRE HILL	218	1	Substation	Automation - DSCADA
34		STONEGATE	218	1	Substation	Automation - DSCADA
35		TANIUM	218	1	Substation	Automation - DSCADA
36		TAWAS	218	1	Substation	Automation - DSCADA
37		THAYER	218	1	Substation	Automation - DSCADA
38		TUSTIN	218	1	Substation	Automation - DSCADA
39		Union city	218	1	Substation	Automation - DSCADA
40		VENICE	218	1	Substation	Automation - DSCADA
41		WALDRON	218	1	Substation	Automation - DSCADA
42		WALLOON	218	1	Substation	Automation - DSCADA
43		WAMPLERS	218	1	Substation	Automation - DSCADA
44		WEST BRANCH	218	1	Substation	Automation - DSCADA
45		WESTERVELT	218	1	Substation	Automation - DSCADA
46		WESTPHALIA	218	1	Substation	Automation - DSCADA
47		WHITEHALL	218	1	Substation	Automation - DSCADA
48		WILDER	218	1	Substation	Automation - DSCADA
49		WILLOW	218	1	Substation	Automation - DSCADA
50		WINGATE	218	1	Substation	Automation - DSCADA
51		<b>Grid Modernization Subtotal</b>	<b>10,897</b>			
52		<b>Investment Category Total - DSCADA</b>	<b>21,795</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

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Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	Alber01_Liberty04	605	1 Loop		Automation - ATR Loops
2		Austin02_Zylman02	741	1 Loop		Automation - ATR Loops
3		Beals Road06_Doehler Jarvis05	350	1 Loop		Automation - ATR Loops
4		Bennett03_Okemos01	580	1 Loop		Automation - ATR Loops
5		Blue Star01_Fennville01	469	1 Loop		Automation - ATR Loops
6		Boston Square01_Ramona02	469	1 Loop		Automation - ATR Loops
7		Buchanan01_Pigeon Lake01	605	1 Loop		Automation - ATR Loops
8		Cambridge02_Brooklyn02	622	1 Loop		Automation - ATR Loops
9		Cochran02_Packard02	568	1 Loop		Automation - ATR Loops
10		Cowan Lake02_Harvard Lake02	820	1 Loop		Automation - ATR Loops
11		East Bay02_Peninsula01	821	1 Loop		Automation - ATR Loops
12		Elm St02_Goodale03	605	1 Loop		Automation - ATR Loops
13		Fifteen Mile Road01_Fifteen Mile Road02	667	1 Loop		Automation - ATR Loops
14		Four Mile02_Alpine02	605	1 Loop		Automation - ATR Loops
15		Hamilton01_Bentheim01	667	1 Loop		Automation - ATR Loops
16		Hospital01_Suttons Bay01	622	1 Loop		Automation - ATR Loops
17		Hull Street01_Cedar Springs03	721	1 Loop		Automation - ATR Loops
18		Lamoreaux01_Four Mile02	605	1 Loop		Automation - ATR Loops
19		Laundra01_Kochville01	667	1 Loop		Automation - ATR Loops
20		Markey02_Gerrish03	316	1 Loop		Automation - ATR Loops
21		Markey02_Lyon Manor01	316	1 Loop		Automation - ATR Loops
22		Markey03_Markey02	605	1 Loop		Automation - ATR Loops
23		Medical Park01_Ivanrest04	622	1 Loop		Automation - ATR Loops
24		Muskegon Heights05_Keating01	486	1 Loop		Automation - ATR Loops
25		Newburg02_Duffield02	605	1 Loop		Automation - ATR Loops
26		North Park02_North Kent03	469	1 Loop		Automation - ATR Loops
27		Rosewood03_Hagar Park02	798	1 Loop		Automation - ATR Loops
28		Spring Lake02_Fruitport02	662	1 Loop		Automation - ATR Loops
29		Stockbridge01_Gregory02	667	1 Loop		Automation - ATR Loops
30		Summit01_Micor01	568	1 Loop		Automation - ATR Loops
31		Surrey02_Clare01	690	1 Loop		Automation - ATR Loops
32		Teft Rd02_Shields02	568	1 Loop		Automation - ATR Loops
33		Terrace02_Keating01	605	1 Loop		Automation - ATR Loops
34		Thornapple01_Foreman01	503	1 Loop		Automation - ATR Loops
35		Van Buren03_Hager Park01	622	1 Loop		Automation - ATR Loops
36		Vandercook Lake03_Summit02	568	1 Loop		Automation - ATR Loops
37		West Clark Lake01_West Clark Lake02	605	1 Loop		Automation - ATR Loops
38		<b>Grid Modernization Subtotal</b>	<b>22,093</b>			
39		<b>Investment Category Total - ATR Loops</b>	<b>22,093</b>			

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	LSN22_ALAMO_FISH HATCHERY	44	17	Circuit	Automation - Line Sensors
2		LSN22_ALAMO_OWEN	44	17	Circuit	Automation - Line Sensors
3		LSN22_ALAMO_PINE GROVE	44	17	Circuit	Automation - Line Sensors
4		LSN22_ALDEN_CLAM	44	17	Circuit	Automation - Line Sensors
5		LSN22_ALDEN_TORCH	44	17	Circuit	Automation - Line Sensors
6		LSN22_ALLENDALE_BLENDON	44	17	Circuit	Automation - Line Sensors
7		LSN22_ALLENDALE_RIVER	44	17	Circuit	Automation - Line Sensors
8		LSN22_ALTO_ALTO	44	17	Circuit	Automation - Line Sensors
9		LSN22_ALTO_MCCORDS	44	17	Circuit	Automation - Line Sensors
10		LSN22_ATHENS_ATHENS	44	17	Circuit	Automation - Line Sensors
11		LSN22_ATHENS_SHERWOOD	44	17	Circuit	Automation - Line Sensors
12		LSN22_BEADLE_CREST	44	17	Circuit	Automation - Line Sensors
13		LSN22_BEADLE_SPAULDING	44	17	Circuit	Automation - Line Sensors
14		LSN22_BEDFORD_HALBERT	44	17	Circuit	Automation - Line Sensors
15		LSN22_BEDFORD_MEACHEM	44	17	Circuit	Automation - Line Sensors
16		LSN22_BELLEVUE_ASSYRIA	44	17	Circuit	Automation - Line Sensors
17		LSN22_BELLEVUE_BELLEVUE	44	17	Circuit	Automation - Line Sensors
18		LSN22_BLACK RIVER_FILLMORE	44	17	Circuit	Automation - Line Sensors
19		LSN22_BLACK RIVER_ZEELAND	44	17	Circuit	Automation - Line Sensors
20		LSN22_BLACKMAN_HURST	44	17	Circuit	Automation - Line Sensors
21		LSN22_BLACKMAN_MEIJERS	44	17	Circuit	Automation - Line Sensors
22		LSN22_BLACKMAN_SANDSTONE	44	17	Circuit	Automation - Line Sensors
23		LSN22_BLUE WATER_COLONY ROAD	44	17	Circuit	Automation - Line Sensors
24		LSN22_BLUE WATER_SCOTT ROAD	44	17	Circuit	Automation - Line Sensors
25		LSN22_BLUE WATER_TOWNSEND ROAD	44	17	Circuit	Automation - Line Sensors
26		LSN22_BROUGHWELL_MINARD	44	17	Circuit	Automation - Line Sensors
27		LSN22_BROUGHWELL_ONONDAGA	44	17	Circuit	Automation - Line Sensors
28		LSN22_BURR OAK_DOUGLAS	44	17	Circuit	Automation - Line Sensors
29		LSN22_BURR OAK_INDUSTRIAL	44	17	Circuit	Automation - Line Sensors
30		LSN22_BUSCH ROAD_CANADA	44	17	Circuit	Automation - Line Sensors
31		LSN22_BUSCH ROAD_CURTIS	44	17	Circuit	Automation - Line Sensors
32		LSN22_CAMELOT LAKE_COLEMAN	44	17	Circuit	Automation - Line Sensors
33		LSN22_CAMELOT LAKE_LOOMIS	44	17	Circuit	Automation - Line Sensors
34		LSN22_CASCO_BLUFF	44	17	Circuit	Automation - Line Sensors
35		LSN22_CASCO_HAWKHEAD	44	17	Circuit	Automation - Line Sensors
36		LSN22_CENTREVILLE_BUSINESS	44	17	Circuit	Automation - Line Sensors
37		LSN22_CENTREVILLE_COVERED BRIDGE	44	17	Circuit	Automation - Line Sensors
38		LSN22_CENTREVILLE_INDUSTRIAL	44	17	Circuit	Automation - Line Sensors
39		LSN22_CLEAR LAKE_HARVEY ROAD	44	17	Circuit	Automation - Line Sensors
40		LSN22_CLEAR LAKE_WATERLOO	44	17	Circuit	Automation - Line Sensors
41		LSN22_COCHRAN_KALAMO	44	17	Circuit	Automation - Line Sensors
42		LSN22_COCHRAN_SNOW	44	17	Circuit	Automation - Line Sensors
43		LSN22_COLEMAN_BROWN MACHINE	44	17	Circuit	Automation - Line Sensors
44		LSN22_COLEMAN_COLEMAN	44	17	Circuit	Automation - Line Sensors
45		LSN22_COLEMAN_RURAL	44	17	Circuit	Automation - Line Sensors
46		LSN22_COLON_COLON	44	17	Circuit	Automation - Line Sensors
47		LSN22_COLON_PALMER	44	17	Circuit	Automation - Line Sensors
48		LSN22_CRYSTAL_CRYSTAL ROAD	44	17	Circuit	Automation - Line Sensors
49		LSN22_CRYSTAL_MT HOPE ROAD	44	17	Circuit	Automation - Line Sensors
50		LSN22_EIGHT POINT_LAKE GEORGE	44	17	Circuit	Automation - Line Sensors
51		LSN22_EIGHT POINT_WHITE BIRCH	44	17	Circuit	Automation - Line Sensors
52		LSN22_FRONTIER_RANSOM	44	17	Circuit	Automation - Line Sensors
53		LSN22_FRONTIER_TAMARACK ROAD	44	17	Circuit	Automation - Line Sensors
54		LSN22_GRANT_CATALPA	44	17	Circuit	Automation - Line Sensors
55		LSN22_GRANT_GRANT	44	17	Circuit	Automation - Line Sensors
56		LSN22_GRANT_MASON DRIVE	44	17	Circuit	Automation - Line Sensors
57		LSN22_GREENVILLE_WASHINGTON ST	44	17	Circuit	Automation - Line Sensors
58		LSN22_GREENVILLE_WILLIAMS ST	44	17	Circuit	Automation - Line Sensors
59		LSN22_GREGORY_GREGORY	44	17	Circuit	Automation - Line Sensors
60		LSN22_GREGORY_UNADILLA	44	17	Circuit	Automation - Line Sensors
61		LSN22_GUN LAKE_ENGLAND	44	17	Circuit	Automation - Line Sensors
62		LSN22_GUN LAKE_TRAILS END	44	17	Circuit	Automation - Line Sensors
63		LSN22_HANOVER_HANOVER	44	17	Circuit	Automation - Line Sensors
64		LSN22_HANOVER_HORTON	44	17	Circuit	Automation - Line Sensors
65		LSN22_HANOVER_PULASKI	44	17	Circuit	Automation - Line Sensors
66		<b>Grid Modernization Subtotal</b>	<b>2,877</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	LSEN22_HASTINGS_BOLTWOOD	\$ 44	17	Circuit	Automation - Line Sensors
2		LSEN22_HASTINGS_BROADWAY	\$ 44	17	Circuit	Automation - Line Sensors
3		LSEN22_HASTINGS_HANOVER	\$ 44	17	Circuit	Automation - Line Sensors
4		LSEN22_HASTINGS_VIKING	\$ 44	17	Circuit	Automation - Line Sensors
5		LSEN22_HESPERIA_HESPERIA	\$ 44	17	Circuit	Automation - Line Sensors
6		LSEN22_HESPERIA_RURAL	\$ 44	17	Circuit	Automation - Line Sensors
7		LSEN22_HOWARD_CITY_CORAL	\$ 44	17	Circuit	Automation - Line Sensors
8		LSEN22_HOWARD_CITY_MORLEY	\$ 44	17	Circuit	Automation - Line Sensors
9		LSEN22_HULL_STREET_CRANBERRY	\$ 44	17	Circuit	Automation - Line Sensors
10		LSEN22_HULL_STREET_LIME LAKE	\$ 44	17	Circuit	Automation - Line Sensors
11		LSEN22_KINDERHOOK_GILEAD	\$ 44	17	Circuit	Automation - Line Sensors
12		LSEN22_KINDERHOOK_LAKE DRIVE	\$ 44	17	Circuit	Automation - Line Sensors
13		LSEN22_KOLASSA_KOSMERICK	\$ 44	17	Circuit	Automation - Line Sensors
14		LSEN22_KOLASSA_MATTESON	\$ 44	17	Circuit	Automation - Line Sensors
15		LSEN22_LAKE LEANN_BUNDY HILL	\$ 44	17	Circuit	Automation - Line Sensors
16		LSEN22_LAKE LEANN_LAKE LEANN	\$ 44	17	Circuit	Automation - Line Sensors
17		LSEN22_LELAND_LELAND	\$ 44	17	Circuit	Automation - Line Sensors
18		LSEN22_LELAND_NARROWS	\$ 44	17	Circuit	Automation - Line Sensors
19		LSEN22_LEVEL PARK_COLLIER	\$ 44	17	Circuit	Automation - Line Sensors
20		LSEN22_LEVEL PARK_LEVEL PARK	\$ 44	17	Circuit	Automation - Line Sensors
21		LSEN22_LYON MANOR_TOWN HALL	\$ 44	17	Circuit	Automation - Line Sensors
22		LSEN22_LYON MANOR_TREASURE	\$ 44	17	Circuit	Automation - Line Sensors
23		LSEN22_MARNE_MARNE	\$ 44	17	Circuit	Automation - Line Sensors
24		LSEN22_MARNE_WRIGHT	\$ 44	17	Circuit	Automation - Line Sensors
25		LSEN22_MERSON_DUCK LAKE	\$ 44	17	Circuit	Automation - Line Sensors
26		LSEN22_MERSON_MERSON	\$ 44	17	Circuit	Automation - Line Sensors
27		LSEN22_MERSON_PIKE LAKE	\$ 44	17	Circuit	Automation - Line Sensors
28		LSEN22_MILL GROVE_ALLEGAN HYDRO	\$ 44	17	Circuit	Automation - Line Sensors
29		LSEN22_MILL GROVE_BABYLON	\$ 44	17	Circuit	Automation - Line Sensors
30		LSEN22_MILL GROVE_DUMONT	\$ 44	17	Circuit	Automation - Line Sensors
31		LSEN22_MONTAGUE_DOWLING	\$ 44	17	Circuit	Automation - Line Sensors
32		LSEN22_MONTAGUE_NORTH SHORE	\$ 44	17	Circuit	Automation - Line Sensors
33		LSEN22_MORGAN_ST MARYS	\$ 44	17	Circuit	Automation - Line Sensors
34		LSEN22_MORGAN_ORCHARD	\$ 44	17	Circuit	Automation - Line Sensors
35		LSEN22_NEFF ROAD_DODGE ROAD	\$ 44	17	Circuit	Automation - Line Sensors
36		LSEN22_NEFF ROAD_LEWIS ROAD	\$ 44	17	Circuit	Automation - Line Sensors
37		LSEN22_NUNICA_LEONARD	\$ 44	17	Circuit	Automation - Line Sensors
38		LSEN22_NUNICA_WILSON	\$ 44	17	Circuit	Automation - Line Sensors
39		LSEN22_PITTSFORD_BIRD LAKE	\$ 44	17	Circuit	Automation - Line Sensors
40		LSEN22_PITTSFORD_CHURCH ROAD	\$ 44	17	Circuit	Automation - Line Sensors
41		LSEN22_PLAINFIELD_BELMONT	\$ 44	17	Circuit	Automation - Line Sensors
42		LSEN22_PLAINFIELD_KUTTSHILL	\$ 44	17	Circuit	Automation - Line Sensors
43		LSEN22_PLAINFIELD_WOOD	\$ 44	17	Circuit	Automation - Line Sensors
44		LSEN22_RAVENNA_MOORLAND	\$ 44	17	Circuit	Automation - Line Sensors
45		LSEN22_RAVENNA_RAVENNA	\$ 44	17	Circuit	Automation - Line Sensors
46		LSEN22_READING_CAMBRIA	\$ 44	17	Circuit	Automation - Line Sensors
47		LSEN22_READING_CITY	\$ 44	17	Circuit	Automation - Line Sensors
48		LSEN22_ROCKFORD_FRESKA LAKE	\$ 44	17	Circuit	Automation - Line Sensors
49		LSEN22_ROCKFORD_SUMMIT	\$ 44	17	Circuit	Automation - Line Sensors
50		LSEN22_ROCKFORD_WOLVERINE	\$ 44	17	Circuit	Automation - Line Sensors
51		LSEN22_SCOTTS_SCOTTS	\$ 44	17	Circuit	Automation - Line Sensors
52		LSEN22_SCOTTS_WHITE	\$ 44	17	Circuit	Automation - Line Sensors
53		LSEN22_SPRING DRIVE_BISHOP LAKE	\$ 44	17	Circuit	Automation - Line Sensors
54		LSEN22_SPRING DRIVE_FERRIS	\$ 44	17	Circuit	Automation - Line Sensors
55		LSEN22_SPRING DRIVE_HESS LAKE	\$ 44	17	Circuit	Automation - Line Sensors
56		LSEN22_STARKS_HOMER	\$ 44	17	Circuit	Automation - Line Sensors
57		LSEN22_STARKS_LEE	\$ 44	17	Circuit	Automation - Line Sensors
58		LSEN22_TEMPERANCE_CRABB ROAD	\$ 44	17	Circuit	Automation - Line Sensors
59		LSEN22_TEMPERANCE_WOOD ROAD	\$ 44	17	Circuit	Automation - Line Sensors
60		LSEN22_Texas_BASS LAKE	\$ 44	17	Circuit	Automation - Line Sensors
61		LSEN22_Texas_EAGLE LAKE	\$ 44	17	Circuit	Automation - Line Sensors
62		LSEN22_VANDERCOOK LAKE_ACKERSON LAKE	\$ 44	17	Circuit	Automation - Line Sensors
63		LSEN22_VANDERCOOK LAKE_HAGUE ROAD	\$ 44	17	Circuit	Automation - Line Sensors
64		LSEN22_VANDERCOOK LAKE_VANDERCOOK LAKE	\$ 44	17	Circuit	Automation - Line Sensors
65		<b>Grid Modernization Subtotal</b>	<b>2,833</b>			
66		<b>Investment Category Total - Line Sensors</b>	<b>5,710</b>			

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_ALDEN_TORCH_415	26	1	Line Reg Location	Automation - Regulator Controllers
2		REG22_ALTO_ALTO_745	26	1	Line Reg Location	Automation - Regulator Controllers
3		REG22_ALTO_ALTO_746	26	1	Line Reg Location	Automation - Regulator Controllers
4		REG22_ALTO_ALTO_957	26	1	Line Reg Location	Automation - Regulator Controllers
5		REG22_ALTO_ALTO_982	26	1	Line Reg Location	Automation - Regulator Controllers
6		REG22_ALTO_MCCORDS_417	26	1	Line Reg Location	Automation - Regulator Controllers
7		REG22_ALTO_MCCORDS_433	26	1	Line Reg Location	Automation - Regulator Controllers
8		REG22_ALTO_MCCORDS_451	26	1	Line Reg Location	Automation - Regulator Controllers
9		REG22_ALTO_MCCORDS_591	26	1	Line Reg Location	Automation - Regulator Controllers
10		REG22_BAILEY_BAILEY_84	26	1	Line Reg Location	Automation - Regulator Controllers
11		REG22_BAILEY_CHERRY_255	26	1	Line Reg Location	Automation - Regulator Controllers
12		REG22_BALDWIN_IDLEWILD_611	26	1	Line Reg Location	Automation - Regulator Controllers
13		REG22_BASS LAKE CARTER_413	26	1	Line Reg Location	Automation - Regulator Controllers
14		REG22_BASS LAKE KISTLER_159	26	1	Line Reg Location	Automation - Regulator Controllers
15		REG22_BASS LAKE KISTLER_629	26	1	Line Reg Location	Automation - Regulator Controllers
16		REG22_BATES_WILLIAMSBURG_123	26	1	Line Reg Location	Automation - Regulator Controllers
17		REG22_BECK ROAD_CONSEAR_37	26	1	Line Reg Location	Automation - Regulator Controllers
18		REG22_BEHNKE_ANGOLA ROAD_421	26	1	Line Reg Location	Automation - Regulator Controllers
19		REG22_BEHNKE_RIVER RD_361	26	1	Line Reg Location	Automation - Regulator Controllers
20		REG22_BEHNKE_RIVER RD_414	26	1	Line Reg Location	Automation - Regulator Controllers
21		REG22_BEHNKE_RIVER RD_774	26	1	Line Reg Location	Automation - Regulator Controllers
22		REG22_BEHNKE_RIVER RD_777	26	1	Line Reg Location	Automation - Regulator Controllers
23		REG22_BELLA VISTA_BLAKEY_667	26	1	Line Reg Location	Automation - Regulator Controllers
24		REG22_BIL-MAR_PIERCE_230	26	1	Line Reg Location	Automation - Regulator Controllers
25		REG22_BIL-MAR_PIERCE_528	26	1	Line Reg Location	Automation - Regulator Controllers
26		REG22_BIL-MAR_POLK_592	26	1	Line Reg Location	Automation - Regulator Controllers
27		REG22_BIL-MAR_POLK_623	26	1	Line Reg Location	Automation - Regulator Controllers
28		REG22_BLUE STAR_PIER COVE_766	26	1	Line Reg Location	Automation - Regulator Controllers
29		REG22_BLUE WATER_COLONY ROAD_6335	26	1	Line Reg Location	Automation - Regulator Controllers
30		REG22_BLUE WATER_TOWNSEND ROAD_542	26	1	Line Reg Location	Automation - Regulator Controllers
31		REG22_BLUE WATER_TOWNSEND ROAD_578	26	1	Line Reg Location	Automation - Regulator Controllers
32		REG22_BLUE WATER_TOWNSEND ROAD_601	26	1	Line Reg Location	Automation - Regulator Controllers
33		REG22_BOON ROAD_MITCHELL STREET_207	26	1	Line Reg Location	Automation - Regulator Controllers
34		REG22_BOON ROAD_ROUND LAKE_712	26	1	Line Reg Location	Automation - Regulator Controllers
35		REG22_BRIGDEN_VERONA PUMPING STATION BUS_1	26	1	Line Reg Location	Automation - Regulator Controllers
36		REG22_BROGAN_BROGAN_515	26	1	Line Reg Location	Automation - Regulator Controllers
37		REG22_BROGAN_BROGAN_828	26	1	Line Reg Location	Automation - Regulator Controllers
38		REG22_BRONSON_BRONSON_613	26	1	Line Reg Location	Automation - Regulator Controllers
39		REG22_BRONSON_INDUSTRIAL_229	26	1	Line Reg Location	Automation - Regulator Controllers
40		REG22_CADILLAC_BERRY LAKE_339	26	1	Line Reg Location	Automation - Regulator Controllers
41		REG22_CADILLAC_HOSPITAL_139	26	1	Line Reg Location	Automation - Regulator Controllers
42		REG22_CAMDEN_CAMDEN_113	26	1	Line Reg Location	Automation - Regulator Controllers
43		REG22_CAMDEN_CAMDEN_131	26	1	Line Reg Location	Automation - Regulator Controllers
44		REG22_CAMDEN_CAMDEN_143	26	1	Line Reg Location	Automation - Regulator Controllers
45		REG22_CAMDEN_CAMDEN_145	26	1	Line Reg Location	Automation - Regulator Controllers
46		REG22_CAMDEN_CAMDEN_249	26	1	Line Reg Location	Automation - Regulator Controllers
47		REG22_CAMDEN_MONTGOMERY_326	26	1	Line Reg Location	Automation - Regulator Controllers
48		REG22_CANNONSBURG_WEST CANNON_211	26	1	Line Reg Location	Automation - Regulator Controllers
49		REG22_CANNONSBURG_WEST CANNON_213	26	1	Line Reg Location	Automation - Regulator Controllers
50		REG22_CARLETON ROAD_BECK ROAD_589	26	1	Line Reg Location	Automation - Regulator Controllers
51		<b>Grid Modernization Subtotal</b>	<b>1,322</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

**Consumers Energy Company**

**Distribution Projects**

**Summary Projected Electric Capital Expenditures**

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_CEDAR SPRINGS_EDGERTON_465	26	1 Line Reg Location	Automation - Regulator Controllers	
2		REG22_CEDAR SPRINGS_NELSON_168	26	1 Line Reg Location	Automation - Regulator Controllers	
3		REG22_CEDAR SPRINGS_NELSON_244	26	1 Line Reg Location	Automation - Regulator Controllers	
4		REG22_CEDAR SPRINGS_NELSON_732	26	1 Line Reg Location	Automation - Regulator Controllers	
5		REG22_CHARLOTTE_FOOTE STREET_22	26	1 Line Reg Location	Automation - Regulator Controllers	
6		REG22_CHARLOTTE_FOOTE STREET_25	26	1 Line Reg Location	Automation - Regulator Controllers	
7		REG22_CHARLOTTE_SEMINARY STREET_547	26	1 Line Reg Location	Automation - Regulator Controllers	
8		REG22_CHARLOTTE_SEMINARY STREET_6982	26	1 Line Reg Location	Automation - Regulator Controllers	
9		REG22_CHARLOTTE_WATER WORKS_340	26	1 Line Reg Location	Automation - Regulator Controllers	
10		REG22_CLARKSVILLE_MORRISON LAKE_176	26	1 Line Reg Location	Automation - Regulator Controllers	
11		REG22_COMSTOCK_SHIELDS_477	26	1 Line Reg Location	Automation - Regulator Controllers	
12		REG22_COMSTOCK_TUNIER_403	26	1 Line Reg Location	Automation - Regulator Controllers	
13		REG22_COMSTOCK_TUNIER_714	26	1 Line Reg Location	Automation - Regulator Controllers	
14		REG22_CONKLIN PARK_CROTON_909	26	1 Line Reg Location	Automation - Regulator Controllers	
15		REG22_CONKLIN PARK_HOLLY_217	26	1 Line Reg Location	Automation - Regulator Controllers	
16		REG22_CONKLIN PARK_HOLLY_706	26	1 Line Reg Location	Automation - Regulator Controllers	
17		REG22_CONKLIN PARK_HOLLY_804	26	1 Line Reg Location	Automation - Regulator Controllers	
18		REG22_CONKLIN PARK_HOLLY_889	26	1 Line Reg Location	Automation - Regulator Controllers	
19		REG22_CONVIS_MAR CREEK_970	26	1 Line Reg Location	Automation - Regulator Controllers	
20		REG22_COOPER_COOPER CENTER_123	26	1 Line Reg Location	Automation - Regulator Controllers	
21		REG22_COOPER_NAGEL_422	26	1 Line Reg Location	Automation - Regulator Controllers	
22		REG22_CRYSTAL_CRYSTAL ROAD_465	26	1 Line Reg Location	Automation - Regulator Controllers	
23		REG22_CRYSTAL_CRYSTAL ROAD_514	26	1 Line Reg Location	Automation - Regulator Controllers	
24		REG22_CRYSTAL_MT HOPE ROAD_396	26	1 Line Reg Location	Automation - Regulator Controllers	
25		REG22_DERBY_BROWN_341	26	1 Line Reg Location	Automation - Regulator Controllers	
26		REG22_DERBY_BROWN_342	26	1 Line Reg Location	Automation - Regulator Controllers	
27		REG22_DERBY_DERBY_176	26	1 Line Reg Location	Automation - Regulator Controllers	
28		REG22_DERBY_DERBY_237	26	1 Line Reg Location	Automation - Regulator Controllers	
29		REG22_DERBY_DERBY_288	26	1 Line Reg Location	Automation - Regulator Controllers	
30		REG22_DERBY_DERBY_888	26	1 Line Reg Location	Automation - Regulator Controllers	
31		REG22_DEWITT_HOWE ROAD_520	26	1 Line Reg Location	Automation - Regulator Controllers	
32		REG22_DIMONDALE_DIMONDALE_655	26	1 Line Reg Location	Automation - Regulator Controllers	
33		REG22_DIMONDALE_DIMONDALE_890	26	1 Line Reg Location	Automation - Regulator Controllers	
34		REG22_DIMONDALE_M-99_541	26	1 Line Reg Location	Automation - Regulator Controllers	
35		REG22_DIMONDALE_M-99_61	26	1 Line Reg Location	Automation - Regulator Controllers	
36		REG22_DIMONDALE_M-99_778	26	1 Line Reg Location	Automation - Regulator Controllers	
37		REG22_DIMONDALE_ROSSMAN_373	26	1 Line Reg Location	Automation - Regulator Controllers	
38		REG22_EAST GRANT_MUD FLAT_141	26	1 Line Reg Location	Automation - Regulator Controllers	
39		REG22_ENSLEY_BAPTIST LAKE_717	26	1 Line Reg Location	Automation - Regulator Controllers	
40		REG22_ENSLEY_DISTRIBUTION_623	26	1 Line Reg Location	Automation - Regulator Controllers	
41		REG22_ENSLEY_DISTRIBUTION_625	26	1 Line Reg Location	Automation - Regulator Controllers	
42		REG22_ENSLEY_DISTRIBUTION_817	26	1 Line Reg Location	Automation - Regulator Controllers	
43		REG22_ENSLEY_DISTRIBUTION_888	26	1 Line Reg Location	Automation - Regulator Controllers	
44		REG22_ENSLEY_DISTRIBUTION_892	26	1 Line Reg Location	Automation - Regulator Controllers	
45		REG22_FAIRFIELD_JASPER_576	26	1 Line Reg Location	Automation - Regulator Controllers	
46		REG22_FAIRFIELD_JASPER_630	26	1 Line Reg Location	Automation - Regulator Controllers	
47		REG22_FINE LAKE_BRISTOL_217	26	1 Line Reg Location	Automation - Regulator Controllers	
48		REG22_FINE LAKE_BRISTOL_252	26	1 Line Reg Location	Automation - Regulator Controllers	
49		REG22_FINE LAKE_BRISTOL_288	26	1 Line Reg Location	Automation - Regulator Controllers	
50		REG22_FINE LAKE_DOWLING_544	26	1 Line Reg Location	Automation - Regulator Controllers	
51		<b>Grid Modernization Subtotal</b>	<b>1,322</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_FINE LAKE_DOWLING_594	26	1	Line Reg Location	Automation - Regulator Controllers
2		REG22_FINE LAKE_DOWLING_684	26	1	Line Reg Location	Automation - Regulator Controllers
3		REG22_FREEPORT_BOWNE CENTER_328	26	1	Line Reg Location	Automation - Regulator Controllers
4		REG22_FREEPORT_BOWNE CENTER_509	26	1	Line Reg Location	Automation - Regulator Controllers
5		REG22_FREEPORT_BOWNE CENTER_510	26	1	Line Reg Location	Automation - Regulator Controllers
6		REG22_FREEPORT_BOWNE CENTER_635	26	1	Line Reg Location	Automation - Regulator Controllers
7		REG22_FREEPORT_CARLTON CENTER_482	26	1	Line Reg Location	Automation - Regulator Controllers
8		REG22_FREEPORT_CARLTON CENTER_494	26	1	Line Reg Location	Automation - Regulator Controllers
9		REG22_FREEPORT_CARLTON CENTER_495	26	1	Line Reg Location	Automation - Regulator Controllers
10		REG22_GIRARD_DAYBURG ROAD_164	26	1	Line Reg Location	Automation - Regulator Controllers
11		REG22_GIRARD_DAYBURG ROAD_166	26	1	Line Reg Location	Automation - Regulator Controllers
12		REG22_GIRARD_GIRARD_321	26	1	Line Reg Location	Automation - Regulator Controllers
13		REG22_GIRARD_GIRARD_571	26	1	Line Reg Location	Automation - Regulator Controllers
14		REG22_GIRARD_GIRARD_586	26	1	Line Reg Location	Automation - Regulator Controllers
15		REG22_GLEN LAKE_ARBOR_8093	26	1	Line Reg Location	Automation - Regulator Controllers
16		REG22_GLEN LAKE_ARBOR_817	26	1	Line Reg Location	Automation - Regulator Controllers
17		REG22_GRAND LEDGE_WILLOW_544	26	1	Line Reg Location	Automation - Regulator Controllers
18		REG22_GREENVILLE_WASHINGTON ST_550	26	1	Line Reg Location	Automation - Regulator Controllers
19		REG22_GREENVILLE_WASHINGTON ST_666	26	1	Line Reg Location	Automation - Regulator Controllers
20		REG22_GREENVILLE_WASHINGTON ST_708	26	1	Line Reg Location	Automation - Regulator Controllers
21		REG22_GREENVILLE_WASHINGTON ST_802	26	1	Line Reg Location	Automation - Regulator Controllers
22		REG22_GREENVILLE_WILLIAMS ST_640	26	1	Line Reg Location	Automation - Regulator Controllers
23		REG22_GREENVILLE_WILLIAMS ST_761	26	1	Line Reg Location	Automation - Regulator Controllers
24		REG22_HALLS LAKE_HALLS LAKE_454	26	1	Line Reg Location	Automation - Regulator Controllers
25		REG22_HANOVER_HORTON_691	26	1	Line Reg Location	Automation - Regulator Controllers
26		REG22_HARRIETTA_BOON_405	26	1	Line Reg Location	Automation - Regulator Controllers
27		REG22_HARRIETTA_BOON_410	26	1	Line Reg Location	Automation - Regulator Controllers
28		REG22_HARRIETTA_BOON_505	26	1	Line Reg Location	Automation - Regulator Controllers
29		REG22_HARRIETTA_BOON_512	26	1	Line Reg Location	Automation - Regulator Controllers
30		REG22_HARRIETTA_BOON_564	26	1	Line Reg Location	Automation - Regulator Controllers
31		REG22_HARRIETTA_BOON_587	26	1	Line Reg Location	Automation - Regulator Controllers
32		REG22_HARRIETTA_BOON_660	26	1	Line Reg Location	Automation - Regulator Controllers
33		REG22_HARRIETTA_BOON_683	26	1	Line Reg Location	Automation - Regulator Controllers
34		REG22_HARRIETTA_BOON_687	26	1	Line Reg Location	Automation - Regulator Controllers
35		REG22_HARRIETTA_BOON_899	26	1	Line Reg Location	Automation - Regulator Controllers
36		REG22_HARRIETTA_CABERFAE_526	26	1	Line Reg Location	Automation - Regulator Controllers
37		REG22_HASTINGS_BOLTWOOD_295	26	1	Line Reg Location	Automation - Regulator Controllers
38		REG22_HASTINGS_BROADWAY_69	26	1	Line Reg Location	Automation - Regulator Controllers
39		REG22_HOGSBACK_PINE TREE_824	26	1	Line Reg Location	Automation - Regulator Controllers
40		REG22_HOGSBACK_SYCAMORE_700	26	1	Line Reg Location	Automation - Regulator Controllers
41		REG22_HOLTON_HOLTON_609	26	1	Line Reg Location	Automation - Regulator Controllers
42		REG22_HOMER_HOMER_417	26	1	Line Reg Location	Automation - Regulator Controllers
43		REG22_HOMER_HOMER_593	26	1	Line Reg Location	Automation - Regulator Controllers
44		REG22_HOMER_INDUSTRIAL_719	26	1	Line Reg Location	Automation - Regulator Controllers
45		REG22_HOMER_INDUSTRIAL_757	26	1	Line Reg Location	Automation - Regulator Controllers
46		REG22_HUBBARDSTON ROAD_HUBBARDSTON_349	26	1	Line Reg Location	Automation - Regulator Controllers
47		REG22_JONESVILLE_JONESVILLE_593	26	1	Line Reg Location	Automation - Regulator Controllers
48		REG22_JONESVILLE_JONESVILLE_681	26	1	Line Reg Location	Automation - Regulator Controllers
49		REG22_KENT CITY_CASNOVIA_467	26	1	Line Reg Location	Automation - Regulator Controllers
50		REG22_KENT CITY_CASNOVIA_878	26	1	Line Reg Location	Automation - Regulator Controllers
51		<b>Grid Modernization Subtotal</b>	<b>1,322</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

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Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a)	(b)	(c)	(d)	(e)	(f)
	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	Reliability (cont.)					
1	Grid Modernization (cont.)	REG22_KENT CITY_CASNOVIA_880	26	1 Line Reg Location	Automation - Regulator Controllers	
2		REG22_KENT CITY_CASNOVIA_919	26	1 Line Reg Location	Automation - Regulator Controllers	
3		REG22_KINDERHOOK_GILEAD_133	26	1 Line Reg Location	Automation - Regulator Controllers	
4		REG22_KINDERHOOK_GILEAD_134	26	1 Line Reg Location	Automation - Regulator Controllers	
5		REG22_KINDERHOOK_GILEAD_138	26	1 Line Reg Location	Automation - Regulator Controllers	
6		REG22_KINDERHOOK_GILEAD_346	26	1 Line Reg Location	Automation - Regulator Controllers	
7		REG22_KINDERHOOK_GILEAD_355	26	1 Line Reg Location	Automation - Regulator Controllers	
8		REG22_KINDERHOOK_GILEAD_367	26	1 Line Reg Location	Automation - Regulator Controllers	
9		REG22_KINDERHOOK_GILEAD_398	26	1 Line Reg Location	Automation - Regulator Controllers	
10		REG22_KINDERHOOK_GILEAD_439	26	1 Line Reg Location	Automation - Regulator Controllers	
11		REG22_KINDERHOOK_LAKE DRIVE_114	26	1 Line Reg Location	Automation - Regulator Controllers	
12		REG22_KINDERHOOK_LAKE DRIVE_781	26	1 Line Reg Location	Automation - Regulator Controllers	
13		REG22_KINDERHOOK_LAKE DRIVE_833	26	1 Line Reg Location	Automation - Regulator Controllers	
14		REG22_KINDERHOOK_LAKE DRIVE_889	26	1 Line Reg Location	Automation - Regulator Controllers	
15		REG22_KINDERHOOK_LAKE DRIVE_891	26	1 Line Reg Location	Automation - Regulator Controllers	
16		REG22_KINDERHOOK_LAKE DRIVE_893	26	1 Line Reg Location	Automation - Regulator Controllers	
17		REG22_KINDERHOOK_LAKE DRIVE_900	26	1 Line Reg Location	Automation - Regulator Controllers	
18		REG22_KINGSLEY_CENTER ROAD_528	26	1 Line Reg Location	Automation - Regulator Controllers	
19		REG22_KINGSLEY_CENTER ROAD_569	26	1 Line Reg Location	Automation - Regulator Controllers	
20		REG22_KINGSLEY_CENTER ROAD_575	26	1 Line Reg Location	Automation - Regulator Controllers	
21		REG22_KINGSLEY_WALTON_5679	26	1 Line Reg Location	Automation - Regulator Controllers	
22		REG22_KINGSLEY_WALTON_658	26	1 Line Reg Location	Automation - Regulator Controllers	
23		REG22_KINGSLEY_WALTON_661	26	1 Line Reg Location	Automation - Regulator Controllers	
24		REG22_KINGSLEY_WALTON_700	26	1 Line Reg Location	Automation - Regulator Controllers	
25		REG22_KINGSLEY_WALTON_7061	26	1 Line Reg Location	Automation - Regulator Controllers	
26		REG22_LABARGE_ALASKA_895	26	1 Line Reg Location	Automation - Regulator Controllers	
27		REG22_LABARGE_ALASKA_917	26	1 Line Reg Location	Automation - Regulator Controllers	
28		REG22_LABARGE_BLODGETT LAKE_21	26	1 Line Reg Location	Automation - Regulator Controllers	
29		REG22_LABARGE_BLODGETT LAKE_941	26	1 Line Reg Location	Automation - Regulator Controllers	
30		REG22_LABARGE_BLODGETT LAKE_96	26	1 Line Reg Location	Automation - Regulator Controllers	
31		REG22_LAKE CITY_JENNINGS_546	26	1 Line Reg Location	Automation - Regulator Controllers	
32		REG22_LAKE CITY_MOREY_305	26	1 Line Reg Location	Automation - Regulator Controllers	
33		REG22_LAKE CITY_MOREY_5018	26	1 Line Reg Location	Automation - Regulator Controllers	
34		REG22_LAKE CITY_MOREY_5049	26	1 Line Reg Location	Automation - Regulator Controllers	
35		REG22_LAKE CITY_MOREY_5248	26	1 Line Reg Location	Automation - Regulator Controllers	
36		REG22_LAKE CITY_MOREY_5279	26	1 Line Reg Location	Automation - Regulator Controllers	
37		REG22_LAKE CITY_STITTSVILLE_236	26	1 Line Reg Location	Automation - Regulator Controllers	
38		REG22_LAKE CITY_STITTSVILLE_265	26	1 Line Reg Location	Automation - Regulator Controllers	
39		REG22_LAKE CITY_STITTSVILLE_314	26	1 Line Reg Location	Automation - Regulator Controllers	
40		REG22_LAKE CITY_STITTSVILLE_5205	26	1 Line Reg Location	Automation - Regulator Controllers	
41		REG22_LAKE CITY_STITTSVILLE_5229	26	1 Line Reg Location	Automation - Regulator Controllers	
42		REG22_LAKE CITY_STITTSVILLE_5237	26	1 Line Reg Location	Automation - Regulator Controllers	
43		REG22_LAKE CITY_STITTSVILLE_617	26	1 Line Reg Location	Automation - Regulator Controllers	
44		REG22_LAKE CITY_STITTSVILLE_703	26	1 Line Reg Location	Automation - Regulator Controllers	
45		REG22_LAKE CITY_STITTSVILLE_705	26	1 Line Reg Location	Automation - Regulator Controllers	
46		REG22_LAKE CITY_STITTSVILLE_794	26	1 Line Reg Location	Automation - Regulator Controllers	
47		REG22_LAKE MITCHELL_CANAL_528	26	1 Line Reg Location	Automation - Regulator Controllers	
48		REG22_LAKE MITCHELL_GOLF CLUB_410	26	1 Line Reg Location	Automation - Regulator Controllers	
49		REG22_LAKE MITCHELL_GOLF CLUB_412	26	1 Line Reg Location	Automation - Regulator Controllers	
50		REG22_LAKE MITCHELL_GOLF CLUB_457	26	1 Line Reg Location	Automation - Regulator Controllers	
51		Grid Modernization Subtotal		1,322		

**MICHIGAN PUBLIC SERVICE COMMISSION**

**Consumers Energy Company**

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTB Blumenstock

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_LAKE MITCHELL_GOLF CLUB_470	26	1 Line Reg Location	Automation - Regulator Controllers	
2		REG22_LAKE MITCHELL_GOLF CLUB_542	26	1 Line Reg Location	Automation - Regulator Controllers	
3		REG22_LEVEL PARK_COLLIER_202	26	1 Line Reg Location	Automation - Regulator Controllers	
4		REG22_LITCHFIELD_ADAMS RD_526	26	1 Line Reg Location	Automation - Regulator Controllers	
5		REG22_LITCHFIELD_ADAMS RD_566	26	1 Line Reg Location	Automation - Regulator Controllers	
6		REG22_LITCHFIELD_QUAKER LAKE_433	26	1 Line Reg Location	Automation - Regulator Controllers	
7		REG22_LITCHFIELD_QUAKER LAKE_482	26	1 Line Reg Location	Automation - Regulator Controllers	
8		REG22_LITCHFIELD_QUAKER LAKE_546	26	1 Line Reg Location	Automation - Regulator Controllers	
9		REG22_LITCHFIELD_QUAKER LAKE_548	26	1 Line Reg Location	Automation - Regulator Controllers	
10		REG22_LITCHFIELD_QUAKER LAKE_604	26	1 Line Reg Location	Automation - Regulator Controllers	
11		REG22_LOOMIS_LOOMIS ROAD_515	26	1 Line Reg Location	Automation - Regulator Controllers	
12		REG22_LOOMIS_LOOMIS ROAD_559	26	1 Line Reg Location	Automation - Regulator Controllers	
13		REG22_LOOMIS_LOOMIS ROAD_600	26	1 Line Reg Location	Automation - Regulator Controllers	
14		REG22_LOOMIS_LOOMIS ROAD_618	26	1 Line Reg Location	Automation - Regulator Controllers	
15		REG22_LOOMIS_LOOMIS ROAD_7002	26	1 Line Reg Location	Automation - Regulator Controllers	
16		REG22_LOOMIS_LOOMIS ROAD_778	26	1 Line Reg Location	Automation - Regulator Controllers	
17		REG22_LOOMIS_TAFT ROAD_160	26	1 Line Reg Location	Automation - Regulator Controllers	
18		REG22_LOOMIS_TAFT ROAD_331	26	1 Line Reg Location	Automation - Regulator Controllers	
19		REG22_LYONS_LYONS-MUIR_271	26	1 Line Reg Location	Automation - Regulator Controllers	
20		REG22_MANISTEE_LAKE MICHIGAN_69	26	1 Line Reg Location	Automation - Regulator Controllers	
21		REG22_MANISTEE_LAKE MICHIGAN_926	26	1 Line Reg Location	Automation - Regulator Controllers	
22		REG22_MANISTEE_PARKDALE_139	26	1 Line Reg Location	Automation - Regulator Controllers	
23		REG22_MANITOU BEACH_ADDISON_534	26	1 Line Reg Location	Automation - Regulator Controllers	
24		REG22_MANITOU BEACH_DEVILS LAKE_277	26	1 Line Reg Location	Automation - Regulator Controllers	
25		REG22_MANITOU BEACH_DEVILS LAKE_281	26	1 Line Reg Location	Automation - Regulator Controllers	
26		REG22_MANITOU BEACH_DEVILS LAKE_548	26	1 Line Reg Location	Automation - Regulator Controllers	
27		REG22_MANTON_DOWNTOWN_349	26	1 Line Reg Location	Automation - Regulator Controllers	
28		REG22_MANTON_GILBERT_102	26	1 Line Reg Location	Automation - Regulator Controllers	
29		REG22_MANTON_GILBERT_107	26	1 Line Reg Location	Automation - Regulator Controllers	
30		REG22_MANTON_GILBERT_287	26	1 Line Reg Location	Automation - Regulator Controllers	
31		REG22_MANTON_GILBERT_847	26	1 Line Reg Location	Automation - Regulator Controllers	
32		REG22_MAPLE CITY_CEDAR_5113	26	1 Line Reg Location	Automation - Regulator Controllers	
33		REG22_MAPLE CITY_CEDAR_5274	26	1 Line Reg Location	Automation - Regulator Controllers	
34		REG22_MARION_GASCOM_146	26	1 Line Reg Location	Automation - Regulator Controllers	
35		REG22_MARION_GASCOM_25	26	1 Line Reg Location	Automation - Regulator Controllers	
36		REG22_MARION_GASCOM_261	26	1 Line Reg Location	Automation - Regulator Controllers	
37		REG22_MARION_MILL_161	26	1 Line Reg Location	Automation - Regulator Controllers	
38		REG22_MARION_MILL_185	26	1 Line Reg Location	Automation - Regulator Controllers	
39		REG22_MARKER LAKE_JACKSON ROAD_581	26	1 Line Reg Location	Automation - Regulator Controllers	
40		REG22_MARKER LAKE_KYSER ROAD_17	26	1 Line Reg Location	Automation - Regulator Controllers	
41		REG22_MARKER LAKE_KYSER ROAD_217	26	1 Line Reg Location	Automation - Regulator Controllers	
42		REG22_MARKER LAKE_KYSER ROAD_301	26	1 Line Reg Location	Automation - Regulator Controllers	
43		REG22_MARKER LAKE_KYSER ROAD_320	26	1 Line Reg Location	Automation - Regulator Controllers	
44		REG22_MARKER LAKE_KYSER ROAD_444	26	1 Line Reg Location	Automation - Regulator Controllers	
45		REG22_MARKER LAKE_KYSER ROAD_636	26	1 Line Reg Location	Automation - Regulator Controllers	
46		REG22_MARNE_MARNE_466	26	1 Line Reg Location	Automation - Regulator Controllers	
47		REG22_MASON_BUSINESS_243	26	1 Line Reg Location	Automation - Regulator Controllers	
48		REG22_MESICK_SHERMAN_150	26	1 Line Reg Location	Automation - Regulator Controllers	
49		REG22_MESICK_SHERMAN_286	26	1 Line Reg Location	Automation - Regulator Controllers	
50		REG22_MESICK_SHERMAN_514	26	1 Line Reg Location	Automation - Regulator Controllers	
51		Grid Modernization Subtotal		1,322		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_MESICK_SHERMAN_542	26	1	Line Reg Location	Automation - Regulator Controllers
2		REG22_MESICK_SHERMAN_645	26	1	Line Reg Location	Automation - Regulator Controllers
3		REG22_MESICK_SPRINGVILLE_328	26	1	Line Reg Location	Automation - Regulator Controllers
4		REG22_MESICK_SPRINGVILLE_451	26	1	Line Reg Location	Automation - Regulator Controllers
5		REG22_MONTAGUE_NORTH SHORE_760	26	1	Line Reg Location	Automation - Regulator Controllers
6		REG22_MORGAN_ORCHARD_418	26	1	Line Reg Location	Automation - Regulator Controllers
7		REG22_MORGAN_ST MARYS_253	26	1	Line Reg Location	Automation - Regulator Controllers
8		REG22_MORGAN_ST MARYS_289	26	1	Line Reg Location	Automation - Regulator Controllers
9		REG22_MORGAN_ST MARYS_293	26	1	Line Reg Location	Automation - Regulator Controllers
10		REG22_MORGAN_ST MARYS_489	26	1	Line Reg Location	Automation - Regulator Controllers
11		REG22_MORGAN_ST MARYS_585	26	1	Line Reg Location	Automation - Regulator Controllers
12		REG22_NESTROM_SCENIC DRIVE_355	26	1	Line Reg Location	Automation - Regulator Controllers
13		REG22_NESTROM_SCENIC DRIVE_356	26	1	Line Reg Location	Automation - Regulator Controllers
14		REG22_NINETEEN MILE RD_CEMENT_191	26	1	Line Reg Location	Automation - Regulator Controllers
15		REG22_NINETEEN MILE RD_CEMENT_403	26	1	Line Reg Location	Automation - Regulator Controllers
16		REG22_NINETEEN MILE RD_CEMENT_902	26	1	Line Reg Location	Automation - Regulator Controllers
17		REG22_NINETEEN MILE RD_INDUSTRIAL PARK_140	26	1	Line Reg Location	Automation - Regulator Controllers
18		REG22_NINETEEN MILE RD_INDUSTRIAL PARK_911	26	1	Line Reg Location	Automation - Regulator Controllers
19		REG22_NORTH MUSKEGON_STATE PARK_76	26	1	Line Reg Location	Automation - Regulator Controllers
20		REG22_NORTH MUSKEGON_STATE PARK_9331	26	1	Line Reg Location	Automation - Regulator Controllers
21		REG22_NORTHERN FIBRE_FIBRE_310	26	1	Line Reg Location	Automation - Regulator Controllers
22		REG22_NORTHERN FIBRE_FIBRE_459	26	1	Line Reg Location	Automation - Regulator Controllers
23		REG22_NORTHPORT_LIGHTHOUSE_6157	26	1	Line Reg Location	Automation - Regulator Controllers
24		REG22_NORTHPORT_MANITOU_321	26	1	Line Reg Location	Automation - Regulator Controllers
25		REG22_NORTHPORT_MANITOU_6415	26	1	Line Reg Location	Automation - Regulator Controllers
26		REG22_NUNICA_LEONARD_14	26	1	Line Reg Location	Automation - Regulator Controllers
27		REG22_OLIVET_AINGER_593	26	1	Line Reg Location	Automation - Regulator Controllers
28		REG22_OLIVET_COLLEGE_144	26	1	Line Reg Location	Automation - Regulator Controllers
29		REG22_OLIVET_COLLEGE_352	26	1	Line Reg Location	Automation - Regulator Controllers
30		REG22_ORLEANS_LONG LAKE_116	26	1	Line Reg Location	Automation - Regulator Controllers
31		REG22_ORLEANS_LONG LAKE_153	26	1	Line Reg Location	Automation - Regulator Controllers
32		REG22_ORLEANS_LONG LAKE_28	26	1	Line Reg Location	Automation - Regulator Controllers
33		REG22_ORLEANS_LONG LAKE_308	26	1	Line Reg Location	Automation - Regulator Controllers
34		REG22_ORLEANS_LONG LAKE_310	26	1	Line Reg Location	Automation - Regulator Controllers
35		REG22_ORLEANS_LONG LAKE_36	26	1	Line Reg Location	Automation - Regulator Controllers
36		REG22_ORLEANS_LONG LAKE_45	26	1	Line Reg Location	Automation - Regulator Controllers
37		REG22_ORLEANS_LONG LAKE_59	26	1	Line Reg Location	Automation - Regulator Controllers
38		REG22_ORLEANS_ORLEANS_154	26	1	Line Reg Location	Automation - Regulator Controllers
39		REG22_ORLEANS_ORLEANS_156	26	1	Line Reg Location	Automation - Regulator Controllers
40		REG22_ORLEANS_ORLEANS_191	26	1	Line Reg Location	Automation - Regulator Controllers
41		REG22_ORLEANS_ORLEANS_271	26	1	Line Reg Location	Automation - Regulator Controllers
42		REG22_ORLEANS_ORLEANS_666	26	1	Line Reg Location	Automation - Regulator Controllers
43		REG22_PALO_CHARLES ROAD_156	26	1	Line Reg Location	Automation - Regulator Controllers
44		REG22_PALO_CHARLES ROAD_241	26	1	Line Reg Location	Automation - Regulator Controllers
45		REG22_PALO_CHARLES ROAD_247	26	1	Line Reg Location	Automation - Regulator Controllers
46		REG22_PALO_CHARLES ROAD_319	26	1	Line Reg Location	Automation - Regulator Controllers
47		REG22_PALO_PALO_220	26	1	Line Reg Location	Automation - Regulator Controllers
48		REG22_PALO_PALO_245	26	1	Line Reg Location	Automation - Regulator Controllers
49		REG22_PELLSTON_BURT LAKE_494	26	1	Line Reg Location	Automation - Regulator Controllers
50		REG22_PELLSTON_BURT LAKE_582	26	1	Line Reg Location	Automation - Regulator Controllers
51	Grid Modernization Subtotal		1,322			

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Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

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Witness: RTBlumenstock

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_PENINSULA_MAPLETON_227	26	1 Line Reg Location	Automation - Regulator Controllers	
2		REG22_PENINSULA_MAPLETON_624	26	1 Line Reg Location	Automation - Regulator Controllers	
3		REG22_PENINSULA_MAPLETON_7518	26	1 Line Reg Location	Automation - Regulator Controllers	
4		REG22_PEWAMO_FOWLER_427	26	1 Line Reg Location	Automation - Regulator Controllers	
5		REG22_PIERSON_PIERSON_107	26	1 Line Reg Location	Automation - Regulator Controllers	
6		REG22_PIERSON_PIERSON_266	26	1 Line Reg Location	Automation - Regulator Controllers	
7		REG22_PIERSON_PIERSON_876	26	1 Line Reg Location	Automation - Regulator Controllers	
8		REG22_PIERSON_WHITEFISH_118	26	1 Line Reg Location	Automation - Regulator Controllers	
9		REG22_PIERSON_WHITEFISH_965	26	1 Line Reg Location	Automation - Regulator Controllers	
10		REG22_PISTON_RING_STEBBINS_207	26	1 Line Reg Location	Automation - Regulator Controllers	
11		REG22_PISTON_RING_STEBBINS_442	26	1 Line Reg Location	Automation - Regulator Controllers	
12		REG22_PLAINFIELD_BELMONT_265	26	1 Line Reg Location	Automation - Regulator Controllers	
13		REG22_PLAINFIELD_KUTTSHILL_607	26	1 Line Reg Location	Automation - Regulator Controllers	
14		REG22_PLAINFIELD_WOOD_102	26	1 Line Reg Location	Automation - Regulator Controllers	
15		REG22_PLAINFIELD_WOOD_124	26	1 Line Reg Location	Automation - Regulator Controllers	
16		REG22_POTTERVILLE_M-78_501	26	1 Line Reg Location	Automation - Regulator Controllers	
17		REG22_POTTERVILLE_M-78_557	26	1 Line Reg Location	Automation - Regulator Controllers	
18		REG22_POTTERVILLE_POTTERVILLE_133	26	1 Line Reg Location	Automation - Regulator Controllers	
19		REG22_POTTERVILLE_POTTERVILLE_135	26	1 Line Reg Location	Automation - Regulator Controllers	
20		REG22_PULLMAN_CHICORA_560	26	1 Line Reg Location	Automation - Regulator Controllers	
21		REG22_PULLMAN_CHICORA_928	26	1 Line Reg Location	Automation - Regulator Controllers	
22		REG22_PULLMAN_PULLMAN_94	26	1 Line Reg Location	Automation - Regulator Controllers	
23		REG22_READING_CAMBRIA_511	26	1 Line Reg Location	Automation - Regulator Controllers	
24		REG22_READING_CAMBRIA_535	26	1 Line Reg Location	Automation - Regulator Controllers	
25		REG22_READING_CAMBRIA_550	26	1 Line Reg Location	Automation - Regulator Controllers	
26		REG22_READING_CAMBRIA_576	26	1 Line Reg Location	Automation - Regulator Controllers	
27		REG22_READING_CAMBRIA_590	26	1 Line Reg Location	Automation - Regulator Controllers	
28		REG22_READING_CAMBRIA_773	26	1 Line Reg Location	Automation - Regulator Controllers	
29		REG22_REMUS_MECOSTA_388	26	1 Line Reg Location	Automation - Regulator Controllers	
30		REG22_REMUS_MECOSTA_702	26	1 Line Reg Location	Automation - Regulator Controllers	
31		REG22_REMUS_MECOSTA_751	26	1 Line Reg Location	Automation - Regulator Controllers	
32		REG22_REMUS_MECOSTA_826	26	1 Line Reg Location	Automation - Regulator Controllers	
33		REG22_REMUS_MILLBROOK_507	26	1 Line Reg Location	Automation - Regulator Controllers	
34		REG22_REMUS_MILLBROOK_510	26	1 Line Reg Location	Automation - Regulator Controllers	
35		REG22_REMUS_MILLBROOK_611	26	1 Line Reg Location	Automation - Regulator Controllers	
36		REG22_RIGA_BIERMAN_607	26	1 Line Reg Location	Automation - Regulator Controllers	
37		REG22_RIGA_GOETZ_507	26	1 Line Reg Location	Automation - Regulator Controllers	
38		REG22_RIGA_GOETZ_599	26	1 Line Reg Location	Automation - Regulator Controllers	
39		REG22_ROUND LAKE_ASPHALT_153	26	1 Line Reg Location	Automation - Regulator Controllers	
40		REG22_SARANAC_CENTERLINE_511	26	1 Line Reg Location	Automation - Regulator Controllers	
41		REG22_SARANAC_CENTERLINE_702	26	1 Line Reg Location	Automation - Regulator Controllers	
42		REG22_SARANAC_KEENE_701	26	1 Line Reg Location	Automation - Regulator Controllers	
43		REG22_SARANAC_KEENE_776	26	1 Line Reg Location	Automation - Regulator Controllers	
44		REG22_SARANAC_KEENE_815	26	1 Line Reg Location	Automation - Regulator Controllers	
45		REG22_SARANAC_KEENE_850	26	1 Line Reg Location	Automation - Regulator Controllers	
46		REG22_SARANAC_KEENE_916	26	1 Line Reg Location	Automation - Regulator Controllers	
47		REG22_SARANAC_KEENE_919	26	1 Line Reg Location	Automation - Regulator Controllers	
48		REG22_SARANAC_KEENE_921	26	1 Line Reg Location	Automation - Regulator Controllers	
49		REG22_SARANAC_KEENE_922	26	1 Line Reg Location	Automation - Regulator Controllers	
50		REG22_SARANAC_RIVERSIDE_527	26	1 Line Reg Location	Automation - Regulator Controllers	
51	Grid Modernization Subtotal		1,322			

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_SARANAC_RIVERSIDE_530	26	1	Line Reg Location	Automation - Regulator Controllers
2		REG22_SARANAC_RIVERSIDE_532	26	1	Line Reg Location	Automation - Regulator Controllers
3		REG22_SARANAC_SARANAC_963	26	1	Line Reg Location	Automation - Regulator Controllers
4		REG22_SCIPIO_MOSHERVILLE_354	26	1	Line Reg Location	Automation - Regulator Controllers
5		REG22_SCIPIO_MOSHERVILLE_389	26	1	Line Reg Location	Automation - Regulator Controllers
6		REG22_SCIPIO_POPE ROAD_945	26	1	Line Reg Location	Automation - Regulator Controllers
7		REG22_SCIPIO_POPE ROAD_990	26	1	Line Reg Location	Automation - Regulator Controllers
8		REG22_SHERIDAN_FENWICK_111	26	1	Line Reg Location	Automation - Regulator Controllers
9		REG22_SHERIDAN_FENWICK_179	26	1	Line Reg Location	Automation - Regulator Controllers
10		REG22_SHERIDAN_FENWICK_194	26	1	Line Reg Location	Automation - Regulator Controllers
11		REG22_SHERIDAN_FENWICK_196	26	1	Line Reg Location	Automation - Regulator Controllers
12		REG22_SHERIDAN_FENWICK_333	26	1	Line Reg Location	Automation - Regulator Controllers
13		REG22_SHERIDAN_FENWICK_666	26	1	Line Reg Location	Automation - Regulator Controllers
14		REG22_SHERIDAN_FENWICK_777	26	1	Line Reg Location	Automation - Regulator Controllers
15		REG22_SHERIDAN_FENWICK_801	26	1	Line Reg Location	Automation - Regulator Controllers
16		REG22_SHERIDAN_FENWICK_83	26	1	Line Reg Location	Automation - Regulator Controllers
17		REG22_SHERIDAN_FENWICK_96	26	1	Line Reg Location	Automation - Regulator Controllers
18		REG22_SHERIDAN_SIDNEY_177	26	1	Line Reg Location	Automation - Regulator Controllers
19		REG22_STANTON_DICKERSON LAKE_664	26	1	Line Reg Location	Automation - Regulator Controllers
20		REG22_STANTON_DICKERSON LAKE_665	26	1	Line Reg Location	Automation - Regulator Controllers
21		REG22_STANTON_DICKERSON LAKE_670	26	1	Line Reg Location	Automation - Regulator Controllers
22		REG22_STANTON_STANTON_327	26	1	Line Reg Location	Automation - Regulator Controllers
23		REG22_STERNS ROAD_POINT PLACE_239	26	1	Line Reg Location	Automation - Regulator Controllers
24		REG22_STONEY CORNERS_DAIRY_283	26	1	Line Reg Location	Automation - Regulator Controllers
25		REG22_STONEY CORNERS_DAIRY_317	26	1	Line Reg Location	Automation - Regulator Controllers
26		REG22_STONEY CORNERS_DAIRY_355	26	1	Line Reg Location	Automation - Regulator Controllers
27		REG22_STONEY CORNERS_DAIRY_501	26	1	Line Reg Location	Automation - Regulator Controllers
28		REG22_STONEY CORNERS_DAIRY_502	26	1	Line Reg Location	Automation - Regulator Controllers
29		REG22_STONEY CORNERS_DAIRY_522	26	1	Line Reg Location	Automation - Regulator Controllers
30		REG22_STONEY CORNERS_STONE LEDGE_5176	26	1	Line Reg Location	Automation - Regulator Controllers
31		REG22_SUTTONS BAY_BINGHAM_7105	26	1	Line Reg Location	Automation - Regulator Controllers
32		REG22_TEKONSHA_TEKONSHA_251	26	1	Line Reg Location	Automation - Regulator Controllers
33		REG22_TEKONSHA_TEKONSHA_333	26	1	Line Reg Location	Automation - Regulator Controllers
34		REG22_TEKONSHA_TEKONSHA_336	26	1	Line Reg Location	Automation - Regulator Controllers
35		REG22_TEKONSHA_TEKONSHA_661	26	1	Line Reg Location	Automation - Regulator Controllers
36		REG22_TEKONSHA_TEKONSHA_677	26	1	Line Reg Location	Automation - Regulator Controllers
37		REG22_TEKONSHA_WAGNER_240	26	1	Line Reg Location	Automation - Regulator Controllers
38		REG22_TEKONSHA_WAGNER_425	26	1	Line Reg Location	Automation - Regulator Controllers
39		REG22_TEKONSHA_WAGNER_515	26	1	Line Reg Location	Automation - Regulator Controllers
40		REG22_TEKONSHA_WAGNER_95	26	1	Line Reg Location	Automation - Regulator Controllers
41		REG22_TRUFANT_GOWEN_567	26	1	Line Reg Location	Automation - Regulator Controllers
42		REG22_TRUFANT_GOWEN_577	26	1	Line Reg Location	Automation - Regulator Controllers
43		REG22_TRUFANT_GOWEN_603	26	1	Line Reg Location	Automation - Regulator Controllers
44		REG22_TRUFANT_GOWEN_651	26	1	Line Reg Location	Automation - Regulator Controllers
45		REG22_TRUFANT_GOWEN_831	26	1	Line Reg Location	Automation - Regulator Controllers
46		REG22_TRUFANT_HUNTER LAKE_104	26	1	Line Reg Location	Automation - Regulator Controllers
47		REG22_TRUFANT_HUNTER LAKE_444	26	1	Line Reg Location	Automation - Regulator Controllers
48		REG22_TRUFANT_HUNTER LAKE_449	26	1	Line Reg Location	Automation - Regulator Controllers
49		REG22_TRUFANT_HUNTER LAKE_502	26	1	Line Reg Location	Automation - Regulator Controllers
50		REG22_TRUFANT_HUNTER LAKE_777	26	1	Line Reg Location	Automation - Regulator Controllers
51	Grid Modernization Subtotal		1,322			

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Summary Projected Electric Capital Expenditures

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	REG22_TRUFANT_MASTON LAKE_590	26	1 Line Reg Location	Automation - Regulator Controllers	
2		REG22_TRUFANT_TRUFANT_109	26	1 Line Reg Location	Automation - Regulator Controllers	
3		REG22_TWIN LAKE_TWIN LAKE_727	26	1 Line Reg Location	Automation - Regulator Controllers	
4		REG22_VAN ATTA_VAN ATTA_12	26	1 Line Reg Location	Automation - Regulator Controllers	
5		REG22_VAN ATTA_VAN ATTA_476	26	1 Line Reg Location	Automation - Regulator Controllers	
6		REG22_VANDERBILT_WOLVERINE_450	26	1 Line Reg Location	Automation - Regulator Controllers	
7		REG22_WAKESHMA_FULTON_612	26	1 Line Reg Location	Automation - Regulator Controllers	
8		REG22_WAKESHMA_LEONIDAS_571	26	1 Line Reg Location	Automation - Regulator Controllers	
9		REG22_WAKESHMA_LEONIDAS_655	26	1 Line Reg Location	Automation - Regulator Controllers	
10		REG22_WALDRON_MUNSON_314	26	1 Line Reg Location	Automation - Regulator Controllers	
11		REG22_WAMPLERS_FRANKLIN_100	26	1 Line Reg Location	Automation - Regulator Controllers	
12		REG22_WAMPLERS_WAMPLERS_173	26	1 Line Reg Location	Automation - Regulator Controllers	
13		REG22_WAYLAND_WAYLAND_893	26	1 Line Reg Location	Automation - Regulator Controllers	
14		REG22_WHITE CLOUD_WILLIAM STREET_723	26	1 Line Reg Location	Automation - Regulator Controllers	
15		REG22_WHITTUM_KINNEVILLE_315	26	1 Line Reg Location	Automation - Regulator Controllers	
16		REG22_WHITTUM_ROYSTON_225	26	1 Line Reg Location	Automation - Regulator Controllers	
17		REG22_WILDER_WILDER_206	26	1 Line Reg Location	Automation - Regulator Controllers	
18		REG22_WINGATE_NORTH_53	26	1 Line Reg Location	Automation - Regulator Controllers	
19		REG22_WINGATE_NORTH_54	26	1 Line Reg Location	Automation - Regulator Controllers	
20		REG22_WINGATE_NORTH_616	26	1 Line Reg Location	Automation - Regulator Controllers	
21		REG22_WINGATE_SOUTH_210	26	1 Line Reg Location	Automation - Regulator Controllers	
22		REG22_WOODLAND_BARNUM_923	26	1 Line Reg Location	Automation - Regulator Controllers	
23		REG22_WOODLAND_WOODBURY_180	26	1 Line Reg Location	Automation - Regulator Controllers	
24		REG22_WOODWARD_PLEASANT LAKE_5066	26	1 Line Reg Location	Automation - Regulator Controllers	
25		REG22_WOODWARD_PLEASANT LAKE_527	26	1 Line Reg Location	Automation - Regulator Controllers	
26		REG22_WOODWARD_PLEASANT LAKE_993	26	1 Line Reg Location	Automation - Regulator Controllers	
27		REG22_WOODWARD_WOODWARD LAKE_402	26	1 Line Reg Location	Automation - Regulator Controllers	
28		REG22_WOODWARD_WOODWARD LAKE_614	26	1 Line Reg Location	Automation - Regulator Controllers	
29		REG22_WOODWARD_WOODWARD LAKE_903	26	1 Line Reg Location	Automation - Regulator Controllers	
30		REG22_WOODWARD_WOODWARD LAKE_911	26	1 Line Reg Location	Automation - Regulator Controllers	
31			<b>Grid Modernization Subtotal</b>	<b>793</b>		
	<b>Investment Category Total - Regulator Controllers</b>		<b>11,373</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

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Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b><u>Reliability (cont.)</u></b>					
1	Grid Modernization (cont.)	NCS22_ALGER		4	1 Substation	Automation - Capacitor Upgrades
2		NCS22_ASH ROAD		4	1 Substation	Automation - Capacitor Upgrades
3		NCS22_ATHENS		4	1 Substation	Automation - Capacitor Upgrades
4		NCS22_ATWATER		4	1 Substation	Automation - Capacitor Upgrades
5		NCS22_AUBIL LAKE		4	1 Substation	Automation - Capacitor Upgrades
6		NCS22_AUGUSTA		4	1 Substation	Automation - Capacitor Upgrades
7		NCS22_AUSTIN		4	1 Substation	Automation - Capacitor Upgrades
8		NCS22_BABCOCK		4	1 Substation	Automation - Capacitor Upgrades
9		NCS22_BALCOM		4	1 Substation	Automation - Capacitor Upgrades
10		NCS22_BALDWIN		4	1 Substation	Automation - Capacitor Upgrades
11		NCS22_BALZER		4	1 Substation	Automation - Capacitor Upgrades
12		NCS22_BARNARD		4	1 Substation	Automation - Capacitor Upgrades
13		NCS22_BARNUM CREEK		4	1 Substation	Automation - Capacitor Upgrades
14		NCS22_BATTEESE		4	1 Substation	Automation - Capacitor Upgrades
15		NCS22_BAVARIAN		4	1 Substation	Automation - Capacitor Upgrades
16		NCS22_BEADLE		4	1 Substation	Automation - Capacitor Upgrades
17		NCS22_BEAVER		4	1 Substation	Automation - Capacitor Upgrades
18		NCS22_BEECHER		4	1 Substation	Automation - Capacitor Upgrades
19		NCS22_BLACKMAN		4	1 Substation	Automation - Capacitor Upgrades
20		NCS22_BRIDGE STREET		4	1 Substation	Automation - Capacitor Upgrades
21		NCS22_BROUGHWELL		4	1 Substation	Automation - Capacitor Upgrades
22		NCS22_BURR OAK		4	1 Substation	Automation - Capacitor Upgrades
23		NCS22_BURTCH ROAD		4	1 Substation	Automation - Capacitor Upgrades
24		NCS22_CADMUS		4	1 Substation	Automation - Capacitor Upgrades
25		NCS22_CAMBRIDGE		4	1 Substation	Automation - Capacitor Upgrades
26		NCS22_CAMDEN		4	1 Substation	Automation - Capacitor Upgrades
27		NCS22_CARROLL		4	1 Substation	Automation - Capacitor Upgrades
28		NCS22_CARY ROAD		4	1 Substation	Automation - Capacitor Upgrades
29		NCS22_CENTRAL		4	1 Substation	Automation - Capacitor Upgrades
30		NCS22_CENTREVILLE		4	1 Substation	Automation - Capacitor Upgrades
31		NCS22_CHAUNCEY		4	1 Substation	Automation - Capacitor Upgrades
32		NCS22_CLARKSVILLE		4	1 Substation	Automation - Capacitor Upgrades
33		NCS22_CLEAR LAKE		4	1 Substation	Automation - Capacitor Upgrades
34		NCS22_COLLEGE PARK		4	1 Substation	Automation - Capacitor Upgrades
35		NCS22_COLON		4	1 Substation	Automation - Capacitor Upgrades
36		NCS22_CONCORD		4	1 Substation	Automation - Capacitor Upgrades
37		NCS22_COOLEY		4	1 Substation	Automation - Capacitor Upgrades
38		NCS22_DELTON		4	1 Substation	Automation - Capacitor Upgrades
39		NCS22_DEXTER TRAIL		4	1 Substation	Automation - Capacitor Upgrades
40		NCS22_DIETZ		4	1 Substation	Automation - Capacitor Upgrades
41		NCS22_DRAKE ROAD		4	1 Substation	Automation - Capacitor Upgrades
42		NCS22_DUCK LAKE		4	1 Substation	Automation - Capacitor Upgrades
43		NCS22_EAST JACKSON		4	1 Substation	Automation - Capacitor Upgrades
44		NCS22_ELM STREET		4	1 Substation	Automation - Capacitor Upgrades
45		NCS22_EMERALD		4	1 Substation	Automation - Capacitor Upgrades
46		NCS22_FAIRFIELD		4	1 Substation	Automation - Capacitor Upgrades
47		NCS22_FERGUSON		4	1 Substation	Automation - Capacitor Upgrades
48		NCS22_FIFTEEN MILE ROAD		4	1 Substation	Automation - Capacitor Upgrades
49		NCS22_FORT CUSTER		4	1 Substation	Automation - Capacitor Upgrades
50		NCS22_FRONTIER		4	1 Substation	Automation - Capacitor Upgrades
51		<b>Grid Modernization Subtotal</b>		<b>176</b>		

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Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	NCS22_GALESBURG		4	1 Substation	Automation - Capacitor Upgrades
2		NCS22_GERRISH		4	1 Substation	Automation - Capacitor Upgrades
3		NCS22_GLENDALE		4	1 Substation	Automation - Capacitor Upgrades
4		NCS22_GOGUAC		4	1 Substation	Automation - Capacitor Upgrades
5		NCS22_GOODALE		4	1 Substation	Automation - Capacitor Upgrades
6		NCS22_GRASS LAKE		4	1 Substation	Automation - Capacitor Upgrades
7		NCS22_GREENWOOD		4	1 Substation	Automation - Capacitor Upgrades
8		NCS22_GREGORY		4	1 Substation	Automation - Capacitor Upgrades
9		NCS22_GUN LAKE		4	1 Substation	Automation - Capacitor Upgrades
10		NCS22_HANOVER		4	1 Substation	Automation - Capacitor Upgrades
11		NCS22_HASTINGS		4	1 Substation	Automation - Capacitor Upgrades
12		NCS22_HUDSON		4	1 Substation	Automation - Capacitor Upgrades
13		NCS22_HUNT ROAD		4	1 Substation	Automation - Capacitor Upgrades
14		NCS22_INGHAM		4	1 Substation	Automation - Capacitor Upgrades
15		NCS22_JANES		4	1 Substation	Automation - Capacitor Upgrades
16		NCS22_JEFFS ROAD		4	1 Substation	Automation - Capacitor Upgrades
17		NCS22_JONESVILLE		4	1 Substation	Automation - Capacitor Upgrades
18		NCS22_JOPPA		4	1 Substation	Automation - Capacitor Upgrades
19		NCS22_KALARAMA		4	1 Substation	Automation - Capacitor Upgrades
20		NCS22_KENDALL		4	1 Substation	Automation - Capacitor Upgrades
21		NCS22_KILGORE		4	1 Substation	Automation - Capacitor Upgrades
22		NCS22_KOLASSA		4	1 Substation	Automation - Capacitor Upgrades
23		NCS22_LAKE LEANN		4	1 Substation	Automation - Capacitor Upgrades
24		NCS22_LAKE ODESSA		4	1 Substation	Automation - Capacitor Upgrades
25		NCS22_LAMBERTVILLE		4	1 Substation	Automation - Capacitor Upgrades
26		NCS22_LEHRING		4	1 Substation	Automation - Capacitor Upgrades
27		NCS22_LESLIE		4	1 Substation	Automation - Capacitor Upgrades
28		NCS22_LIBERTY		4	1 Substation	Automation - Capacitor Upgrades
29		NCS22_LOCH ERIN		4	1 Substation	Automation - Capacitor Upgrades
30		NCS22_LOMBARD		4	1 Substation	Automation - Capacitor Upgrades
31		NCS22_MACKINAW CITY		4	1 Substation	Automation - Capacitor Upgrades
32		NCS22_MANCHESTER		4	1 Substation	Automation - Capacitor Upgrades
33		NCS22_MARKER LANE		4	1 Substation	Automation - Capacitor Upgrades
34		NCS22_MAUMEE		4	1 Substation	Automation - Capacitor Upgrades
35		NCS22_MENDON		4	1 Substation	Automation - Capacitor Upgrades
36		NCS22_MICHIGAN CENTER		4	1 Substation	Automation - Capacitor Upgrades
37		NCS22_MICOR		4	1 Substation	Automation - Capacitor Upgrades
38		NCS22_MIDDLETON		4	1 Substation	Automation - Capacitor Upgrades
39		NCS22_MIDDLEVILLE		4	1 Substation	Automation - Capacitor Upgrades
40		NCS22_MIDWAY		4	1 Substation	Automation - Capacitor Upgrades
41		NCS22_MILLERS POINT		4	1 Substation	Automation - Capacitor Upgrades
42		NCS22_MORENCI		4	1 Substation	Automation - Capacitor Upgrades
43		NCS22_MORRELL		4	1 Substation	Automation - Capacitor Upgrades
44		NCS22_NAPOLEON		4	1 Substation	Automation - Capacitor Upgrades
45		NCS22_NASHVILLE		4	1 Substation	Automation - Capacitor Upgrades
46		NCS22_OAK STREET		4	1 Substation	Automation - Capacitor Upgrades
47		NCS22_OAKWOOD		4	1 Substation	Automation - Capacitor Upgrades
48		NCS22_ONSTED		4	1 Substation	Automation - Capacitor Upgrades
49		NCS22_OSHTEMO		4	1 Substation	Automation - Capacitor Upgrades
50		NCS22_OWOSSO		4	1 Substation	Automation - Capacitor Upgrades
51		<b>Grid Modernization Subtotal</b>		<b>176</b>		

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Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	Grid Modernization (cont.)	NCS22_PALMYRA		4	1 Substation	Automation - Capacitor Upgrades
2		NCS22_PARKWAY		4	1 Substation	Automation - Capacitor Upgrades
3		NCS22_PARMA		4	1 Substation	Automation - Capacitor Upgrades
4		NCS22_PARNALL		4	1 Substation	Automation - Capacitor Upgrades
5		NCS22_PAVILION		4	1 Substation	Automation - Capacitor Upgrades
6		NCS22_PENTWATER		4	1 Substation	Automation - Capacitor Upgrades
7		NCS22_PHILLIPS		4	1 Substation	Automation - Capacitor Upgrades
8		NCS22_PICKEREL		4	1 Substation	Automation - Capacitor Upgrades
9		NCS22_PITCHER		4	1 Substation	Automation - Capacitor Upgrades
10		NCS22_PITTSFORD		4	1 Substation	Automation - Capacitor Upgrades
11		NCS22_PORT CALCITE		4	1 Substation	Automation - Capacitor Upgrades
12		NCS22_PORTAGE		4	1 Substation	Automation - Capacitor Upgrades
13		NCS22_PRINCETON		4	1 Substation	Automation - Capacitor Upgrades
14		NCS22_QUINCY		4	1 Substation	Automation - Capacitor Upgrades
15		NCS22_RAVINE		4	1 Substation	Automation - Capacitor Upgrades
16		NCS22_REYNOLDS		4	1 Substation	Automation - Capacitor Upgrades
17		NCS22_RICHLAND		4	1 Substation	Automation - Capacitor Upgrades
18		NCS22_RIDGEVIEW		4	1 Substation	Automation - Capacitor Upgrades
19		NCS22_RIX ROAD		4	1 Substation	Automation - Capacitor Upgrades
20		NCS22_ROBERTS STREET		4	1 Substation	Automation - Capacitor Upgrades
21		NCS22_ROLLIN		4	1 Substation	Automation - Capacitor Upgrades
22		NCS22_ROSCOMMON		4	1 Substation	Automation - Capacitor Upgrades
23		NCS22_RUTLAND		4	1 Substation	Automation - Capacitor Upgrades
24		NCS22_SANFORD DAM		4	1 Substation	Automation - Capacitor Upgrades
25		NCS22_SCHOOL ROAD		4	1 Substation	Automation - Capacitor Upgrades
26		NCS22_SCOTTS		4	1 Substation	Automation - Capacitor Upgrades
27		NCS22_SCOTTVILLE		4	1 Substation	Automation - Capacitor Upgrades
28		NCS22_SHARON HOLLOW		4	1 Substation	Automation - Capacitor Upgrades
29		NCS22_SPRING ARBOR		4	1 Substation	Automation - Capacitor Upgrades
30		NCS22_SPRINGPORT		4	1 Substation	Automation - Capacitor Upgrades
31		NCS22_SPRINKLE		4	1 Substation	Automation - Capacitor Upgrades
32		NCS22_SQUIRES		4	1 Substation	Automation - Capacitor Upgrades
33		NCS22_ST HELEN		4	1 Substation	Automation - Capacitor Upgrades
34		NCS22_STADIUM		4	1 Substation	Automation - Capacitor Upgrades
35		NCS22_STOCKBRIDGE		4	1 Substation	Automation - Capacitor Upgrades
36		NCS22_TAWAS		4	1 Substation	Automation - Capacitor Upgrades
37		NCS22_TECUMSEH		4	1 Substation	Automation - Capacitor Upgrades
38		NCS22_TWILIGHT		4	1 Substation	Automation - Capacitor Upgrades
39		NCS22_ULMER		4	1 Substation	Automation - Capacitor Upgrades
40		NCS22_WALDRON		4	1 Substation	Automation - Capacitor Upgrades
41		NCS22_WAMPLER		4	1 Substation	Automation - Capacitor Upgrades
42		NCS22_WARNER		4	1 Substation	Automation - Capacitor Upgrades
43		NCS22_WATKINS		4	1 Substation	Automation - Capacitor Upgrades
44		NCS22_WEBB ROAD		4	1 Substation	Automation - Capacitor Upgrades
45		NCS22_WEST CLARK LAKE		4	1 Substation	Automation - Capacitor Upgrades
46		NCS22_WILDWOOD		4	1 Substation	Automation - Capacitor Upgrades
47		NCS22_WILLIS ROAD		4	1 Substation	Automation - Capacitor Upgrades
48		NCS22_YORKVILLE		4	1 Substation	Automation - Capacitor Upgrades
49		NCS22_ZYLMAN		4	1 Substation	Automation - Capacitor Upgrades
50		<b>Grid Modernization Subtotal</b>	<b>172</b>			
51		<b>Investment Category Total - Capacitor Upgrades</b>	<b>524</b>			
52		<b>Grid Modernization Total</b>	<b>61,495</b>			
		<b>(DSCADA, ATR Loops, Line Sensors, Line Regs, Capacitor Upgrades)</b>				

**MICHIGAN PUBLIC SERVICE COMMISSION**

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Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Capacity</b>					
1	LVD Lines Capacity	DARE ABBE/ABBE 155	355	1	Project	Overloaded Equipment Upgrades
2		DARE ABBE/HWY 33 844	40	1	Project	Overloaded Equipment Upgrades
3		DARE ALAMO/PINE GROVE 572	16	1	Project	Overloaded Equipment Upgrades
4		DARE ALGER/SKIDWAY 672	170	1	Project	Overloaded Equipment Upgrades
5		DARE AU GRES/AU GRES 808	35	1	Project	Overloaded Equipment Upgrades
6		DARE AU GRES/POINT LOOK-OUT 542	40	1	Project	Overloaded Equipment Upgrades
7		DARE BATES/ACME 302	55	1	Project	Overloaded Equipment Upgrades
8		DARE BELDING/MALL Sub	52	1	Project	Overloaded Equipment Upgrades
9		DARE BLACK RIVER/FILLMORE 492	40	1	Project	Overloaded Equipment Upgrades
10		DARE BREEDSVILLE/BREEDSVILLE 168	17	1	Project	Overloaded Equipment Upgrades
11		DARE CEDAR LAKE/VAN ETEN 127	55	1	Project	Overloaded Equipment Upgrades
12		DARE CONVIS/WALNUT POINT 185	25	1	Project	Overloaded Equipment Upgrades
13		DARE DONTZ ROAD/PORTAGE 343	53	1	Project	Overloaded Equipment Upgrades
14		DARE EDMORE/SIX LAKES 371	400	1	Project	Overloaded Equipment Upgrades
15		DARE EIGHT POINT/WHITE BIRCH 830	628	1	Project	Overloaded Equipment Upgrades
16		DARE FENNIVILLE/COMMERCIAL Sub	430	1	Project	Overloaded Equipment Upgrades
17		DARE GERRISH/GOLF CLUB 952	46	1	Project	Overloaded Equipment Upgrades
18		DARE GREENVILLE/WASHINGTON ST 648	30	1	Project	Overloaded Equipment Upgrades
19		DARE GREENWOOD/RAU ROAD 865	490	1	Project	Overloaded Equipment Upgrades
20		DARE HASTINGS/BROADWAY Sub	600	1	Project	Overloaded Equipment Upgrades
21		DARE HOUGHTON HEIGHTS/MERRITT 688	54	1	Project	Overloaded Equipment Upgrades
22		DARE LAKE LEANN/LAKE LEANN 882	15	1	Project	Overloaded Equipment Upgrades
23		DARE LEFFINGWELL/BRADFORD Sub	200	1	Project	Overloaded Equipment Upgrades
24		DARE LEVELY/ALLBRIGHT 482	36	1	Project	Overloaded Equipment Upgrades
25		DARE LEVELY/ALLBRIGHT 491	23	1	Project	Overloaded Equipment Upgrades
26		DARE LEVELY/STURGEON 275	3	1	Project	Overloaded Equipment Upgrades
27		DARE LINCOLN/MIKADO 843	750	1	Project	Overloaded Equipment Upgrades
28		DARE LOVEJOY/BRADEN 906	32	1	Project	Overloaded Equipment Upgrades
29		DARE MAGNUS/EAGLE CORNER 825	102	1	Project	Overloaded Equipment Upgrades
30		DARE MANNSIDING/CEDAR 641	171	1	Project	Overloaded Equipment Upgrades
31		DARE MOLINE/GREEN LAKE 657	55	1	Project	Overloaded Equipment Upgrades
32		DARE NORTH MUSKOGON/STATE PARK 76	120	1	Project	Overloaded Equipment Upgrades
33		DARE OHMAN ROAD/SEARS 733	259	1	Project	Overloaded Equipment Upgrades
34		DARE OSCODA/OSCODA 218	20	1	Project	Overloaded Equipment Upgrades
35		DARE OVID/OVID Sub	62	1	Project	Overloaded Equipment Upgrades
36		DARE OVID/SHEPARDVILLE Sub	8	1	Project	Overloaded Equipment Upgrades
37		DARE PENINSULA/MAPLETON 7518	75	1	Project	Overloaded Equipment Upgrades
38		DARE PIERSON/WHITEFISH 603	119	1	Project	Overloaded Equipment Upgrades
39		DARE PORTSMOUTH/BLUMFIELD 255	650	1	Project	Overloaded Equipment Upgrades
40		DARE PRESCOTT/MAPLE RIDGE 355	55	1	Project	Overloaded Equipment Upgrades
41		DARE RANGER LAKE/LUPTON 148	125	1	Project	Overloaded Equipment Upgrades
42		DARE REMUS/MECOSTA 119	70	1	Project	Overloaded Equipment Upgrades
43		DARE RIX ROAD/FAIRLANE 777	48	1	Project	Overloaded Equipment Upgrades
44		DARE SANDERSON/M-57 63	400	1	Project	Overloaded Equipment Upgrades
45		DARE SARANAC/RIVERSIDE 784	389	1	Project	Overloaded Equipment Upgrades
46		DARE SPICEBUSH/LESTER LAKE 502	20	1	Project	Overloaded Equipment Upgrades
47		DARE STANDISH/STANDISH 707	105	1	Project	Overloaded Equipment Upgrades
48		DARE TAMARACK/AMBLE 99	11	1	Project	Overloaded Equipment Upgrades
49		DARE TRUFANT/HUNTER LAKE 491	71	1	Project	Overloaded Equipment Upgrades
50		DARE TURNER/GATES 788	20	1	Project	Overloaded Equipment Upgrades
51		DARE WHITTUM/PETRIEVILLE 908	16	1	Project	Overloaded Equipment Upgrades
52		DARE BULLOCK/STEWART 580	7	1	Project	Overloaded Equipment Upgrades
53		DARE COTTAGE GROVE/PREVO LCP 871	435	1	Project	Overloaded Equipment Upgrades
54		DARE MENDON/PINHOOK 492	190	1	Project	Overloaded Equipment Upgrades
55		DARE-SUB LINCOLN/LOST LAKE	1,900	1	Project	Sub Capacity-associated Line Work
56		DARE-SUB MOLINE/GREEN LAKE	900	1	Project	Sub Capacity-associated Line Work
57		DARE-SUB PEACH RIDGE/BALLARD	485	1	Project	Sub Capacity-associated Line Work
58		DARE-SUB PEACH RIDGE/KENOWA	489	1	Project	Sub Capacity-associated Line Work
59		DARE-SUB TAMARACK/AMBLE	1,120	1	Project	Sub Capacity-associated Line Work
60		<b>LVD Lines Capacity Total</b>	<b>13,184</b>			

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Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
<b>Capacity (cont.)</b>						
1	HVD Lines and	Rebuild Coopersville 46 kV Line Cleveland - Rochester Products	2,559	1	Orders	Load Carrying Capability/Voltage Support
2	Substations Capacity	CONVIS INST SEL-2505 (DTT) (J758 ASFCA)	115	1	Orders	New Interconnections
3		CONTRIBUTION: CONVIS INST SEL-2505 (DTT) (J758 ASFCA)	(115)			
4		CHAUNCEY 46 kV RBLD 0.35 MI (J806/J857 MPASFCA)	200	1	Orders	New Interconnections
5		CONTRIBUTION: CHAUNCEY 46 kV RBLD 0.35 MI (J806/J857 MPASFCA)	(200)			
6		CONVIS INST SEL-2505 (DTT) (J857 ASFCA)	115	1	Orders	New Interconnections
7		CONTRIBUTION: CONVIS INST SEL-2505 (DTT) (J857 ASFCA)	(115)			
8		GROVER 46 kV RBLD 0.5 MI (J794 ASFCA)	200	1	Orders	New Interconnections
9		CONTRIBUTION: GROVER 46 kV RBLD 0.5 MI (J794 ASFCA)	(200)			
10		RAISIN INST CKT SWCHR & REPL TB RELAYS, PARR RD INST AUX CT's & REPL TB RELAYS (J875 ASFCA)	1,000	2	Orders	New Interconnections
11		CONTRIBUTION: RAISIN INST CKT SWCHR & REPL TB RELAYS, PARR RD INST AUX CT's & REPL TB RELAYS (J875 ASFCA)	(1,000)			
12		DENNISON 46kV TAP	50	1	Orders	New Interconnections
13		DENNISON 46KV SWITCHES	150	1	Orders	New Interconnections
14		KALKASKA 46KV TAP MODS	50	1	Orders	New Interconnections
15		CORBETT 138KV TAP	75	1	Orders	New Interconnections
16		SKYLINE 46KV TAP AND LINE	160	1	Orders	New Interconnections
17		SANTIAGO 138KV TAP AND LINE	4,300	1	Orders	New Interconnections
18		BUCKEYE 46KV TAP AND LINE	50	1	Orders	New Interconnections
19		WD0956 DEJA INST TRF FANS	67	1	Orders	Improved Functionality
20		LN070A MENDON 46KV INST 0.02 MILES	75	1	Orders	Improved Functionality
21		LN070D BURDETT 46KV INST 0.02 MILES	75	1	Orders	Improved Functionality
22		LN071A PHILLIPS#1 46KV INST 0.15 MILES	97	1	Orders	Improved Functionality
23		LN071W PHILLIPS#2 46KV INST 0.5 MILES	255	1	Orders	Improved Functionality
24		LN071M & 116G 46KV INST 1.5 MILE DBL CKT	1,690	1	Orders	Improved Functionality
25		LN116A GALESBURG 46KV INST 0.95 MILES	865	1	Orders	Improved Functionality
26		Black River Station Power Voltage Conversion	115	1	Orders	Improved Functionality
27		WD0433 FOUR MILE-WORKING SPACE	750	1	Orders	Improved Functionality
28		Cumberland - Retire and Remove Station	550	1	Orders	Improved Functionality
29		Chevy Industrial - Retire and Remove Station	240	1	Orders	Improved Functionality
30		Marquette - Working Space Remediation	975	1	Orders	Improved Functionality
31		WD0670 STOVER WORKING SPACE	800	1	Orders	Improved Functionality
32		Four Mile/Northridge METC Coordination	1,275	1	Orders	Transmission Coordination
33		Saginaw River/Shale METC Coordination	775	1	Orders	Transmission Coordination
34		Elm St. 138 kV Circuit Switchers & Relay Upgrades (METC Coordination)	1,000	1	Orders	Transmission Coordination
35		Halsey 138 kV Circuit Switcher & Relay Upgrades (METC Coordination)	900	1	Orders	Transmission Coordination
36		WD1109 WACKERLY WORKING SPACE	752	1	Orders	Transmission Coordination
37		WD0525 RIGGSVILLE RLY CHNGS METC	50	1	Orders	Transmission Coordination
38		Houghton Heights 138kV R/W	1,200	1	Orders	Right of Way Procurement
39		COOLEY SUB - ADDITIONAL PROPERTY ACQUISITION	200	1	Orders	Right of Way Procurement
40		<b>HVD Lines and Substations Capacity</b>	<b>20,100</b>			
41	LVD Substations Capacity	CORBETT	1,875	1	Projects	New Substations
42		DENNISON	1,500	1	Projects	New Substations
43		SANTIAGO	1,800	1	Projects	New Substations
44		SKYLINE	1,280	1	Projects	New Substations
45		ALGER	180	1	Projects	Increase Capacity at Existing Substation
46		BREEDSVILLE	300	1	Projects	Increase Capacity at Existing Substation
47		FOUR MILE LVD	1,010	1	Projects	Increase Capacity at Existing Substation
48		HARRIETTA	1,375	1	Projects	Increase Capacity at Existing Substation
49		JASPER	1,500	1	Projects	Increase Capacity at Existing Substation
50		KALKASKA	225	1	Projects	Increase Capacity at Existing Substation
51		MILLERS POINT	450	1	Projects	Increase Capacity at Existing Substation
52		PITCHER	115	1	Projects	Increase Capacity at Existing Substation
53		RIGA	1,500	1	Projects	Increase Capacity at Existing Substation
54		WHITE CLOUD	890	1	Projects	Increase Capacity at Existing Substation
55		<b>LVD Substation Capacity Total</b>	<b>14,000</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

Page: 41 of 43

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Capacity (cont.)</b>					
1	Conservation Voltage Reduction	CVR22_ANTRIM_BASS LAKE	21	1	Circuit	Conservation Voltage Reduction
2		CVR22_APPLETON_WALDRON WAY	21	1	Circuit	Conservation Voltage Reduction
3		CVR22_ASHMAN CIRCLE_HIGH SCHOOL	21	1	Circuit	Conservation Voltage Reduction
4		CVR22_BARNARD_BAYSIDE	21	1	Circuit	Conservation Voltage Reduction
5		CVR22_BAYBERRY_KOSTER	21	1	Circuit	Conservation Voltage Reduction
6		CVR22_BAYBERRY_PLEASANT HILL	21	1	Circuit	Conservation Voltage Reduction
7		CVR22_BECKER_BEAR CREEK	21	1	Circuit	Conservation Voltage Reduction
8		CVR22_BEECH-NUT_HOLAGAN	21	1	Circuit	Conservation Voltage Reduction
9		CVR22_BENNETT_KNOB HILL	21	1	Circuit	Conservation Voltage Reduction
10		CVR22_BENTHEIM_STORAGE	21	1	Circuit	Conservation Voltage Reduction
11		CVR22_BISHOP_MARKET PLACE	21	1	Circuit	Conservation Voltage Reduction
12		CVR22_BYRON CENTER_RAILSIDE	21	1	Circuit	Conservation Voltage Reduction
13		CVR22_CALVIN_ROSEMONT	21	1	Circuit	Conservation Voltage Reduction
14		CVR22_CALVIN_WOODCLIFF	21	1	Circuit	Conservation Voltage Reduction
15		CVR22_CARROLLTON_ZILWAUKEE	21	1	Circuit	Conservation Voltage Reduction
16		CVR22_CHAFFEE_RUNWAY	21	1	Circuit	Conservation Voltage Reduction
17		CVR22_CHEESMAN_MONROE	21	1	Circuit	Conservation Voltage Reduction
18		CVR22_CLAY_WAREHOUSE	21	1	Circuit	Conservation Voltage Reduction
19		CVR22_CLYDE ROAD_STATE ROAD	21	1	Circuit	Conservation Voltage Reduction
20		CVR22_COIT AVENUE_RIFLE RANGE	21	1	Circuit	Conservation Voltage Reduction
21		CVR22_COWAN LAKE_RAMSDALL	21	1	Circuit	Conservation Voltage Reduction
22		CVR22_DEAN ROAD_KELSEY-HAYES	21	1	Circuit	Conservation Voltage Reduction
23		CVR22_DRAKE ROAD_DRAKE ROAD	21	1	Circuit	Conservation Voltage Reduction
24		CVR22_EASTON_HAYNOR	21	1	Circuit	Conservation Voltage Reduction
25		CVR22_EDDY_FINDLEY	21	1	Circuit	Conservation Voltage Reduction
26		CVR22_ELLIS_DANGL	21	1	Circuit	Conservation Voltage Reduction
27		CVR22_ELM STREET_CHAMPION	21	1	Circuit	Conservation Voltage Reduction
28		CVR22_ELM STREET_PORTER	21	1	Circuit	Conservation Voltage Reduction
29		CVR22_FRANKENMUTH_INDUSTRIAL	21	1	Circuit	Conservation Voltage Reduction
30		CVR22_GILKEY CREEK_WALKER	21	1	Circuit	Conservation Voltage Reduction
31		CVR22_GLENDALE_KEYES	21	1	Circuit	Conservation Voltage Reduction
32		CVR22_GOODALE_IRVING PARK	21	1	Circuit	Conservation Voltage Reduction
33		CVR22_GOODALE_ROOSEVELT	21	1	Circuit	Conservation Voltage Reduction
34		CVR22_HARVEY STREET_SUNSHINE	21	1	Circuit	Conservation Voltage Reduction
35		CVR22_HASKELITE_BISSELL	21	1	Circuit	Conservation Voltage Reduction
36		CVR22_HOSPITAL_KIDS CREEK	21	1	Circuit	Conservation Voltage Reduction
37		CVR22_HYDE PARK_MCMILLIAN	21	1	Circuit	Conservation Voltage Reduction
38		CVR22_IRISH ROAD_BELLE MEADE	21	1	Circuit	Conservation Voltage Reduction
39		CVR22_KEATING_LAKETON	21	1	Circuit	Conservation Voltage Reduction
40		CVR22_KENTWOOD_PRINCETON	21	1	Circuit	Conservation Voltage Reduction
41		CVR22_KRAFT AVENUE_ACQUEST	21	1	Circuit	Conservation Voltage Reduction
42		CVR22_LABARGE_CHERRY VALLEY	21	1	Circuit	Conservation Voltage Reduction
43		CVR22_LAMOREAUX_BALLPARK	21	1	Circuit	Conservation Voltage Reduction
44		CVR22_LOGISTIC_FELCH	21	1	Circuit	Conservation Voltage Reduction
45		CVR22_MANCELONA_LEETSVILLE	21	1	Circuit	Conservation Voltage Reduction
46		CVR22_MAYNARD_MAYNARD	21	1	Circuit	Conservation Voltage Reduction
47		CVR22_MEADOWBROOKE_KARONA	21	1	Circuit	Conservation Voltage Reduction
48		CVR22_MICHIGAN_LOOKOUT	21	1	Circuit	Conservation Voltage Reduction
49		CVR22_MIDLAND_NORTHWOOD	21	1	Circuit	Conservation Voltage Reduction
50		CVR22_MULLINS_MULLINS	21	1	Circuit	Conservation Voltage Reduction
51		<b>Conservation Voltage Reduction Subtotal</b>	<b>1,040</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

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Case No.: U-20963

Exhibit No.: A-48 (RTB-15)

Page: 42 of 43

Witness: RTBlumenstock

Date: March 2021

Line No.	(a)	(b)	(c)		(d)	(e)	(f)
	Sub-Program	Project Description, Line, Substation, or Location	Test Year	Spending	Units	Unit Type	Investment Category
	<u>Capacity (cont.)</u>						
1	Conservation Voltage Reduction (cont.)	CVR22_NORTH KENT_MALL			21	1 Circuit	Conservation Voltage Reduction
2		CVR22_NORTH KENT_NORTHVILLE			21	1 Circuit	Conservation Voltage Reduction
3		CVR22_NORTH KENT_ROCK HILL			21	1 Circuit	Conservation Voltage Reduction
4		CVR22_NORTH PARK_LAMBERTON			21	1 Circuit	Conservation Voltage Reduction
5		CVR22_OAKWOOD_HILLCREST			21	1 Circuit	Conservation Voltage Reduction
6		CVR22_PECK ROAD_M-91			21	1 Circuit	Conservation Voltage Reduction
7		CVR22_PETTIS ROAD_PETTIS RD			21	1 Circuit	Conservation Voltage Reduction
8		CVR22_PHILLIPS_INKSTER			21	1 Circuit	Conservation Voltage Reduction
9		CVR22_PITCHER_ATLAS			21	1 Circuit	Conservation Voltage Reduction
10		CVR22_RAVINE_PATTERSON			21	1 Circuit	Conservation Voltage Reduction
11		CVR22_RED ARROW_BRISTOL			21	1 Circuit	Conservation Voltage Reduction
12		CVR22_REED CITY_HIGH SCHOOL			21	1 Circuit	Conservation Voltage Reduction
13		CVR22_RICHLAND_D AVENUE			21	1 Circuit	Conservation Voltage Reduction
14		CVR22_RIVERTOWN_56TH			21	1 Circuit	Conservation Voltage Reduction
15		CVR22_ROCKFORD_FRESKA LAKE			21	1 Circuit	Conservation Voltage Reduction
16		CVR22_ROCKFORD_SUMMIT			21	1 Circuit	Conservation Voltage Reduction
17		CVR22_ROSCOMMON_SOUTH BRANCH			21	1 Circuit	Conservation Voltage Reduction
18		CVR22_SANDERSON_VAN DEINSE			21	1 Circuit	Conservation Voltage Reduction
19		CVR22_SHATTUCK_CENTER ROAD			21	1 Circuit	Conservation Voltage Reduction
20		CVR22_SINCLAIR_HERITAGE HILL			21	1 Circuit	Conservation Voltage Reduction
21		CVR22_SOUTH WASHINGTON AVE_FORDNEY			21	1 Circuit	Conservation Voltage Reduction
22		CVR22_SOUTH WASHINGTON AVE_HOYT STREET			21	1 Circuit	Conservation Voltage Reduction
23		CVR22_STANDALE_INDUSTRIAL			21	1 Circuit	Conservation Voltage Reduction
24		CVR22_STANDALE_PARKSIDE			21	1 Circuit	Conservation Voltage Reduction
25		CVR22_STANDALE_STANDALE			21	1 Circuit	Conservation Voltage Reduction
26		CVR22_STEVENS_ALBANY			21	1 Circuit	Conservation Voltage Reduction
27		CVR22_TWELFTH STREET_RUDGATE			21	1 Circuit	Conservation Voltage Reduction
28		CVR22_UNIVERSITY_HARRISON			21	1 Circuit	Conservation Voltage Reduction
29		CVR22_VANDERCOOK LAKE_VANDERCOOK LAKE			21	1 Circuit	Conservation Voltage Reduction
30		CVR22_WALKER_REMEMBRANCE			21	1 Circuit	Conservation Voltage Reduction
31		CVR22_WEALTHY STREET_INDIANA			21	1 Circuit	Conservation Voltage Reduction
32		CVR22_WEALTHY STREET_LOGAN			21	1 Circuit	Conservation Voltage Reduction
33		CVR22_WEALTHY STREET_NORTHWEST			21	1 Circuit	Conservation Voltage Reduction
34		CVR22_WEST RIVER_CHAMBERLIN			21	1 Circuit	Conservation Voltage Reduction
35		CVR22_WEST ROAD_MARFITT			21	1 Circuit	Conservation Voltage Reduction
36		ALABAMA			213	1 Substation	Automation - DSCADA
37		BIRCH RUN			213	1 Substation	Automation - DSCADA
38		EAST LAKE			213	1 Substation	Automation - DSCADA
39		SHELBY			213	1 Substation	Automation - DSCADA
40		TRIPP ROAD			213	1 Substation	Automation - DSCADA
41		REG22_BELDING_CITY_888			26	1 Line Reg Location	Automation - Regulator Controllers
42		REG22_BELDING_COOKS CORNERS_134			26	1 Line Reg Location	Automation - Regulator Controllers
43		REG22_BELDING_COOKS CORNERS_147			26	1 Line Reg Location	Automation - Regulator Controllers
44		REG22_BELDING_COOKS CORNERS_151			26	1 Line Reg Location	Automation - Regulator Controllers
45		REG22_BELDING_COOKS CORNERS_178			26	1 Line Reg Location	Automation - Regulator Controllers
46		REG22_BELDING_COOKS CORNERS_304			26	1 Line Reg Location	Automation - Regulator Controllers
47		REG22_BELDING_COOKS CORNERS_466			26	1 Line Reg Location	Automation - Regulator Controllers
48		REG22_BELLEVUE_ASSYRIA_262			26	1 Line Reg Location	Automation - Regulator Controllers
49		REG22_BELLEVUE_ASSYRIA_410			26	1 Line Reg Location	Automation - Regulator Controllers
50		REG22_BELLEVUE_ASSYRIA_731			26	1 Line Reg Location	Automation - Regulator Controllers
51	Conservation Voltage Reduction Subtotal			2,055			

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
<b>Capacity (cont.)</b>						
1	Conservation Voltage Reduction (cont.)	REG22_BELLEVUE_BELLEVUE_235	26	1	Line Reg Location	Automation - Regulator Controllers
2		REG22_BELLEVUE_BELLEVUE_416	26	1	Line Reg Location	Automation - Regulator Controllers
3		REG22_BELLEVUE_BELLEVUE_421	26	1	Line Reg Location	Automation - Regulator Controllers
4		REG22_CASCADE_THORNCREST_837	26	1	Line Reg Location	Automation - Regulator Controllers
5		REG22_COWAN LAKE_GRATTAN_60	26	1	Line Reg Location	Automation - Regulator Controllers
6		REG22_COWAN LAKE_GRATTAN_994	26	1	Line Reg Location	Automation - Regulator Controllers
7		REG22_EAST LAKE_CHEMICAL_6713	26	1	Line Reg Location	Automation - Regulator Controllers
8		REG22_EAST LAKE_PINE CREEK_351	26	1	Line Reg Location	Automation - Regulator Controllers
9		REG22_EAST LAKE_PINE CREEK_626	26	1	Line Reg Location	Automation - Regulator Controllers
10		REG22_FOUR MILE_BAUMHOFF_333	26	1	Line Reg Location	Automation - Regulator Controllers
11		REG22_FOUR MILE_WALKENT_244	26	1	Line Reg Location	Automation - Regulator Controllers
12		REG22_FOUR MILE_WALKENT_245	26	1	Line Reg Location	Automation - Regulator Controllers
13		REG22_GODFREY_FLAT RIVER_536	26	1	Line Reg Location	Automation - Regulator Controllers
14		REG22_GODFREY_FLAT RIVER_561	26	1	Line Reg Location	Automation - Regulator Controllers
15		REG22_GODFREY_LOWELL_180	26	1	Line Reg Location	Automation - Regulator Controllers
16		REG22_GODFREY_LOWELL_216	26	1	Line Reg Location	Automation - Regulator Controllers
17		REG22_HARLEM_BORCULO_542	26	1	Line Reg Location	Automation - Regulator Controllers
18		REG22_KENTWOOD_PARIS PARK_209	26	1	Line Reg Location	Automation - Regulator Controllers
19		REG22_MANCELONA_ALBA_102	26	1	Line Reg Location	Automation - Regulator Controllers
20		REG22_MCBAIN_LAKE CITY_153	26	1	Line Reg Location	Automation - Regulator Controllers
21		REG22_MCBAIN_LAKE CITY_261	26	1	Line Reg Location	Automation - Regulator Controllers
22		REG22_MCBAIN_LUCAS_600	26	1	Line Reg Location	Automation - Regulator Controllers
23		REG22_MCBAIN_VOGEL CENTER_184	26	1	Line Reg Location	Automation - Regulator Controllers
24		REG22_MCBAIN_VOGEL CENTER_244	26	1	Line Reg Location	Automation - Regulator Controllers
25		REG22_MCBAIN_VOGEL CENTER_433	26	1	Line Reg Location	Automation - Regulator Controllers
26		REG22_MCBAIN_VOGEL CENTER_652	26	1	Line Reg Location	Automation - Regulator Controllers
27		REG22_MCBAIN_VOGEL CENTER_755	26	1	Line Reg Location	Automation - Regulator Controllers
28		REG22_MCBAIN_VOGEL CENTER_759	26	1	Line Reg Location	Automation - Regulator Controllers
29		REG22_PARNALL_PARNALL RD_262	26	1	Line Reg Location	Automation - Regulator Controllers
30		REG22_RATIGAN_MURRAY LAKE_173	26	1	Line Reg Location	Automation - Regulator Controllers
31		REG22_RAVENNA_MOORLAND_719	26	1	Line Reg Location	Automation - Regulator Controllers
32		REG22_REED CITY_HOLDENVILLE_564	26	1	Line Reg Location	Automation - Regulator Controllers
33		REG22_REED CITY_HOLDENVILLE_588	26	1	Line Reg Location	Automation - Regulator Controllers
34		REG22_REED CITY_MEDICAL_857	26	1	Line Reg Location	Automation - Regulator Controllers
35		REG22_ROCKFORD_WOLVERINE_622	26	1	Line Reg Location	Automation - Regulator Controllers
36		REG22_ROCKFORD_WOLVERINE_624	26	1	Line Reg Location	Automation - Regulator Controllers
37		REG22_SILVER LAKE_SILVER PINES_5653	26	1	Line Reg Location	Automation - Regulator Controllers
38		REG22_TEXAS_EAGLE LAKE_872	26	1	Line Reg Location	Automation - Regulator Controllers
39		REG22_TRIPP ROAD_TRIPP ROAD_405	26	1	Line Reg Location	Automation - Regulator Controllers
40		REG22_WESTPHALIA_GRANGE ROAD_528	26	1	Line Reg Location	Automation - Regulator Controllers
41		<b>Conservation Voltage Reduction Subtotal</b>	<b>1,060</b>			
		<b>Conservation Voltage Reduction Total</b>	<b>4,154</b>			
<b>Other</b>						
42	System Control Projects	Hughes Rd 3/4 Mile Reconductoring	250	1	Project	HVD Operations Projects
43		Add & Convert Existing Switch @ Byron Center Jct to MOAB Switch	250	1	Project	HVD Operations Projects
44		Convert Carson City & Middleton Jct switches to MOAB switches	375	1	Project	HVD Operations Projects
45		Bath 46 kV Line Partial Rebuild	338	1	Project	HVD Operations Projects
46		Line Sensor Installations on the following lines	1,240	132	Total Sensors	HVD Operations Projects
47		EATON RAPIDS		4	Sensors	HVD Operations Projects
48		NASHVILLE		4	Sensors	HVD Operations Projects
49		AUGUSTA		4	Sensors	HVD Operations Projects
50		DIETZ-GAYLORD		4	Sensors	HVD Operations Projects
51		HANOVER		4	Sensors	HVD Operations Projects
52		MORRICE		4	Sensors	HVD Operations Projects
53		RIGA		4	Sensors	HVD Operations Projects
54		SUNFIELD		4	Sensors	HVD Operations Projects
55		FENNVILLE		4	Sensors	HVD Operations Projects
56		NEWAYGO		4	Sensors	HVD Operations Projects
57		REED CITY		4	Sensors	HVD Operations Projects
58		WILLIAMS		4	Sensors	HVD Operations Projects
59		REMUS		4	Sensors	HVD Operations Projects
60		PLAINWELL		4	Sensors	HVD Operations Projects
61		GLEN OAKS		4	Sensors	HVD Operations Projects
62		KALAMAZOO TREATMENT		4	Sensors	HVD Operations Projects
63		RAVENNA		4	Sensors	HVD Operations Projects
64		BREEDSVILLE		4	Sensors	HVD Operations Projects
65		CHARLEVOIX (M)		4	Sensors	HVD Operations Projects
66		JOPPA		4	Sensors	HVD Operations Projects
67		LAKE CITY		4	Sensors	HVD Operations Projects
68		OSHTIMO		4	Sensors	HVD Operations Projects
69		PIERSON		4	Sensors	HVD Operations Projects
70		ST CHARLES		4	Sensors	HVD Operations Projects
71		VIRGINIA PARK		4	Sensors	HVD Operations Projects
72		ATHENS/TEKONSHA		4	Sensors	HVD Operations Projects
73		BELSAY		4	Sensors	HVD Operations Projects
74		DAVISON (DELANEY)		4	Sensors	HVD Operations Projects
75		MONTAGUE		4	Sensors	HVD Operations Projects
76		NEW RICHMOND		4	Sensors	HVD Operations Projects
77		ONSTED		4	Sensors	HVD Operations Projects
78		RANGER LAKE		4	Sensors	HVD Operations Projects
79		WESTPHALIA		4	Sensors	HVD Operations Projects
80		SCADA - Test RTUs to support DER integration into CE SCADA	131	1	Project	Operating Technology Enhancements
81		Storm Restoration - Enhance resource management tools and OMS	438	1	Project	Operating Technology Enhancements
82		Emergency Operations Center changes due to ICS	100	1	Project	Operation Center Modifications
83		SCC & DCC Control Room Modifications	400	1	Project	Operation Center Modifications
84		Operation Center Video Walls	1,422	1	Project	Operation Center Modifications
85		<b>System Control Projects Total</b>	<b>4,944</b>			

**CONSUMERS ENERGY**  
**ELECTRIC ASSET MANAGEMENT**

High Voltage Distribution(HVD) Pole Inspection Specifications

1. GENERAL SPECIFICATIONS

- 1.1. Consumers Energy shall provide all maps necessary for the wood pole inspection work to be performed.
- 1.2. The Contractor shall furnish all tools, equipment, inspection tags, bore tags, red tags and labor as required for the completion of wood pole inspection as prescribed in these specifications.
  - 1.2.1. Each foreman employed by the Contractor working for Consumers Energy shall be a permanent, full-time employee of the Contractor. Each foreman shall have adequate training and not less than eight weeks experience as a Pole Inspection Foreman.
  - 1.2.2. Each supervisor employed by the Contractor working for Consumers Energy shall be a permanent, full-time employee of the Contractor having not less than two years experience in supervising pole inspection crews.
  - 1.2.3. The Contractor shall supply to a Consumers Energy representative written verification of the training and experience of each foreman and supervisor working for Consumers Energy before such work begins.
- 1.3. The Contractor shall inspect all poles with Consumers Energy facilities on them, which are connected electrically to the circuit or line section specified. All stub poles that are used for guying purposes should also be inspected. Poles within the protective fence of an electric substation shall also be inspected. Vacated or cut-off poles that had/have 3rd party attachments located adjacent to a Consumers Energy pole shall not be inspected, but the adjacent pole inspection record shall include yes or vacant value in the *PULL POLE* field.
  - 1.3.1. For safety purposes, at least one individual per pole inspection team must attend substation entry training provided by Consumers Energy prior to entering a substation perimeter fence.
- 1.4. A representative of the Contractor shall be involved in a periodic conference call/meeting with Consumers Energy representatives to discuss inspection status and issues that may arise.
- 1.5. The Contractor shall electronically report the following information to Consumers Energy's representative each Monday by 12:00 noon (the format will be agreed upon with the Consumers Energy representative in advance):
  - 1.5.1 Number of people who worked the previous week.

- 1.5.2 Specific days of week that each person worked during the previous week.
  - 1.5.3 Specific circuit or line section that each crew worked during the previous week.
  - 1.5.4 Planned circuit or line section of each crew for the current week.
- 1.6. The Contractor shall obtain, at their expense, all necessary permits required to complete the work prior to beginning the work requiring such permits.
- 1.7. Monthly the Contractor shall submit electronically via E-mail to a designated Consumers Energy's representative an invoice for the entire circuits or line sections that were completed. The Contractor shall include with each invoice a statement summarizing all work performed in each category of billing units.
- 1.8. The Contractor shall submit pole inspection data per individual circuit or line section, with the following conditions:
  - 1.8.1. The data will be in Microsoft excel and either Microsoft Access format (MDB file) or ESRI Shapefile format.
  - 1.8.2. CE Attachment B - Data Format lists the required data to capture for each pole inspection with a specific schema for Microsoft excel and either Microsoft Access format or ESRI Shapefile format.
  - 1.8.3. A template for Microsoft excel and either Microsoft Access MDB file or ESRI Shapefile format with the required specific schema will be provided.
  - 1.8.4. Transfer of circuit or line section data, including photos, Microsoft excel file and Microsoft Access database file or ESRI Shapefile will be packaged as one zip file named with the name and number of the Line Section or Feeder ID. The zip file will be transferred using FTP (File Transfer Protocol).
  - 1.8.5. A sample set of twenty-five (25) pole data records fulfilling all data requirements specified in CE Attachment B - Data Format are to be submitted two weeks before start of pole inspections for testing and validation purposes.
- 1.9. The Contractor will specify and follow their quality assurance and audit process. The Contractor will work with Consumers Energy on an agreed upon acceptance process to ensure inspection and data quality requirements are achieved.
- 1.10. All work, including obtaining, recording, and reporting of the inspection data shall be entirely satisfactory to Consumers Energy and shall be subject to inspection by and approval of Consumers Energy. Any work submitted needing correction may be rejected and/or may delay payment. Common data errors need to be identified and corrected before data is submitted.

- 1.11. Consumers Energy may request a sample data set of an incomplete inspected circuit or line section for auditing purposes.
- 1.12. Contractor shall return any items/materials received from Consumers Energy and not used for inspection purposes.

## 2. VISUAL INSPECTION & GPS LOCATION SPECIFICATIONS

- 2.1. The Contractor will perform a visual pole inspection of the applicable poles on each circuit or line section assigned and record data per 1.8 above.
- 2.2. The Contractor shall report any system threatening or safety concerns promptly to the designated Consumers Energy representative(s). This includes but is not limited to:
  - 1) A pole that the contractor determines to be an immediate replacement.
  - 2) Any hazard that the contractor determines is a threat to public safety.
  - 3) A floating phase or neutral wire.
  - 4) A broken or severely cracked crossarm.
  - 2.2.1 The Contractor could be requested by a Consumers Energy representative to stay on site until relieved by Consumers Energy representative. Consumers Energy will reimburse Contractor for time spent on site at agreed upon time and material rate.
  - 2.2.2 A follow up E-mail shall be sent to a designated Consumers Energy representative for said pole or hazard within 3 days of call-in. A report template will be provided.
- 2.3. The Contractor will install a Consumers Energy pole number tag placed immediately above the inspection tag (if present), if a legible existing Consumers Energy pole number tag is not already present.
  - 2.3.1. The Consumers Energy pole number tag is a numbered circular metal tag that will be provided by Consumers Energy.
  - 2.3.2. The existing or new pole tag number will be recorded at each pole location.
- 2.4. The Contractor will obtain GPS location data accurate to 2-5 meters or better for each inspected pole. GPS location data will be recorded using the WGS84 (UTM) Coordinate System as a standard. See CE Attachment B - Data Format for electronic data reporting format.

2.5. The Contractor will take one in focus picture of the inspected pole. Picture should contain in its frame all the attachments on that pole.

2.5.1. Photos shall be captured with a device capable of 5.0 megapixels or greater.

2.5.2. The image file name will contain the tag number of the pole, followed by the compass heading of the direction the camera was facing when the photo was taken. The compass heading should be specified as the four cardinal directions and the four ordinal directions (N,NE,E,SE,S,SW,W,NW)

2.5.3. Image file must be in JPEG (.jpg) format.

2.5.4. For poles that are part of a muti-pole structure, photo shall include all poles of that structure.

### 3. POLE TEST INSPECTION SPECIFICATIONS

3.1. Consumer Energy's preferred pole test inspection method is a device assisted test that helps identify poor pole conditions and voids.

3.2. The Contractor shall conduct a pole test inspection of all poles eleven (11) years old or older and which have not been inspected within the last five (5) years.

3.3. Designated poles shall be tested from ground line to 6 feet above ground line.

3.4. The Contractor shall install an agreed upon inspection tag at chest height on the road side of all tested poles.

3.5. The inspection tag shall have the name of the Contractor and the year of inspection stamped into the tag.

### 4. BORE TEST INSPECTION SPECIFICATIONS

4.1. The Contractor will perform a bore test on poles for the following reasons:

4.1.1. The pole test indicates the pole is decaying.

4.1.2. Visual decay is present.

4.1.3. Insects appear to be in the pole.

4.1.4. The pole has been backfilled or is discolored.

4.1.5. To satisfy a doubt about a pole's condition.

4.1.6. To determine the condition of a pole which was previously reinforced.

- 4.2. The Contractor shall only probe the pole surface if the pole has indication of defects from the visual or pole test inspections.
- 4.3. The Contractor shall follow the following bore test procedure:
  - 4.3.1. Bore where either the pole test or visual inspection indicates the weakest point. Where two points are equally weak at the same level, bore the side of the pole perpendicular to the direction of the line.
  - 4.3.2. If the pole test indicates decay or voids near ground, excavate to a depth of 6 to 8 inches and bore downward at a 45 degree angle. For poles installed in concrete or black top, bore downward at grade level at a 45 degree angle. (Read shell thickness on the 45 degree scale.) Poles with 1" shell thickness or less shall be indicated for replacement (Section 5.3).
  - 4.3.3. For externally damaged sections, bore both the damaged side and 180 degrees from the damaged side.
  - 4.3.4. For insect colonies, bore weakest point found during pole test.
  - 4.3.5. Probe bored holes with depth gauge and record shell thickness. On all poles that are bored a shell thickness recorded in the appropriate data field is required. For poles where no void is found record a NV (No Void) in the *Bore* field. Record approximant height from ground line of minimum shell thickness in *Minimum Shell Thickness Height Field*.
  - 4.3.6. Bore HVD candidate poles at 15" and 54" above the groundline to determine if it can be reinforced. (**Note:** "Candidate" poles are poles that qualify as replacement candidates per Section 5.1.2 Report the minimum shell thickness at 15" and 54" above the groundline. Report the pole as reinforceable if there is an average 2" of shell or greater at 15" above the groundline and an average 4" shell or greater at 54" above the groundline.
  - 4.3.7. Plug all holes with 3" treated wood plugs.
  - 4.3.8. Bore previously reinforced poles at the top of the steel truss. Identify previously reinforced pole as a replacement candidate if less than average 4" shell.
  - 4.3.9. When inspection is complete replace any excavated soil, tamping it firmly around the pole butt. Make a small mound of soil to compensate for settling.
- 4.4. Inspect the pole for surface decay.
- 4.5. The Contractor will install an acceptable bore tag at chest height on the road side of all poles bore tested.

## 5. EVALUATION CRITERIA

- 5.1. The Contractor shall use the following bore test criteria to identify wood pole replacement candidates:

### 5.1.1 HVD Line Section Criteria

<u>Original Circumference Just Above Groundline</u>	<u>Reduction of Circumference At or Below Groundline (Decayed Area )</u>	<u>Hollow Heart Minimum Allowable Thickness of Shell At Outer Decay Location</u>	<u>Pole Is A Replacement Candidate If Shell Thickness Is Less Than</u>
35"	0"	2.0"	2.0"
	2"	2.0"	2.0"
	4.4"	Solid	Solid
	Greater than 4.4"	Candidate	-
40"	0"	2.0"	2.0"
	2"	2.0"	2.0"
	4"	2.6"	2.6"
	5.1"	Solid	Solid
	Greater than 5.1"	Candidate	-
50"	0"	2.0"	2.0"
	2"	2.2"	2.2"
	4"	2.8"	2.8"
	6.3"	Solid	Solid
	Greater than 6.3"	Candidate	-
60"	0"	2.3"	2.3"
	2"	2.6"	2.6"
	4"	3.1"	3.1"
	7.6"	Solid	Solid
	Greater than 7.6"	Candidate	-
70"	0"	2.7"	2.7"
	2"	3.0"	3.0"
	4"	3.4"	3.4"
	6"	4.0"	4.0"
	8"	5.4"	5.4"
	8.9"	Solid	Solid
80"	Greater than 8.9"	Candidate	-
	0"	3.0"	3.0"
	2"	3.4"	3.4"
	4"	3.8"	3.8"
	6"	4.3"	4.3"
	8"	5.2"	5.2"
	10.1"	Solid	Solid
	Greater than 10.1"	Candidate	-

- 5.2. Visual inspection can be used to identify rejected poles where there is severe decay at the top of the pole or where the pole is split or has large voids above chest height or other similar conditions. On all poles rejected due to visual inspection record reason in *Comments* field.

5.3. The Contractor shall install a red tag (white arrow) on all rejected poles at chest height on the road side of the pole, and indicate proper replacement value in the *ActionRequired* field.

5.3.1. Place the red tag "arrow up" if the pole was rejected from the visual inspection.

5.3.2. Place the red tag "arrow down" if the pole was rejected from the bore test inspection.

5.4. Replacement HVD candidate poles shall not be treated with wood preserving products unless the pole is reinforceable according to the criteria in 4.3.6.

## 6.0 Record Keeping

6.1 If the brand date is unreadable, estimate the manufactured year, height, and class of the pole and record as such.

6.2 Any poles that were unable to be inspected shall be recorded as follows:

- No in the *Accessible* field.
- Nearby GPS coordinate in GPS coordinate field.
- Additional location information in the *LocationDescription* field (ex. 200' N of Pole# 1234567).
- A valid reason of why the pole is inaccessible in the *Comments* field (ex. Surrounded by water).

6.3 When testing multiple pole HVD structures, indicate which pole is being tested in the *HVD Structure Number* field. Example: #556N, #556S, #556W or #556E.

6.4 If the existing HVD pole is stubbed, indicate which pole is being tested in the *HVD Structure Number* field. Example: #556, #556stub.

6.5 If there is a guy pole attached to a HVD pole, indicate which pole is being tested in the *HVD Structure Number* field. Example: #556 (T pole), #556guy.

6.6 If there is a swamp fixture attached to the pole, indicate "swamp fixture" in the *foundation type* field.

6.7 A HVD pole with an air-break switch in single circuit lines may not have pole numbers on them; in such cases, use the switch number on the switch handle. Switches in double circuit lines should have pole numbers on them. Indicate the air-break switch number followed by "ABS" in the *HVD Structure Number* field. (ex. 177ABS)

6.8 For poles in substations, record "sub" in *HVD Structure Number* field for un-numbered substation poles.

7. HVD WOOD PRESERVATIVE TREATMENT SPECIFICATIONS

- 7.1. The Contractor will use only those wood preservative products listed on Attachment C for treating HVD wood poles.
- 7.2. The Contractor shall treat all HVD poles with groundline surface decay that reduces the original circumference of the pole by 2" or more.
- 7.3. The following method will be used to treat HVD poles with surface decay.
  - 7.3.1. Excavate to a depth of 18".
  - 7.3.2. Remove all external decay by chipping and wire brushing (avoid removing any good wood).
  - 7.3.3. Remove all shavings and decayed material from the hole and surrounding area.
  - 7.3.4. When possible, remove all attachments and replace when bandaging or preservative application is complete (never bandage over wire molding).
  - 7.3.5. Apply bandage or preservative application so that it extends 3" above groundline. Cover the bandage or preservative with an approved moisture carrier.
  - 7.3.6. Replace excavated soil and tamp. Do not place solid objects such as large rocks against the pole. Backfills shall be mounded around the pole to allow for settling.
  - 7.3.7. No debris, loose soil, etc, is to be left in the pole area and shall be properly disposed of. Replace turf removed from excavation with care in its original location.
- 7.4. The contractor will treat all HVD poles with internal decay except replacement candidates which are not reinforceable. The contractor will treat all HVD poles infested with termite or ant colonies that are not replacement candidates or are reinforceable candidates. The contractor will internally treat all previously reinforced HVD poles with an average 4" shell or greater at 54" above groundline. The contractor shall treat all internally decayed HVD poles with an approved preservative, and in addition, decay voids/pockets shall be treated with pentachlorophenol or liquid copper napthenate.
  - 7.4.1. The Contractor will follow the manufacturer's labeled directions for internal treatment of wood poles.
  - 7.4.2. All holes will be plugged with 3" treated wood plugs following internal treatment.

# 2019 Electric System Loss Study Report

## Electric Grid Integration July 9, 2020



## Introduction

The purpose of this study is to allocate system energy and demand losses among the various components of the electric system by calculating a percentage Loss Factor for each system component. This information will be used to update loss calculations used in electric rate design. Customer and Service Infrastructure - HVD calculated Loss Factors for the 345, 138 and 46 kV systems and the low side of the 138 and 46 kV industrial systems. The Loss Factor for the Distribution Primary system was calculated with input from Customer and Service Infrastructure - LVD. Finally, the Loss Factor for the Distribution Secondary system (including secondary transformers) was calculated from the amount of system loss remaining after all other system component losses were allocated.

## Definitions

- **System Component Losses:** Generated and purchased ("input" or "delivery") Power or Energy (including imports) minus consumed or distributed ("output") Power or Energy.

*Note: The total generated and purchased energy MegaWatt-hours (MWh) for 2019 and the total MWh delivered (sold) at Each System Component during 2019 were provided by the Accounting Department and Rates Department, respectively. The overall electric system loss percentage is derived from the generated and purchased energy data rather than from system models.*

- **Loss Factor (%):**

$$\left(1 - \frac{\text{Component Output Power or Energy}}{\text{Component Input Power or Energy}}\right) \times 100\%$$

$$= \left(\frac{\text{Component Power or Energy Loss}}{\text{Component Input Power or Energy}}\right) \times 100\%$$

- **Efficiency Factor:** [100% - Loss Factor (%)] or [1 - Loss Factor (per-unit)]
- **Energy Loss Factor:** Total System Component MWh Loss divided by Total System Component MWh Input.
- **Demand Loss Factor:** Average of Monthly Peak System Component MWh Losses divided by Monthly Peak System Component MW Inputs.

*NOTE: Average based on twelve monthly peak hours as identified in FERC Form 1, Page 401b.*

- **Cumulative Loss Factor (Energy or Demand):** One minus the product of one minus the per-unit Loss Factor for that system component and one minus the per-unit loss factor for each of the upstream system components. Alternatively, one minus the product of the per-unit efficiency factors for the system component and all upstream system components.

*NOTE: Cumulative loss factors are used to estimate the generation requirements necessary to serve a particular amount of load at any system component.*

## Energy Losses - Method

1. Loadflow model cases were created for each of the 8760 hours in the 2019 study year. From each loadflow case (*i.e.* from each hour of the study year), delivery and loss data at points throughout the electric Transmission and High Voltage Distribution (HVD) systems were programmatically collected, processed, and recorded.
2. Utilizing the MWh loss and delivery data, loss percentages for each Transmission or HVD system component were then calculated as:

$$\frac{\sum \text{Component MWh Loss}}{\sum \text{Component MWh Delivery}}$$

3. For Distribution Primary, average load and loss data from approximately 400 representative circuits at nine different system gross load levels for all-switched-capacitors-on and all-switched-capacitors-off scenarios were provided by Customer and Service Infrastructure - LVD Substation Planning. A line loss percentage was calculated from load and loss figures interpolated between the caps-on and caps-off data, based on the per system load level distribution capacitor schedule (*tone groups*). The line loss, along with Distribution Primary transformer losses calculated in the hourly loadflow cases, comprise the total losses for Distribution Primary.
4. For Distribution Secondary, sales (output) data per system component were provided by Rates Department. Generation requirements (input) per system component were estimated based on cumulative loss percentages previously calculated for each of the other system components. Total system generation requirements were estimated based on an overall system loss percentage derived from Generation and Purchased Power data provided by Accounting Department.

The difference between the total system estimated generation requirements and the sum of the estimated generation requirements for each system component (except for Distribution Secondary) gives the estimated generation requirement for Distribution Secondary. The difference between Distribution Secondary estimated generation requirements and Distribution Secondary sales gives a cumulative loss percentage, from which the Distribution Secondary loss percentage was derived.

## Demand Losses - Method

1. The loss and delivery data from the loadflow cases for the 12 monthly peak hours, as identified in FERC Form 1, were selected and the loss percentages for each Transmission or HVD system component were calculated as the average of ratios of losses to deliveries:
 
$$\left( \frac{\text{MW Loss}_{PK}}{\text{MW Delivery}_{PK}} \right)$$
2. For Distribution Primary, demand line loss percentages for each of the 12 monthly peak hours were calculated similarly as for energy loss. Demand loss percentages were calculated as the average of the loss to delivery ratios, as with the Transmission and HVD system components.

## Demand Losses - Method, continued

3. For Distribution Secondary, the ratios of monthly peak MW deliveries to the hourly average MW deliveries were used to estimate an average monthly peak MW delivery per system component. Similar to Distribution Secondary energy loss calculations, an average of monthly peak generation was then estimated from the system component cumulative demand loss percentages. Distribution Secondary average peak generation and, subsequently, cumulative demand loss percentage were estimated, similarly as with energy losses. From that, the Distribution Secondary demand loss percentage was derived. See "Cumulative Demand Loss Percentages Applied to MWh Deliveries", page 5, below.

4. Monthly peak demand MW deliveries and losses are tabulated for each system component. The loss factors and cumulative loss factors for each of the 12 monthly peaks were calculated using the previously described methods. For Distribution Secondary, the annual Demand Loss Factor was applied to each of the monthly peak MW deliveries to estimate monthly peak losses and monthly peak Cumulative Loss Factors. Using the annual Distribution Secondary Loss Factor in this manner was necessary since the MWh sales figures used to estimate Distribution Secondary losses are available on an annual, not monthly, basis.

## Losses Applied to MWh Deliveries

1. The cumulative Loss Factors at each system component (Energy and Demand, in per-unit) were used to estimate the generation necessary to provide the given delivery to that system component, per the following formula:

$$\text{Generation} = \frac{\text{Delivery}}{1 - \text{Loss Factor}_{p.u.}}$$

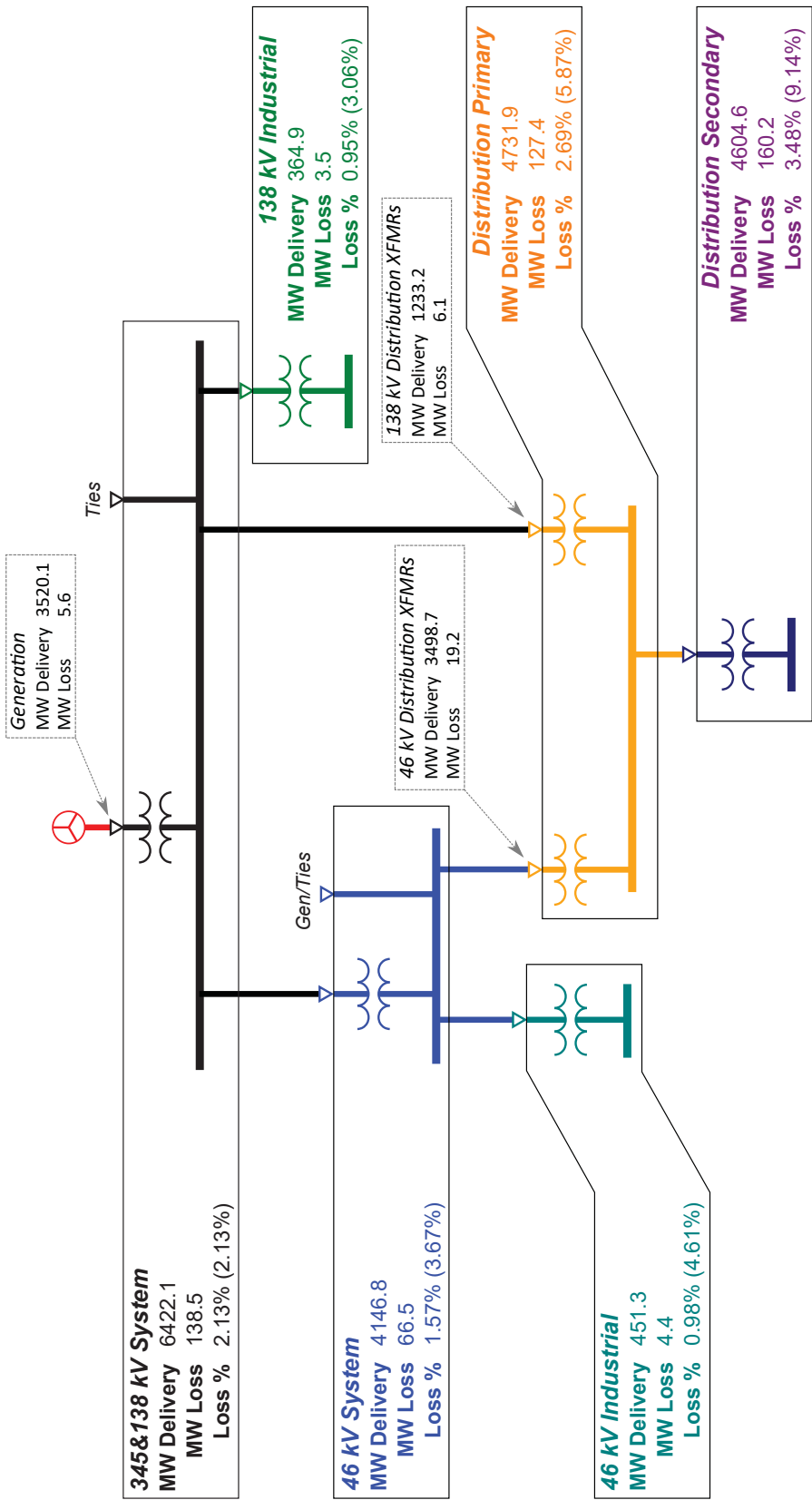
2. The difference between the total power generated and purchased (for the entire system) and the sum of the generation requirements for all system components except Distribution Secondary yielded the cumulative losses for Distribution Secondary. The Loss Factor for Distribution Secondary was then found by rearranging the definition for cumulative losses, as follows:

$$\text{Loss Factor}_{Sec.Dist.,p.u.} = 1 - \frac{1 - \text{Cum. Loss Factor}_{Sec.Dist.,p.u.}}{1 - \text{Cum. Loss Factor}_{Pri.Dist.,p.u.}}$$

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2019 Electric System Loss Study Report

**DEMAND LOSSES AND DELIVERIES (AVERAGE OF 12 MONTHLY PEAKS)**  
**Combined Method** (Each System Component Includes Transformation to that Component)



**General Notes**

- 138 kV Industrial Delivery and Loss does not include HSC volumes
- Monthly loss percentages are calculated as  $\text{Loss \%} = (\text{MW Loss}/\text{MW Delivery}) \times 100\%$
- Loss percentages presented are the average of the monthly loss percentages
- Loss percentages in parentheses are the Cumulative Loss percentages
- Cumulative Loss factors are calculated as one minus the product of one minus the per unit loss factor for that component and all upstream components.
- Loss % for Distribution Primary Lines (2.17%) provided by C&S1 – LVD
- Generation Transformers were combined with the 345 & 138 kV system because all customers are connected at lower voltages (components).

**Notes for Distribution Primary and Secondary**

- MW Delivery is high-side sum of 138/DST and 46/DST XFMRs
- MW Loss includes 138 & 46 /DST XFMR AND primary line loss
- Cumulative Loss % is adjusted based on the weighted average amount of load served from 138 kV and 46 kV:  
First,  $[(3498.7) \times 3.67\% + (1233.2) \times 2.13\%] / [(3498.7 + 1233.2)] = 3.26\%$ .  
Then,  $[1 - (1 - 0.0269) \times (1 - 0.0326)] \times 100\% = 5.87\%$
- Distribution Secondary cumulative demand loss % estimated using the average monthly peak deliveries. Refer to estimating sheet (page 5).

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**CUMULATIVE DEMAND LOSS PERCENTAGES APPLIED TO MWh DELIVERIES**  
**Combined Method** (Each System Component Includes Transformation to that Component)

Electrical System Voltage Level	MWh Deliveries (Total) <sup>5</sup>	Average Hourly MWh Delivery	Estimated Average Monthly Peak MWh Delivery	Cumulative % Demand Loss <sup>4</sup>	Estimated MW @ Generation	% Demand Losses	
138 kV System	2,523,838	288.1	370	2.13%	378	2.13%	Generation Transformers, 345 & 138 kV Systems Combined
V1: >120kV <sup>1&amp;6</sup>	952,502	108.7	118	3.06%	122	0.95%	Cum. % = $[1 - (1 - 138\text{IND}\%) \times (1 - 138\text{Sys\_cum}\%)] \times 100\%$
46 kV System <sup>1</sup>	514,453	58.7	80	3.67%	83	1.57%	Cum. % = $[1 - (1 - 46\text{Sys}\%) \times (1 - 138\text{Sys\_cum}\%)] \times 100\%$
V2: 25kV - 120kV <sup>1</sup>	3,130,330	357.3	397	4.61%	416	0.98%	Cum. % = $[1 - (1 - 46\text{IND}\%) \times (1 - 46\text{Sys\_cum}\%)] \times 100\%$
V3: <25kV, Primary Distribution <sup>1&amp;2</sup>	7,824,976	893.3	1233	5.87%	1309	2.69%	Cum. % = $[1 - (1 - \text{DSTprimary}\%) \times (1 - 46\&138\text{AV/G\_cum}\%)] \times 100\%$
V4: Secondary Distribution <sup>1,2&amp;3</sup>	20,032,041	2286.8	3156	9.14%	3473	3.48%	Cum. % = $[1 - (1 - \text{DSTprimary}\%) \times (1 - 46\&138\text{AV/G\_cum}\%)] \times 100\%$
	34,978,140	3993	5354		5782	7.41%	

**NOTES:**

1. The cumulative loss for any level is equal to one minus the product of one minus the per unit loss factor for that level and one minus the per unit cumulative loss factor one level higher.
2. The Cumulative Loss percentages for the Distribution Primary and Secondary were adjusted to account for load served from 138 kV distribution subs. This adjustment was based on a weighted average cumulative loss % from the total MWh delivered to either 46kV/Dist. or 138/Dist.
3. The Distribution Secondary Cumulative Loss % was calculated from the MWh Gen and MWh Del remaining. Then, the Demand Loss % was calculated in reverse from the cumulative.
4. All cumulative loss percentages are calculated assuming the 345 kV and 138 kV Systems are combined along with the Generation Transformers (GSUs)
5. MWh Delivery figures include ROA amounts.
6. V1: >120kV does not include HSC volumes.

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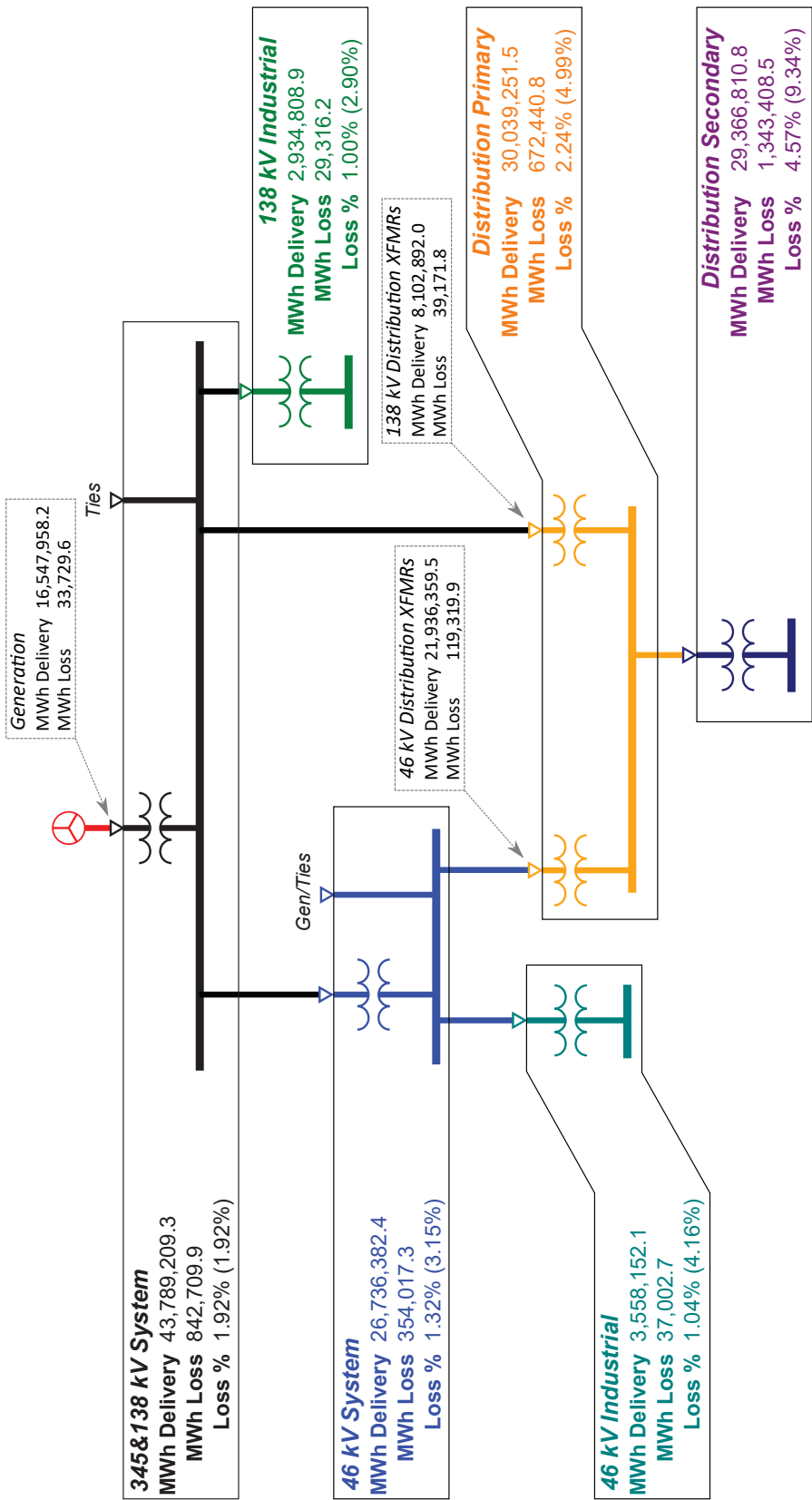
**MONTHLY DEMAND LOSSES AND DELIVERIES**

**Combined Method** (Each System Component Includes Transformation to that Component)

PEAKS		Jan 21, 2019 19:00	Feb 1, 2019 10:00	Mar 4, 2019 20:00	Apr 11, 2019 10:00	May 31, 2019 16:00	Jun 27, 2019 17:00	Jul 19, 2019 16:00	Aug 5, 2019 16:00	Sep 11, 2019 16:00	Oct 1, 2019 13:00	Nov 13, 2019 19:00	Dec 11, 2019 19:00
<b>GENERATION</b>	Deliveries (MW)	4067.0	3427.9	2361.9	1571.9	3278.6	4287.8	4691.6	4568.8	4494.0	3003.9	3176.1	3311.7
	Losses (MW)	6.3	5.1	3.4	2.0	6.4	7.2	7.9	7.2	7.8	4.2	4.6	5.1
	Deliveries (MW)	6458.1	6112.2	5844.5	5337.9	5315.8	7108.3	8374.9	7473.8	6793.1	6118.2	5945.5	6183.0
	Losses (MW)	151.6	112.7	118.3	91.6	98.4	186.1	187.0	195.1	179.7	120.3	98.8	122.8
<b>345&amp;138 KV SYSTEM</b>	Loss Factor	2.35%	1.84%	2.02%	1.72%	1.85%	2.62%	2.23%	2.61%	2.65%	1.97%	1.66%	1.99%
	Deliveries (MW)	407.7	322.8	361.9	340.1	335.1	327.0	390.6	370.7	382.5	394.2	376.1	370.0
	Losses (MW)	3.4	3.3	3.3	3.3	3.4	3.4	3.8	3.6	3.5	3.6	3.4	3.4
	Loss Factor	0.83%	1.04%	0.91%	0.96%	1.02%	1.05%	0.97%	0.98%	0.93%	0.92%	0.91%	0.92%
<b>138 KV INDUSTRIAL<sup>3</sup></b>	Cumulative Loss Factor <sup>2</sup>	3.16%	2.86%	2.92%	2.66%	2.85%	3.64%	3.18%	3.57%	3.55%	2.86%	2.56%	2.89%
	Deliveries (MW)	3943.9	3869.2	3832.7	3318.1	3225.3	4760.7	5757.1	5087.7	4572.9	3859.2	3647.6	3886.9
	Losses (MW)	60.0	57.1	56.0	43.9	45.6	82.8	114.3	92.7	77.0	57.2	53.8	58.2
	Loss Factor	1.52%	1.48%	1.46%	1.32%	1.42%	1.74%	1.99%	1.82%	1.68%	1.48%	1.48%	1.50%
<b>46 KV SYSTEM</b>	Cumulative Loss Factor <sup>2</sup>	3.83%	3.29%	3.46%	3.02%	3.24%	4.31%	4.17%	4.38%	4.28%	3.42%	3.11%	3.45%
	Deliveries (MW)	419.9	444.3	428.1	448.6	445.2	465.1	479.4	474.9	492.8	454.3	421.5	442.1
	Losses (MW)	4.5	4.5	4.4	4.6	4.6	4.4	4.4	4.4	4.5	4.4	4.1	4.2
	Loss Factor	1.08%	1.01%	1.03%	1.02%	1.04%	0.94%	0.93%	0.93%	0.92%	0.96%	0.98%	0.96%
<b>46 KV INDUSTRIAL</b>	Cumulative Loss Factor <sup>2</sup>	4.87%	4.27%	4.45%	4.01%	4.24%	5.21%	5.06%	5.27%	5.16%	4.35%	4.06%	4.38%
	Deliveries (MW)	1130.7	1077.6	1041.2	940.5	1097.7	1427.6	1667.1	1502.6	1381.5	1178.7	1186.5	1166.9
	Losses (MW)	5.8	5.0	4.8	4.3	5.3	7.4	8.7	7.8	6.9	5.5	5.8	5.6
	Loss Factor	3339.1	3236.4	3223.8	2711.7	2626.3	4071.9	5001.4	4360.4	3870.8	3226.4	3055.2	3261.2
<b>46 KV DISTRIBUTION</b>	Deliveries (MW)	17.3	16.9	16.7	14.1	14.4	22.9	30.2	24.9	21.5	17.3	16.5	17.3
	Losses (MW)	4469.8	4314.1	4265.0	3652.2	3724.0	5499.5	6668.6	5863.0	5252.3	4405.1	4241.7	4428.1
	Deliveries (MW)	119.7	110.3	103.4	87.8	123.7	186.6	238.6	197.6	180.4	119.2	106.8	111.9
	Loss Factor	2.68%	2.56%	2.42%	2.40%	3.32%	3.39%	3.58%	3.37%	3.43%	2.71%	2.52%	2.53%
<b>DISTRIBUTION PRIMARY</b>	Cumulative Loss Factor <sup>2</sup>	6.04%	5.41%	5.45%	5.02%	6.06%	7.13%	7.13%	7.17%	7.15%	5.66%	5.16%	5.52%
	Deliveries (MW)	4350.2	4203.7	4161.7	3564.5	3600.2	5312.9	6430.0	5665.4	5072.0	4285.9	4134.9	4316.2
	Losses (MW)	151.3	146.2	144.8	124.0	125.2	184.8	223.7	197.1	176.4	149.1	143.8	150.1
	Loss Factor <sup>1</sup>	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%
<b>DISTRIBUTION SECONDARY</b>	Cumulative Loss Factor <sup>2</sup>	9.31%	8.70%	8.74%	8.32%	9.33%	10.36%	10.36%	10.40%	10.38%	8.94%	8.45%	8.80%

1. The Distribution Secondary Loss factor presented above represents an annual average loss percentage. This Loss factor is applied to each of the 12 monthly peaks to estimate monthly peak demand losses and cumulative demand Loss Factors.
2. See Page 5 for additional notes regarding Cumulative Losses.
3. 138 KV INDUSTRIAL Deliveries and Losses do not include HSC volumes.

**ENERGY LOSSES AND DELIVERIES (TOTAL YEARLY MWh)**  
**Combined Method** (Each System Component Includes Transformation to that Component)



**General Notes**

- 138 kV Industrial Delivery and Loss does not include HSC volumes
- Loss percentages are calculated as  $\text{Loss \%} = (\text{MWh Loss} / \text{MWh Delivery}) \times 100\%$
- Loss percentages in parentheses are the Cumulative Loss Percentages
- Cumulative Loss factors are calculated as one minus the product of one minus the per unit loss factor for that component and all upstream components.
- Loss % for Distribution Primary Lines (1.72%) provided by C&SI – LVD
- Generation Transformers were combined with the 345 & 138 kV system because all customers are connected at lower voltages (components).

**Notes for Distribution Primary and Secondary**

- MWh Delivery is high-side sum of 138/DST and 46/DST XFMRs
- MWh Loss includes 138 & 46 /DST XFMR AND primary line loss
- Cumulative Loss % is adjusted based on the weighted average amount of load served from 138 kV and 46 kV:  
First,  $[(21,936,359.5) \times 3.15\% + (8,102,892.0) \times 1.92\%] / (21,936,359.5 + 8,102,892.0) = 2.82\%$ .  
Then,  $[1 - (1 - 0.0224) \times (1 - 0.0282)] \times 100\% = 4.99\%$

Jul 9, 2020

2019 Electric System Loss Study Report

**CUMULATIVE ENERGY LOSS PERCENTAGES APPLIED TO MWh DELIVERIES**  
**Combined Method** (Each System Component Includes Transformation to that Component)

Electrical System Voltage Level	MWh Deliveries (Total) <sup>5</sup>	Cumulative % Energy Loss <sup>4</sup>	Estimated MWh @ Generation	% Energy Loss	Notes
138 kV System	2,523,838	1.92%	2,573,361	1.92%	
V1: >120kV <sup>1&amp;6</sup>	952,502	2.90%	980,992	1.00%	
46 kV System <sup>1</sup>	514,453	3.15%	531,175	1.32%	
V2: 25kV - 120kV <sup>1</sup>	3,130,330	4.16%	3,266,044	1.04%	
V3: <25kV, Primary Distribution <sup>1&amp;2</sup>	7,824,976	4.99%	8,236,254	2.24%	
V4: Secondary Distribution <sup>1,2&amp;3</sup>	20,032,041	9.34%	22,095,704	4.57%	
TOTAL	34,978,140		37,683,530	7.18%	

**NOTES:**

1. The cumulative loss for any level is equal to one minus the product of one minus the per unit loss factor for that level and one minus the per unit cumulative loss factor one level higher.
2. The Cumulative Loss percentages for the Distribution Primary and Secondary were adjusted to account for load served from 138 kV distribution subs. This adjustment was based on a weighted average cumulative loss % from the total MWh delivered to either 46kV/Dist. or 138/Dist.
3. The Distribution Secondary Cumulative Loss % was calculated from the MWh Gen and MWh Del remaining. Then, the Demand Loss % was calculated in reverse from the cumulative.
4. All cumulative loss percentages are calculated assuming the 345 kV and 138 kV Systems are combined along with the Generation Transformers (GSUs)
5. MWh Delivery figures include ROA amounts.
6. V1: >120kV does not include HSC volumes.

Jul 9, 2020

2019 Electric System Loss Study Report

## ENERGY AND DEMAND LOSS PERCENTAGES 4-Year Summary

ENERGY LOSS %	2016	2017	2018	2019	4 yr Avg.
345 & 138 kV System	2.20%	2.24%	2.10%	1.92%	2.12%
138 kV Industrial	0.70%	0.69%	0.73%	1.00%	0.78%
46 kV System	1.27%	1.25%	1.33%	1.32%	1.29%
46 kV Industrial	1.12%	1.13%	0.89%	1.04%	1.04%
Distribution Primary	2.32%	2.43%	2.38%	2.24%	2.34%
Distribution Secondary	4.57%	3.13%	4.92%	4.57%	4.30%

ENERGY LOSS CUMULATIVE%	2016	2017	2018	2019	4 yr Avg.
345 & 138 kV System	2.20%	2.24%	2.10%	1.92%	2.12%
138 kV Industrial	2.89%	2.91%	2.81%	2.90%	2.88%
46 kV System	3.44%	3.37%	3.33%	3.15%	3.32%
46 kV Industrial	4.52%	4.46%	4.18%	4.16%	4.33%
Distribution Primary	5.35%	5.43%	5.32%	4.99%	5.27%
Distribution Secondary	9.68%	8.39%	9.97%	9.34%	9.34%

DEMAND LOSS %	2016	2017	2018	2019	4 yr Avg.
345 & 138 kV System	2.42%	2.38%	2.51%	2.13%	2.36%
138 kV Industrial	0.69%	0.68%	0.72%	0.95%	0.76%
46 kV System	1.52%	1.49%	1.64%	1.57%	1.56%
46 kV Industrial	1.06%	1.07%	0.85%	0.98%	0.99%
Distribution Primary	2.82%	2.95%	2.94%	2.69%	2.85%
Distribution Secondary	5.71%	4.43%	2.84%	3.48%	4.11%

DEMAND LOSS CUMULATIVE%	2016	2017	2018	2019	4 yr Avg.
345 & 138 kV System	2.42%	2.38%	2.51%	2.13%	2.36%
138 kV Industrial	3.10%	3.04%	3.22%	3.06%	3.10%
46 kV System	3.91%	3.83%	4.11%	3.67%	3.88%
46 kV Industrial	4.93%	4.85%	4.92%	4.61%	4.83%
Distribution Primary	6.22%	6.30%	6.54%	5.87%	6.23%
Distribution Secondary	11.58%	10.45%	9.20%	9.14%	10.09%

### General Notes

- Annual Loss percentages are calculated as Loss % = [MW(h) Loss/MW(h) Delivery] x 100%
- Annual Cumulative Loss percentages are calculated as one minus the product of one minus the per unit Loss Factor for that component and for all upstream components.
- 4-year Average Loss percentages and Cumulative Loss percentages are the averages of the annual loss percentages.
- 2018 138 kV Industrial loss percentages do not include HSC losses.

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 1 of 16

Witness: RTBlumenstock

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line			Projected 2022			
No.	Sub-Program	Project Description, Line, Substation, or Location	Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1	LVD Lines Rehabilitation	FA PENINSULA/MAPLETON 1007695534	\$	81	1 Project	Imminent Rehabilitation
2		FA BRADFORD/DISTRIBUTION 1015808879	\$	14	1 Project	Imminent Rehabilitation
3		FA ST CHARLES/FERGUS 1023265346	\$	45	1 Project	Imminent Rehabilitation
4		FA SPRING LAKE/COUNTRY CLUB 1026632744	\$	9	1 Project	Imminent Rehabilitation
5		FA FLETCHER/BAY VIEW 1028131706	\$	6	1 Project	Imminent Rehabilitation
6		FA CONWAY/BAY VIEW 1028131725	\$	40	1 Project	Imminent Rehabilitation
7		FA BRETON/PLYMOUTH 1028977785	\$	28	1 Project	Imminent Rehabilitation
8		FA BRETON/KEN-O-SHA 1029985142	\$	6	1 Project	Imminent Rehabilitation
9		FA STANDALE/STANDALE 1030179988	\$	5	1 Project	Imminent Rehabilitation
10		FA STANDALE/STANDALE 1030179988	\$	5	1 Project	Imminent Rehabilitation
11		FA SHAFFER/KEELER 1030240610	\$	8	1 Project	Imminent Rehabilitation
12		FA PINE RIVER/RURAL 1030352505	\$	9	1 Project	Imminent Rehabilitation
13		FA DUTTON/GLENWOOD 1030399635	\$	2	1 Project	Imminent Rehabilitation
14		FA BURLINGAME/BURLINGAME 1030735670	\$	18	1 Project	Imminent Rehabilitation
15		FA DRAKE ROAD/COUNTRY CLUB 1030829566	\$	234	1 Project	Imminent Rehabilitation
16		FA STONEGATE/CHRISTIAN 1031144646	\$	5	1 Project	Imminent Rehabilitation
17		FA MAYNARD/MAYNARD 1031342974	\$	10	1 Project	Imminent Rehabilitation
18		FA BRETON/PLYMOUTH 1031494855	\$	45	1 Project	Imminent Rehabilitation
19		FA MONA LAKE/AIRPORT 1031517611	\$	3	1 Project	Imminent Rehabilitation
20		FA BURLINGAME/ROBIN 1031571168	\$	10	1 Project	Imminent Rehabilitation
21		FA BURLINGAME/ROBIN 1031938793	\$	2	1 Project	Imminent Rehabilitation
22		FA AMPERSEE/NORTH COMMERCIAL 1031964445	\$	3	1 Project	Imminent Rehabilitation
23		FA BEALS ROAD/BURTON HEIGHTS 1032162338	\$	3	1 Project	Imminent Rehabilitation
24		FA MONTAGUE/NORTH SHORE 1032580833	\$	15	1 Project	Imminent Rehabilitation
25		FA RIVERTOWN/SATTLE 1032812145	\$	13	1 Project	Imminent Rehabilitation
26		FA CALEDONIA/CALEDONIA 1033078874	\$	19	1 Project	Imminent Rehabilitation
27		FA WALDO/LABORATORY 1033127237	\$	33	1 Project	Imminent Rehabilitation
28		FA ORCHARD ROAD/SAGINAW ROAD 1033127266	\$	88	1 Project	Imminent Rehabilitation
29		FA EDDY/FINDLEY 1033158689	\$	85	1 Project	Imminent Rehabilitation
30		FA GREENVILLE/WILLIAMS STREET 1033355987	\$	43	1 Project	Imminent Rehabilitation
31		FA BOSTON SQUARE/HALL 1033437787	\$	6	1 Project	Imminent Rehabilitation
32		FA ALPINE 1033507208	\$	2	1 Project	Imminent Rehabilitation
33		FA HUDSONVILLE/BAUER 1033529320	\$	2	1 Project	Imminent Rehabilitation
34		FA JAMESTOWN/JAMESTOWN 1033529324	\$	3	1 Project	Imminent Rehabilitation
35		FA HUDSONVILLE/HUDSONVILLE 1033529334	\$	1	1 Project	Imminent Rehabilitation
36		FA HUDSONVILLE/BAUER 1033529337	\$	2	1 Project	Imminent Rehabilitation
37		FA CHICAGO/PINEBROOK 1033529338	\$	2	1 Project	Imminent Rehabilitation
38		FA KIRTLAND 1033706156	\$	8	1 Project	Imminent Rehabilitation
39		FA IRISH ROAD/WEXFORD 1033821023	\$	4	1 Project	Imminent Rehabilitation
40		FA SKYLARK/SUN VALLEY 1033821065	\$	3	1 Project	Imminent Rehabilitation
41		FA PEACH RIDGE 1034074145	\$	28	1 Project	Imminent Rehabilitation
42		FA RAMONA/BLODGETT 1034114402	\$	3	1 Project	Imminent Rehabilitation
43		FA ROSEWOOD/COTTONWOOD 1034180898	\$	24	1 Project	Imminent Rehabilitation
44		FA N PARK 1034226932	\$	28	1 Project	Imminent Rehabilitation
45		FA MCCANDLISH/BUSH CREEK 1034244578	\$	6	1 Project	Imminent Rehabilitation
46		FA PALO/CHARLES ROAD 1034290240	\$	8	1 Project	Imminent Rehabilitation
47		FA KENT CITY/CASNOVIA 1034422970	\$	8	1 Project	Imminent Rehabilitation
48		FA MAYNARD/MAYNARD 1034627418	\$	8	1 Project	Imminent Rehabilitation
49		FA BRETON/MEIJER 1034627423	\$	8	1 Project	Imminent Rehabilitation
50		FA LEONARD/IONIA 1034659983	\$	10	1 Project	Imminent Rehabilitation
51		<b>Subtotal</b>	<b>\$</b>	<b>1,056</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 2 of 16

Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<u>Reliability (cont.)</u>					
1		FA MULLINS/ELMRIDGE 1034666766		10	1 Project	Imminent Rehabilitation
2		FA BRETON/KEN-O-SHA 1034666774		10	1 Project	Imminent Rehabilitation
3		FA KNAPP/PERKINS 1034671302		6	1 Project	Imminent Rehabilitation
4		FA BOSTON SQUARE/HALL 1034671309		56	1 Project	Imminent Rehabilitation
5		FA BEALS ROAD/GODWIN HEIGHTS 1034744553		5	1 Project	Imminent Rehabilitation
6		FA MARNE/MARNE 1034760591		10	1 Project	Imminent Rehabilitation
7		FA BYRON CENTER/CARLISLE 1034799645		6	1 Project	Imminent Rehabilitation
8		FA CHICAGO 1034799652		6	1 Project	Imminent Rehabilitation
9		FA BOSTON SQUARE/KALAMAZOO 1034810990		10	1 Project	Imminent Rehabilitation
10		FA HARVEY STREET/DIAMOND 1034810992		10	1 Project	Imminent Rehabilitation
11		FA KENTWOOD/STAUFFER 1034839262		2	1 Project	Imminent Rehabilitation
12		FA DUTTON/CRYSTAL SPRINGS 1034839303		6	1 Project	Imminent Rehabilitation
13		FA BYRON CENTER/BYRON CENTER 1034861861		2	1 Project	Imminent Rehabilitation
14		FA GRANDVILLE/GEORGETOWN 1034907615		2	1 Project	Imminent Rehabilitation
15		FA LEFFINGWELL/NOTTINGHAM 1034911363		5	1 Project	Imminent Rehabilitation
16		FA DUTTON/GLENWOOD 1034941958		10	1 Project	Imminent Rehabilitation
17		FA DUTTON/CRYSTAL SPRINGS 1034941964		10	1 Project	Imminent Rehabilitation
18		FA ROSEWOOD/COTTONWOOD 1034960875		12	1 Project	Imminent Rehabilitation
19		FA KNAPP/PERKINS 1034995391		5	1 Project	Imminent Rehabilitation
20		FA FOUR MILE/WALKENT 1035000523		10	1 Project	Imminent Rehabilitation
21		FA WALKER/ROSALIE 1035026880		10	1 Project	Imminent Rehabilitation
22		FA STONEGATE/CHRISTIAN 1035053281		11	1 Project	Imminent Rehabilitation
23		FA BURLINGAME/BURLINGAME 1035065235		11	1 Project	Imminent Rehabilitation
24		FA BURLINGAME/ROBIN 1035154087		3	1 Project	Imminent Rehabilitation
25		FA NORTH MUSKEGON/DALTON 1035155010		10	1 Project	Imminent Rehabilitation
26		FA DORR CORNERS/RED RUN 1035158495		10	1 Project	Imminent Rehabilitation
27		FA DEWEY/SEATING 1035162001		42	1 Project	Imminent Rehabilitation
28		FA WABASIS 1035179190		10	1 Project	Imminent Rehabilitation
29		FA LELAND/NARROWS 1035566929		49	1 Project	Imminent Rehabilitation
30		FA GLEN LAKE/BURDICKVILLE 1035591068		8	1 Project	Imminent Rehabilitation
31		FA OSCODA/OSCODA 1035636990		42	1 Project	Imminent Rehabilitation
32		FA EASTON/HAYNOR 1035822167		28	1 Project	Imminent Rehabilitation
33		FA VAN BUREN/MOSS LAKE 1036042703		3	1 Project	Imminent Rehabilitation
34		FA WALLOON/DISTRIBUTION 1036344385		5	1 Project	Imminent Rehabilitation
35		FA GREENVILLE/WASHINGTON STREET 1036403783		1	1 Project	Imminent Rehabilitation
36		FA LEE STREET/KIRTLAND 1036405394		34	1 Project	Imminent Rehabilitation
37		FA JAMESTOWN/JAMESTOWN 1036407771		5	1 Project	Imminent Rehabilitation
38		FA MONTAGUE/NORTH SHORE 1036411029		5	1 Project	Imminent Rehabilitation
39		FA STANTON/DICKERSON LAKE 1036484420		3	1 Project	Imminent Rehabilitation
40		FA 3RD ST 1036505543		10	1 Project	Imminent Rehabilitation
41		FA PEACH RIDGE/BALLARD 1036608869		3	1 Project	Imminent Rehabilitation
42		FA NUNICA/WILSON 1036611316		8	1 Project	Imminent Rehabilitation
43		FA CASCADE/CASCADE 1036634937		9	1 Project	Imminent Rehabilitation
44		FA CASCADE/CASCADE 1036634937		9	1 Project	Imminent Rehabilitation
45		FA BROADMOOR/MEADOWLANE 1036634947		10	1 Project	Imminent Rehabilitation
46		FA BROADMOOR/MEADOWLANE 1036634947		10	1 Project	Imminent Rehabilitation
47		FA ROSEWOOD/PIONEER 1036645672		10	1 Project	Imminent Rehabilitation
48		FA ABERDEEN/KNAPP 1036705005		36	1 Project	Imminent Rehabilitation
49		FA RIVER DR 1036921904		10	1 Project	Imminent Rehabilitation
50		FA ABERDEEN/ABERDEEN 1036943579		10	1 Project	Imminent Rehabilitation
51		Subtotal \$		605		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA WIRTZ ROAD/BOWMANVILLE 1036975175		2	1 Project	Imminent Rehabilitation
2		FA DAVISON/POTTER LAKE 1037014182		11	1 Project	Imminent Rehabilitation
3		FA ENGLISHVILLE/ENGLISHVILLE 1037165176		12	1 Project	Imminent Rehabilitation
4		FA MCGRAW/CASS 1037198654		85	1 Project	Imminent Rehabilitation
5		FA WALDO/LABORATORY 1037487917		28	1 Project	Imminent Rehabilitation
6		FA LAGRAVE/PRESS 1037780655		7	1 Project	Imminent Rehabilitation
7		FA OTTAWA BEACH/PORT SHELDON 1037956154		1	1 Project	Imminent Rehabilitation
8		FA DORR CORNERS/100TH STREET 1038018800		10	1 Project	Imminent Rehabilitation
9		FA LEE STREET/KIRTLAND 1038181493		5	1 Project	Imminent Rehabilitation
10		FA IRISH ROAD/WEXFORD 1038344469		3	1 Project	Imminent Rehabilitation
11		FA BARNARD/HOSPITAL 1038354320		5	1 Project	Imminent Rehabilitation
12		FA BAY ROAD/BAY ROAD 1038466738		129	1 Project	Imminent Rehabilitation
13		FA MERSON/DUCK LAKE 1038502909		127	1 Project	Imminent Rehabilitation
14		FA ALTO/ALTO 1038520456		96	1 Project	Imminent Rehabilitation
15		FA WILMOTT/WILMOTT 1038724880		403	1 Project	Imminent Rehabilitation
16		FA NIAGARA/ADAMS 1038901172		24	1 Project	Imminent Rehabilitation
17		FA KRAFT AVENUE/ACQUEST 1038910311		6	1 Project	Imminent Rehabilitation
18		FA GLEN LAKE/HOMESTEAD 1039218766		131	1 Project	Imminent Rehabilitation
19		FA RATIGAN/MURRAY LAKE 1039301093		2	1 Project	Imminent Rehabilitation
20		FA LEE STREET/CENTURY 1039467270		10	1 Project	Imminent Rehabilitation
21		FA GREENSPIRE/MOORS 1039644366		169	1 Project	Imminent Rehabilitation
22		FA BOSTON SQUARE/NELAND 1039827371		22	1 Project	Imminent Rehabilitation
23		FA RATIGAN/MURRAY LAKE 1039838929		2	1 Project	Imminent Rehabilitation
24		FA WITHEY LAKE/PETTT 1040015008		8	1 Project	Imminent Rehabilitation
25		FA GLENDALE/KEYES 1040137943		1	1 Project	Imminent Rehabilitation
26		FA TORCH LAKE 1040175645		18	1 Project	Imminent Rehabilitation
27		FA BAGLEY/OTSEGO LAKE 1040175704		27	1 Project	Imminent Rehabilitation
28		FA KOCHVILLE/KRAENZLEIN 1040194641		17	1 Project	Imminent Rehabilitation
29		FA PENINSULA/MCKINLEY ROAD 1040361039		5	1 Project	Imminent Rehabilitation
30		FA BYRON CENTER/RAILSIDE 1040525150		5	1 Project	Imminent Rehabilitation
31		FA WALKER/ROSALIE 1040568529		10	1 Project	Imminent Rehabilitation
32		FA GLEN LAKE/HOMESTEAD 1040582707		7	1 Project	Imminent Rehabilitation
33		FA CHEBOYGAN/ALVERNO 1040736969		14	1 Project	Imminent Rehabilitation
34		FA DAVENPORT/CONGRESS 1040748355		44	1 Project	Imminent Rehabilitation
35		FA SURREY/SURREY 1040879269		40	1 Project	Imminent Rehabilitation
36		FA BEAVER/CRUMP 1040889554		12	1 Project	Imminent Rehabilitation
37		FA HURON/MONITOR 1040889623		12	1 Project	Imminent Rehabilitation
38		FA TOWN LINE/MACKINAW 1040889666		12	1 Project	Imminent Rehabilitation
39		FA HOTCHKISS/BAY VALLEY 1040889724		131	1 Project	Imminent Rehabilitation
40		FA ROSEWOOD/LAMPLITER 1040894203		5	1 Project	Imminent Rehabilitation
41		FA GRANDVILLE/GEORGETOWN 1040982404		1	1 Project	Imminent Rehabilitation
42		FA BOYNE CITY/BOYNE CITY 1040992476		8	1 Project	Imminent Rehabilitation
43		FA SUTTONS BAY/BINGHAM 1041026969		8	1 Project	Imminent Rehabilitation
44		FA HOUSEMAN 1041064548		21	1 Project	Imminent Rehabilitation
45		FA CASCADE/THORNCREST 1041074330		9	1 Project	Imminent Rehabilitation
46		FA CONWAY/ODEN 1041159655		11	1 Project	Imminent Rehabilitation
47		FA KELLOGGSVILLE/CHEMICAL 1041262579		4	1 Project	Imminent Rehabilitation
48		FA NOBLE/WHITNEY 1041280852		12	1 Project	Imminent Rehabilitation
49		FA KNAPP/PERKINS 1041329371		2	1 Project	Imminent Rehabilitation
50		FA LEFFINGWELL/NOTTINGHAM 1041330060		4	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>	<b>1,738</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 4 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA PALO/CHARLES ROAD 1041364015		1	1 Project	Imminent Rehabilitation
2		FA MCCANDLISH/THREAD RIVER 1041460017		7	1 Project	Imminent Rehabilitation
3		FA BROADWAY/PHILLIPS 1041464962		15	1 Project	Imminent Rehabilitation
4		FA HANNA LAKE 1041485298		5	1 Project	Imminent Rehabilitation
5		FA PENINSULA/MAPLETON 1041560198		8	1 Project	Imminent Rehabilitation
6		FA NORTH KENT/FIVE MILE 1041635073		42	1 Project	Imminent Rehabilitation
7		FA STARKS/LEE 1041668081		15	1 Project	Imminent Rehabilitation
8		FA WEALTHY STREET/INDIANA 1041669561		2	1 Project	Imminent Rehabilitation
9		FA LEFFINGWELL/NOTTINGHAM 1041669618		11	1 Project	Imminent Rehabilitation
10		FA BYRON CENTER/BYRON CENTER 1041684250		5	1 Project	Imminent Rehabilitation
11		FA SPRING LAKE/SPRING LAKE 1041694530		20	1 Project	Imminent Rehabilitation
12		FA JANES/WALNUT 1041697719		8	1 Project	Imminent Rehabilitation
13		FA CRAWFORD/DEERFIELD 1041852071		6	1 Project	Imminent Rehabilitation
14		FA ROSEWOOD/COTTONWOOD 1041855110		13	1 Project	Imminent Rehabilitation
15		FA ASHMAN CIRCLE/ASHMAN 1041924949		19	1 Project	Imminent Rehabilitation
16		FA BOYNE CITY/BOYNE CITY 1041970621		3	1 Project	Imminent Rehabilitation
17		FA OBERLIN/BENMARK 1042095613		85	1 Project	Imminent Rehabilitation
18		FA CALEDONIA/CALEDONIA 1042134802		6	1 Project	Imminent Rehabilitation
19		FA SUTTONS BAY/BINGHAM 1042214729		8	1 Project	Imminent Rehabilitation
20		FA DOEHLER JARVIS/SEYMOUR 1042240820		27	1 Project	Imminent Rehabilitation
21		FA FLETCHER/ODEN 1042345341		4	1 Project	Imminent Rehabilitation
22		FA NORTHPORT/OMENA 1042404833		9	1 Project	Imminent Rehabilitation
23		FA LELAND/NARROWS 1042427247		2	1 Project	Imminent Rehabilitation
24		FA KENT AIRPORT/PATTERSON 1042501773		12	1 Project	Imminent Rehabilitation
25		FA RIVERTOWN/POTOMAC 1042521708		23	1 Project	Imminent Rehabilitation
26		FA PENINSULA/MCKINLEY ROAD 1042571502		10	1 Project	Imminent Rehabilitation
27		FA ROSE CITY/KLACKING CREEK 1042681245		10	1 Project	Imminent Rehabilitation
28		FA DOEHLER JARVIS/SEYMOUR 1042701261		2	1 Project	Imminent Rehabilitation
29		FA DOEHLER JARVIS/SEYMOUR 1042701262		2	1 Project	Imminent Rehabilitation
30		FA DOEHLER JARVIS/SEYMOUR 1042701263		2	1 Project	Imminent Rehabilitation
31		FA DOEHLER JARVIS/SEYMOUR 1042701264		2	1 Project	Imminent Rehabilitation
32		FA OBERLIN/MEREDITH 1042781482		6	1 Project	Imminent Rehabilitation
33		FA FOUR MILE/GREENRIDGE 1042801423		1	1 Project	Imminent Rehabilitation
34		FA BEALS ROAD/CLYDE PARK 1042846765		14	1 Project	Imminent Rehabilitation
35		FA BURLINGAME/NEWHALL 1042892996		5	1 Project	Imminent Rehabilitation
36		FA PRESCOTT/MAPLE RIDGE 1042918195		17	1 Project	Imminent Rehabilitation
37		FA CALEDONIA/CALEDONIA 1043010061		1	1 Project	Imminent Rehabilitation
38		FA HOUGHTON HEIGHTS/MERRITT 1043068235		2	1 Project	Imminent Rehabilitation
39		FA GREENVILLE/WILLIAMS STREET 1043316584		9	1 Project	Imminent Rehabilitation
40		FA ROSEWOOD/LAMPLITER 1043414614		3	1 Project	Imminent Rehabilitation
41		FA ROSEWOOD/LAMPLITER 1043414615		3	1 Project	Imminent Rehabilitation
42		FA SANDERSON/M-57 1043432391		37	1 Project	Imminent Rehabilitation
43		FA SANDERSON/M-57 1043432415		7	1 Project	Imminent Rehabilitation
44		FA STANDALE/CHESTERFIELD 1043472033		3	1 Project	Imminent Rehabilitation
45		FA RAMONA/ROBINSON 1043569760		1	1 Project	Imminent Rehabilitation
46		FA BEALS ROAD/ALGER 1043599828		6	1 Project	Imminent Rehabilitation
47		FA TRUFANT/MASTON LAKE 1043668382		14	1 Project	Imminent Rehabilitation
48		FA PARAMOUNT/NORTHLAND 1043668916		8	1 Project	Imminent Rehabilitation
49		FA RIVERTOWN/56TH 1043694952		14	1 Project	Imminent Rehabilitation
50		FA GODFREY/FLAT RIVER 1043713034		16	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>	<b>547</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 5 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA BRECKENRIDGE/VILLAGE 1043803741		5	1 Project	Imminent Rehabilitation
2		FA BOSTON SQUARE/NELAND 1043808868		2	1 Project	Imminent Rehabilitation
3		FA EASTON/PARMETER 1043872535		8	1 Project	Imminent Rehabilitation
4		FA LYONS/COLLINS-RURAL 1043880616		10	1 Project	Imminent Rehabilitation
5		FA CALVIN/WOODCLIFF 1043968408		8	1 Project	Imminent Rehabilitation
6		FA MOLINE/GREEN LAKE 1044152954		7	1 Project	Imminent Rehabilitation
7		FA BRETON/PLYMOUTH 1044163480		4	1 Project	Imminent Rehabilitation
8		FA COOPERSVILLE/CONKLIN 1044617664		1	1 Project	Imminent Rehabilitation
9		FA STATE STREET/MACKINAW 1044656935		8	1 Project	Imminent Rehabilitation
10		FA COMMERCE 1044673291		65	1 Project	Imminent Rehabilitation
11		FA WASHINGTON 1044681890		10	1 Project	Imminent Rehabilitation
12		FA BELLAIRE/DOWNTOWN 1044695045		3	1 Project	Imminent Rehabilitation
13		FA LEVELY/STURGEON 1044737388		33	1 Project	Imminent Rehabilitation
14		FA PENINSULA/MCKINLEY ROAD 1044746281		1	1 Project	Imminent Rehabilitation
15		FA US HIGHWAY 31 1044830755		10	1 Project	Imminent Rehabilitation
16		FA BURLINGAME/BURLINGAME 1044836357		4	1 Project	Imminent Rehabilitation
17		FA BURR OAK 1044844766		5	1 Project	Imminent Rehabilitation
18		FA BELLAIRE/DOWNTOWN 1044932173		2	1 Project	Imminent Rehabilitation
19		FA LEVERING RD 1044942489		10	1 Project	Imminent Rehabilitation
20		FA MEGUZEE 1044943719		14	1 Project	Imminent Rehabilitation
21		FA LARKIN/MORNINGSIDE 1044963432		8	1 Project	Imminent Rehabilitation
22		FA BOSTON SQUARE/HALL 1044975221		5	1 Project	Imminent Rehabilitation
23		FA GLEN LAKE/HOMESTEAD 1045055314		3	1 Project	Imminent Rehabilitation
24		FA LEVELY/ALLBRIGHT 1045060405		6	1 Project	Imminent Rehabilitation
25		FA CUTLERVILLE/GAINES 1045105505		2	1 Project	Imminent Rehabilitation
26		FA HURON AVE 1045105511		10	1 Project	Imminent Rehabilitation
27		FA BOYNE 1045166593		16	1 Project	Imminent Rehabilitation
28		FA MOLINE/GREEN LAKE 1045207197		2	1 Project	Imminent Rehabilitation
29		FA ISABELLA/MISSION 1045244437		6	1 Project	Imminent Rehabilitation
30		FA WIRTZ ROAD/WILDWOOD 1045250020		12	1 Project	Imminent Rehabilitation
31		FA MICHIGAN/LOOKOUT 1045259198		5	1 Project	Imminent Rehabilitation
32		FA LEVELY/ALBRIGHT 1045263755		7	1 Project	Imminent Rehabilitation
33		FA HASKELITE/FISHER BODY 1045315103		10	1 Project	Imminent Rehabilitation
34		FA MANCERLONA/ALBA 1045337895		9	1 Project	Imminent Rehabilitation
35		FA MICHIGAN/LOOKOUT 1045338376		2	1 Project	Imminent Rehabilitation
36		FA BRECKENRIDGE/WHEELER 1045346667		6	1 Project	Imminent Rehabilitation
37		FA BRECKENRIDGE/VILLAGE 1045346744		6	1 Project	Imminent Rehabilitation
38		FA BRECKENRIDGE/VILLAGE 1045346746		6	1 Project	Imminent Rehabilitation
39		FA EDGEWOOD/DISTRIBUTION 1045346749		6	1 Project	Imminent Rehabilitation
40		FA ISABELLA/MISSION 1045346750		6	1 Project	Imminent Rehabilitation
41		FA MISSION/THREE LEAVES 1045346751		12	1 Project	Imminent Rehabilitation
42		FA MT PLEASANT/COLLEGE 1045348001		6	1 Project	Imminent Rehabilitation
43		FA MT PLEASANT/BROADWAY 1045348065		6	1 Project	Imminent Rehabilitation
44		FA MT PLEASANT/BROADWAY 1045348069		6	1 Project	Imminent Rehabilitation
45		FA MT PLEASANT/BROADWAY 1045348073		6	1 Project	Imminent Rehabilitation
46		FA SHEPHERD/FOREST HILL 1045348074		6	1 Project	Imminent Rehabilitation
47		FA ITHACA/COURT HOUSE 1045348076		6	1 Project	Imminent Rehabilitation
48		FA ITHACA/COURT HOUSE 1045348079		6	1 Project	Imminent Rehabilitation
49		FA WALDO/JEFFERSON 1045348794		12	1 Project	Imminent Rehabilitation
50		FA LEE STREET/CENTURY 1045352380		10	1 Project	Imminent Rehabilitation
51		Subtotal \$		411		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 6 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA DEWEY/SEATING 1045400704		14	1 Project	Imminent Rehabilitation
2		FA ROSEWOOD/LAMPLIGHTER 1045439987		65	1 Project	Imminent Rehabilitation
3		FA STARKS/HOMER 1045450092		15	1 Project	Imminent Rehabilitation
4		FA MIDDLETON/NEWARK 1045676899		12	1 Project	Imminent Rehabilitation
5		FA LEVELY/STURGEON 1045926219		12	1 Project	Imminent Rehabilitation
6		FA ROTHBURY/NEW ERA 1045945084		8	1 Project	Imminent Rehabilitation
7		FA BEALS ROAD/EXPRESSWAY 1045945103		11	1 Project	Imminent Rehabilitation
8		FA ASHMAN CIRCLE/SUGNET 1045979145		8	1 Project	Imminent Rehabilitation
9		FA WALKER/ROSALIE 1045980139		10	1 Project	Imminent Rehabilitation
10		FA WICASSETT 1045980627		10	1 Project	Imminent Rehabilitation
11		FA GOLDEN/ROCKWELL 1045986690		12	1 Project	Imminent Rehabilitation
12		FA RIVERTOWN/SATTLER 1045998035		37	1 Project	Imminent Rehabilitation
13		FA WHITTEMORE/SAND LAKE 1046024580		15	1 Project	Imminent Rehabilitation
14		FA WALDO/LABORATORY 1046041440		8	1 Project	Imminent Rehabilitation
15		FA SCOTTVILLE/SCOTTVILLE 1046064428		5	1 Project	Imminent Rehabilitation
16		FA WABASIS 1046080709		14	1 Project	Imminent Rehabilitation
17		FA DUQUITE/SAGANING 1046106861		17	1 Project	Imminent Rehabilitation
18		FA CHEBOYGAN 1046146010		10	1 Project	Imminent Rehabilitation
19		FA SPRINGFIELD/HELMER 1046163940		15	1 Project	Imminent Rehabilitation
20		FA DEWEY/WIDDICOMB 1046197716		8	1 Project	Imminent Rehabilitation
21		FA VILLAGE GREEN/SOUTHLAND 1046237034		12	1 Project	Imminent Rehabilitation
22		FA KELLOGGSVILLE/KELLOGGSVILLE 1046283647		28	1 Project	Imminent Rehabilitation
23		FA LEONARD/IONIA 1046512138		10	1 Project	Imminent Rehabilitation
24		FA DEWEY/SEATING 1046512657		10	1 Project	Imminent Rehabilitation
25		FA WEALTHY STREET/GODFREY 1046574298		17	1 Project	Imminent Rehabilitation
26		FA WEALTHY STREET/BUTTERWORTH 1046583136		11	1 Project	Imminent Rehabilitation
27		FA LEE STREET/KIRTLAND 1046583303		10	1 Project	Imminent Rehabilitation
28		FA KRAFT AVENUE/ACQUEST 1046774132		45	1 Project	Imminent Rehabilitation
29		FA RAMONA/REEDS LAKE 1046788514		5	1 Project	Imminent Rehabilitation
30		FA WALDO/LABORATORY 1047005299		8	1 Project	Imminent Rehabilitation
31		FA PIERSON/PIERSON 1047220076		11	1 Project	Imminent Rehabilitation
32		FA MILL GROVE/DUMONT 1047249632		8	1 Project	Imminent Rehabilitation
33		FA BUSCH ROAD/CURTIS 1047382850		11	1 Project	Imminent Rehabilitation
34		FA WITHEY LAKE/PETTIT 1047412788		12	1 Project	Imminent Rehabilitation
35		FA EASTLAWN/FLAJOLE 1047433651		8	1 Project	Imminent Rehabilitation
36		FA FORDYCE/LINCOLN 1047453466		28	1 Project	Imminent Rehabilitation
37		FA BYRON CENTER/FALCON 1047466133		17	1 Project	Imminent Rehabilitation
38		FA KRAFT AVENUE/ACQUEST 1047639347		15	1 Project	Imminent Rehabilitation
39		FA FORDYCE/LINCOLN 1047688850		6	1 Project	Imminent Rehabilitation
40		FA RAMONA/REEDS LAKE 1047734842		5	1 Project	Imminent Rehabilitation
41		FA RAMONA/REEDS LAKE 1047867530		28	1 Project	Imminent Rehabilitation
42		FA BUSCH ROAD/CURTIS 1047889995		8	1 Project	Imminent Rehabilitation
43		FA ROTHBURY/NEW ERA 1047894438		1	1 Project	Imminent Rehabilitation
44		FA JASPER/JASPER 1047903007		12	1 Project	Imminent Rehabilitation
45		FA BENTHEIM/BENTHEIM 1047942770		15	1 Project	Imminent Rehabilitation
46		FA SANFORD DAM/OLSON 1047967176		7	1 Project	Imminent Rehabilitation
47		FA HAGER PARK/HAGER PARK 1048023739		2	1 Project	Imminent Rehabilitation
48		FA KELSEY 1048061842		17	1 Project	Imminent Rehabilitation
49		FA BELSAY/LAPEER ROAD 1048077950		6	1 Project	Imminent Rehabilitation
50		FA ASHLEY/NORTH STAR 1048117770		12	1 Project	Imminent Rehabilitation
51		Subtotal \$		689		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA PALMER/WATER LIFT 1048128484		3	1 Project	Imminent Rehabilitation
2		FA LARKIN/N MIDLAND 1048137214		8	1 Project	Imminent Rehabilitation
3		FA LIBERTY/WASHINGTON 1048144254		12	1 Project	Imminent Rehabilitation
4		FA LEVELY/STURGEON 1048207201		8	1 Project	Imminent Rehabilitation
5		FA NORTH ALLEGAN/HUBBARD 1048295868		12	1 Project	Imminent Rehabilitation
6		FA ALGER/FOREST LAKE 1048306630		8	1 Project	Imminent Rehabilitation
7		FA ELM STREET/MAIN STREET 1048420893		6	1 Project	Imminent Rehabilitation
8		FA PATTERSON/PATTERSON 1048431701		12	1 Project	Imminent Rehabilitation
9		FA FENNVILLE/PEACH BELT 1048462765		12	1 Project	Imminent Rehabilitation
10		FA CEDAR SPRINGS/EDGERTON 1048599470		14	1 Project	Imminent Rehabilitation
11		FA CASCO/HAWKHEAD 1048626928		8	1 Project	Imminent Rehabilitation
12		FA DEWEY/CONVENTION CENTER 1048738712		3	1 Project	Imminent Rehabilitation
13		FA PENTWATER/JUDD 1048824028		5	1 Project	Imminent Rehabilitation
14		FA SPRINGFIELD/HELMER 1048845586		5	1 Project	Imminent Rehabilitation
15		FA LINCOLN 1048931668		10	1 Project	Imminent Rehabilitation
16		FA HUDSONVILLE/32ND 1049047354		65	1 Project	Imminent Rehabilitation
17		FA PHILLIPS/FACTORY 1049274504		14	1 Project	Imminent Rehabilitation
18		FA GRASS LAKE 1049525193		6	1 Project	Imminent Rehabilitation
19		FA HOSPITAL/ELMWOOD 1049600447		3	1 Project	Imminent Rehabilitation
20		FA 20TH 1049819703		14	1 Project	Imminent Rehabilitation
21		FA SPICEBUSH/LESTER LAKE 1049819735		11	1 Project	Imminent Rehabilitation
22		FA ST CHARLES/SAGINAW 1049908460		12	1 Project	Imminent Rehabilitation
23		FA KOCHVILLE/KRAENZLEIN 1049957343		17	1 Project	Imminent Rehabilitation
24		FA HUBBARDSTON ROAD/HUBBARDSTON 1050270260		9	1 Project	Imminent Rehabilitation
25		FA HAMILTON 1050271851		11	1 Project	Imminent Rehabilitation
26		FA MCCracken/SHERMAN 1050508294		10	1 Project	Imminent Rehabilitation
27		FA BEALS ROAD/GODWIN HEIGHTS 1050640371		9	1 Project	Imminent Rehabilitation
28		FA HARVEY STREET/FULLER 1050745548		6	1 Project	Imminent Rehabilitation
29		FA ALAMO/OWEN 1050899404		11	1 Project	Imminent Rehabilitation
30		FA SAUGATUCK/SAUGATUCK 1050924218		6	1 Project	Imminent Rehabilitation
31		FA M 37 1050954038		12	1 Project	Imminent Rehabilitation
32		FA CUTLERVILLE/CUTLERVILLE 1051003064		2	1 Project	Imminent Rehabilitation
33		FA BENTHEIM/140TH AVENUE 1051207260		10	1 Project	Imminent Rehabilitation
34		FA WESTNEDGE 1051737220		11	1 Project	Imminent Rehabilitation
35		FA 106TH 1051798081		14	1 Project	Imminent Rehabilitation
36		FA BIL-MAR/PIERCE 1051854852		4	1 Project	Imminent Rehabilitation
37		FA WILMOTT/WILMOTT 1051883863		4	1 Project	Imminent Rehabilitation
38		FA WASHINGTON 1051915084		14	1 Project	Imminent Rehabilitation
39		FA LAWRENCE/CHRISTIE LAKE 1051964947		7	1 Project	Imminent Rehabilitation
40		FA BLACK RIVER/FILLMORE 1051983065		3	1 Project	Imminent Rehabilitation
41		FA ASH ROAD/STERLING ROAD 1052002728		12	1 Project	Imminent Rehabilitation
42		FA QUINCY/CHICAGO ROAD 1052009959		12	1 Project	Imminent Rehabilitation
43		FA CARLETON ROAD/BECK ROAD 1052015350		12	1 Project	Imminent Rehabilitation
44		FA DOBSON ROAD/HALF MOON 1052015487		12	1 Project	Imminent Rehabilitation
45		FA CAMDEN/MONTGOMERY 1052016205		12	1 Project	Imminent Rehabilitation
46		FA LITCHFIELD/QUAKER LAKE 1052019386		12	1 Project	Imminent Rehabilitation
47		FA LETTS ROAD/WALKER 1052033311		12	1 Project	Imminent Rehabilitation
48		FA SALZBURG/SALZBURG 1052033863		12	1 Project	Imminent Rehabilitation
49		FA TOWN LINE/FRASER 1052037037		12	1 Project	Imminent Rehabilitation
50		FA PORTAGE/CARPENTERS CORNERS 1052191698		3	1 Project	Imminent Rehabilitation
51		<b>Subtotal</b>	<b>\$</b>	<b>527</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1		FA COLON/COLON 1052191886		10	1 Project	Imminent Rehabilitation
2		FA DELTA 1052509330		10	1 Project	Imminent Rehabilitation
3		FA OAKWOOD/BROADWAY 1052572529		10	1 Project	Imminent Rehabilitation
4		FA KILGORE/WISTERIA 1052572532		2	1 Project	Imminent Rehabilitation
5		FA KILGORE/WISTERIA 1052598573		2	1 Project	Imminent Rehabilitation
6		FA ORIOLE 1052654871		14	1 Project	Imminent Rehabilitation
7		FA RAMONA/REEDS LAKE 1052662537		5	1 Project	Imminent Rehabilitation
8		FA BACKUS/SPRINGBROOK 1052755564		8	1 Project	Imminent Rehabilitation
9		FA PEARL 1052811049		10	1 Project	Imminent Rehabilitation
10		FA ROSEWOOD/COTTONWOD 1052818631		3	1 Project	Imminent Rehabilitation
11		FA KOLASSA/KOSMERICK 1052959330		3	1 Project	Imminent Rehabilitation
12		FA 20TH 1052984856		8	1 Project	Imminent Rehabilitation
13		FA KOLASSA/MATTESON 1053245749		23	1 Project	Imminent Rehabilitation
14		FA 123RD 1053320521		14	1 Project	Imminent Rehabilitation
15		FA 12TH 1053349857		17	1 Project	Imminent Rehabilitation
16		FA FIRST 1053382902		14	1 Project	Imminent Rehabilitation
17		FA FILLMORE/64TH STREET 1053482286		11	1 Project	Imminent Rehabilitation
18		FA ASHMAN CIRCLE/HIGH SCHOOL 1053506617		35	1 Project	Imminent Rehabilitation
19		FA GLEN LAKE/BURDICKVILLE 1053563269		18	1 Project	Imminent Rehabilitation
20		FA QUINCY/CHICAGO ROAD 1053648514		5	1 Project	Imminent Rehabilitation
21		FA 124TH 1053660257		8	1 Project	Imminent Rehabilitation
22		FA LAKESHORE 1053694991		14	1 Project	Imminent Rehabilitation
23		FA 64TH 1053713057		17	1 Project	Imminent Rehabilitation
24		FA DELTON/DELTON 1053757050		7	1 Project	Imminent Rehabilitation
25		FA MAPLE 1053757060		14	1 Project	Imminent Rehabilitation
26		FA ABBE/HWY 33 1053771467		12	1 Project	Imminent Rehabilitation
27		FA ALLEN 1053798699		14	1 Project	Imminent Rehabilitation
28		FA HASTINGS/HANOVER 1053804792		11	1 Project	Imminent Rehabilitation
29		FA TAWAS/TAWAS 1053871928		12	1 Project	Imminent Rehabilitation
30		FA GREENSPIRE/MOORS 1053877683		5	1 Project	Imminent Rehabilitation
31		FA GOLDEN/CONTINENTAL 1053885652		12	1 Project	Imminent Rehabilitation
32		FA PRINCETON/BELLEVUE 1053901164		23	1 Project	Imminent Rehabilitation
33		FA ALBER/ALBER 1053902135		11	1 Project	Imminent Rehabilitation
34		FA 116TH 1053981345		14	1 Project	Imminent Rehabilitation
35		FA STOCKFORD 1054099673		14	1 Project	Imminent Rehabilitation
36		FA GIRARD/DAYBURG ROAD 1054206220		15	1 Project	Imminent Rehabilitation
37		FA 23 MILE 1054303999		14	1 Project	Imminent Rehabilitation
38		FA ALBER/TERRITORIAL 1054351464		6	1 Project	Imminent Rehabilitation
39		FA ABBE/ABBE 1054352417		42	1 Project	Imminent Rehabilitation
40		FA 8TH 1054648129		14	1 Project	Imminent Rehabilitation
41		FA ADRIAN 1054706090		14	1 Project	Imminent Rehabilitation
42		FA GILMORE 1054897535		14	1 Project	Imminent Rehabilitation
43		FA BREEDSVILLE/BREEDSVILLE 1054906026		25	1 Project	Imminent Rehabilitation
44		FA LYMAN 1055066465		8	1 Project	Imminent Rehabilitation
45		FA CAMERON 1055169836		8	1 Project	Imminent Rehabilitation
46		FA D AVE 1055507765		14	1 Project	Imminent Rehabilitation
47		FA BENTHEIM/140TH AVE 1055549585		12	1 Project	Imminent Rehabilitation
48		FA 104TH 1055590231		14	1 Project	Imminent Rehabilitation
49		FA UNION 1055596456		10	1 Project	Imminent Rehabilitation
50		FA 138TH 1055668576		14	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>		<b>629</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 9 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA VASSAR 1055790891		14	1 Project	Imminent Rehabilitation
2		FA TORREY 1055863415		11	1 Project	Imminent Rehabilitation
3		FA US 12 1055863964		14	1 Project	Imminent Rehabilitation
4		FA FREELAND/RURAL 1035747380		8	1 Project	Imminent Rehabilitation
5		FA SMITH CREEK/WRIGHT (EAST) 1036391610		12	1 Project	Imminent Rehabilitation
6		FA WIRTZ/WILDWOOD 1041579014		18	1 Project	Imminent Rehabilitation
7		FA LAKE 1044621406		14	1 Project	Imminent Rehabilitation
8		FA SMITH CREEK/WRIGHT 1044890773		15	1 Project	Imminent Rehabilitation
9		FA BEAVER/SEIDERS 1045347420		6	1 Project	Imminent Rehabilitation
10		FA CLARE/CLARE 1045396503		23	1 Project	Imminent Rehabilitation
11		FA BULLOCK/POSEYVILLE 1045842823		12	1 Project	Imminent Rehabilitation
12		FA SHATTUCK/FOX GLEN 1046793089		8	1 Project	Imminent Rehabilitation
13		FA CALVIN/BELTLINE 1047053837		34	1 Project	Imminent Rehabilitation
14		FA STARKS/LEE 1047137579		12	1 Project	Imminent Rehabilitation
15		FA LEVELY/ALLBRIGHT 1047312059		12	1 Project	Imminent Rehabilitation
16		FA EASTLAWN/FLAJOLE 1047725914		6	1 Project	Imminent Rehabilitation
17		FA GROVER/TRIANGLE 1048181581		8	1 Project	Imminent Rehabilitation
18		FA CALVIN/BELTLINE 1048303932		68	1 Project	Imminent Rehabilitation
19		FA GROVER/TRIANGLE 1048356697		2	1 Project	Imminent Rehabilitation
20		FA LEVELY/STURGEON 1048656208		7	1 Project	Imminent Rehabilitation
21		FA BROADMOOR/BARDEN 1049033429		3	1 Project	Imminent Rehabilitation
22		FA ALGER/SKIDWAY 1049043046		10	1 Project	Imminent Rehabilitation
23		FA LEVELY/STURGEON 1049043181		8	1 Project	Imminent Rehabilitation
24		FA MCGRAW/PORTSMOUTH 1049441991		8	1 Project	Imminent Rehabilitation
25		FA BRADFORD/DISTRIBUTION 1049698881		12	1 Project	Imminent Rehabilitation
26		FA DAVENPORT/CONGRESS 1050277329		15	1 Project	Imminent Rehabilitation
27		FA STATE STREET/STATE STREET 1050583311		8	1 Project	Imminent Rehabilitation
28		FA ASHMAN CRICLE/SUGNET 1050675342		12	1 Project	Imminent Rehabilitation
29		FA KNIGHT/ROSEMARY 1050789807		8	1 Project	Imminent Rehabilitation
30		FA EAST TAWAS/LINCOLN STREET 1050932582		11	1 Project	Imminent Rehabilitation
31		FA PEACH RIDGE/BALLARD 1051314248		7	1 Project	Imminent Rehabilitation
32		FA AUBURN/ELEVATOR 1051639551		12	1 Project	Imminent Rehabilitation
33		FA MERRILL/MERRILL 1051881937		12	1 Project	Imminent Rehabilitation
34		FA ROSE CITY/KLACKING 1052537797		8	1 Project	Imminent Rehabilitation
35		FA CURTIS/MAGRUDDER 1053041841		12	1 Project	Imminent Rehabilitation
36		FA CLARE/FARWELL 1053202394		12	1 Project	Imminent Rehabilitation
37		FA LEVELY/ALLBRIGHT 1053279305		7	1 Project	Imminent Rehabilitation
38		FA GLENDALE/HERCULES 1053695238		6	1 Project	Imminent Rehabilitation
39		FA WALDO/JEFFERSON 1053743158		8	1 Project	Imminent Rehabilitation
40		FA SANDERSON/VAN DEINSE 1053824834		10	1 Project	Imminent Rehabilitation
41		FA STARKS/LEE 1054236479		12	1 Project	Imminent Rehabilitation
42		FA EAST TAWAS/LINCOLN STREET 1054408107		9	1 Project	Imminent Rehabilitation
43		FA MERRILL/CHAPIN 1054572195		12	1 Project	Imminent Rehabilitation
44		FA ASHMAN CIRCLE/HIGH SCHOOL 1054599321		15	1 Project	Imminent Rehabilitation
45		FA ROSE CITY/ISLAND LAKE 1054865491		7	1 Project	Imminent Rehabilitation
46		FA STARKS/LEE 1055641826		12	1 Project	Imminent Rehabilitation
47		FA HOUGHTON HEIGHTS/STITTSVILLE 1055740047		12	1 Project	Imminent Rehabilitation
48		FA WHITNEY LAKE/PETTIT 1055758413		8	1 Project	Imminent Rehabilitation
49		FA WEST BRANCH/REFINERY 1055766324		8	1 Project	Imminent Rehabilitation
50		FA APPLETON/PERRY 1055827388		8	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>		<b>598</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA BELL ROAD/ALBEE 1055867678		8	1 Project	Imminent Rehabilitation
2		FA LYONS/LYONS-MUIR 1052267416		14	1 Project	Imminent Rehabilitation
3		FA FILLMORE/64TH STREET 1054602169		2	1 Project	Imminent Rehabilitation
4		FA MAYNARD/BESTWALL 1050508020		10	1 Project	Imminent Rehabilitation
5		FA KLOTZ 1051503950		14	1 Project	Imminent Rehabilitation
6		FA SANDERSON/M-57 1054065085		20	1 Project	Imminent Rehabilitation
7		FA BEALS ROAD/GODWIN HEIGHTS 1054991008		6	1 Project	Imminent Rehabilitation
8		FA LELAND/LELAND 1045119828		10	1 Project	Imminent Rehabilitation
9		FA BROADMOOR/BARDEN 1048986109		37	1 Project	Imminent Rehabilitation
10		FA BELL ROAD/RATHBUN 1049273298		12	1 Project	Imminent Rehabilitation
11		FA SHERIDAN 1048888970		8	1 Project	Imminent Rehabilitation
12		FA SPRAGUE 1052610550		10	1 Project	Imminent Rehabilitation
13		FA NORTH MUSKEGON/STATE PARK 1048592215		10	1 Project	Imminent Rehabilitation
14		FA HERRON 1052390256		14	1 Project	Imminent Rehabilitation
15		FA PENINSULA/MAPLETON 1052346490		10	1 Project	Imminent Rehabilitation
16		FA BRECKENRIDGE/VILLAGE 1043605256		12	1 Project	Imminent Rehabilitation
17		FA JACKSON 1051763632		10	1 Project	Imminent Rehabilitation
18		FA CALVIN/ROSEMONT 1047943366		6	1 Project	Imminent Rehabilitation
19		FA RAMONA/REEDS LAKE 1047971783		3	1 Project	Imminent Rehabilitation
20		FA HARBOR 1048016635		8	1 Project	Imminent Rehabilitation
21		FA COMSTOCK 1048216917		17	1 Project	Imminent Rehabilitation
22		FA MOLINE/GREEN LAKE 1048251547		8	1 Project	Imminent Rehabilitation
23		FA CEDAR 1048268593		6	1 Project	Imminent Rehabilitation
24		FA WRIGHT 1048441228		17	1 Project	Imminent Rehabilitation
25		FA 3 MILE 1048463877		17	1 Project	Imminent Rehabilitation
26		FA STORMER 1048504074		10	1 Project	Imminent Rehabilitation
27		FA DERBY 1048575848		10	1 Project	Imminent Rehabilitation
28		FA STARKS/HOMER 1048822327		12	1 Project	Imminent Rehabilitation
29		FA LEVELY/STURGEON 1048832346		8	1 Project	Imminent Rehabilitation
30		FA ABBE/HWY 33 1048832361		12	1 Project	Imminent Rehabilitation
31		FA BYRON CENTER/RAILSIDE 1048946713		17	1 Project	Imminent Rehabilitation
32		FA MAPLE CITY/CEDAR 1049035764		17	1 Project	Imminent Rehabilitation
33		FA CEDAR 1049071289		17	1 Project	Imminent Rehabilitation
34		FA UNION 1049116724		8	1 Project	Imminent Rehabilitation
35		FA ANTRIM/BASS LAKE 1049136859		8	1 Project	Imminent Rehabilitation
36		FA SPRUCE 1049241496		10	1 Project	Imminent Rehabilitation
37		FA SEIDLE/PLAZA 1049242839		8	1 Project	Imminent Rehabilitation
38		FA MICHAEL 1049473244		10	1 Project	Imminent Rehabilitation
39		FA GREENVILLE 1049626021		14	1 Project	Imminent Rehabilitation
40		FA 14 MILE 1049669715		8	1 Project	Imminent Rehabilitation
41		FA PLEASANT 1049669803		11	1 Project	Imminent Rehabilitation
42		FA BOSTON SQUARE/HALL 1049701870		28	1 Project	Imminent Rehabilitation
43		FA LAKE DR 1049701871		10	1 Project	Imminent Rehabilitation
44		FA TOW 1049711277		8	1 Project	Imminent Rehabilitation
45		FA JACKSON 1049725404		11	1 Project	Imminent Rehabilitation
46		FA ELK 1049804811		10	1 Project	Imminent Rehabilitation
47		FA TOPINABEE 1049804838		10	1 Project	Imminent Rehabilitation
48		FA ROSE CITY/KLACKING 1049901370		8	1 Project	Imminent Rehabilitation
49		FA KNIGHT/FARLEY 1049977649		12	1 Project	Imminent Rehabilitation
50		FA CUMMINGS 1050198322		10	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>		<b>574</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<u>Reliability (cont.)</u>					
1		FA CEDAR 1050198323	8	1 Project		Imminent Rehabilitation
2		FA CARSON 1050223454	14	1 Project		Imminent Rehabilitation
3		FA WHITTEMORE/M-65 1050356819	12	1 Project		Imminent Rehabilitation
4		FA LEFFINGWELL/MICHIGAN OAKS 1050393543	5	1 Project		Imminent Rehabilitation
5		FA LAKE MICHIGAN 1050480662	8	1 Project		Imminent Rehabilitation
6		FA WELCH 1050671835	11	1 Project		Imminent Rehabilitation
7		FA CHERRY ST 1050673955	10	1 Project		Imminent Rehabilitation
8		FA NUGENT 1050846576	17	1 Project		Imminent Rehabilitation
9		FA CALUMET 1050859767	10	1 Project		Imminent Rehabilitation
10		FA HARVEY STREET/FULLER 1050895232	5	1 Project		Imminent Rehabilitation
11		FA KEANE 1050926249	17	1 Project		Imminent Rehabilitation
12		FA ALASKA 1050954926	10	1 Project		Imminent Rehabilitation
13		FA 144TH 1050967079	17	1 Project		Imminent Rehabilitation
14		FA HELEN 1051129274	14	1 Project		Imminent Rehabilitation
15		FA 1ST AVE 1051167402	10	1 Project		Imminent Rehabilitation
16		FA BAGLEY/ALPINE 1051200055	65	1 Project		Imminent Rehabilitation
17		FA ALDEN/TORCH 1051200335	17	1 Project		Imminent Rehabilitation
18		FA MAPLE GROVE/WESTGATE 1051204378	6	1 Project		Imminent Rehabilitation
19		FA KIMBALL 1051206220	14	1 Project		Imminent Rehabilitation
20		FA KINGSLEY/CENTER ROAD 1051215460	5	1 Project		Imminent Rehabilitation
21		FA RAMONA/ROBINSON 1051215675	28	1 Project		Imminent Rehabilitation
22		FA 172 AVE 1051243832	65	1 Project		Imminent Rehabilitation
23		FA ELLIS/DANGL 1051244373	10	1 Project		Imminent Rehabilitation
24		FA MCMILLAN/RIVER 1051244382	17	1 Project		Imminent Rehabilitation
25		FA SHELBY/STATE 1051244411	10	1 Project		Imminent Rehabilitation
26		FA STATE PARK 1051285880	10	1 Project		Imminent Rehabilitation
27		FA PECK LAKE 1051339818	14	1 Project		Imminent Rehabilitation
28		FA BOYNE CITY/BOYNE CITY 1051509392	17	1 Project		Imminent Rehabilitation
29		FA CAMELOT LAKE/COLEMAN 1051559872	8	1 Project		Imminent Rehabilitation
30		FA JACKSON 1051607170	6	1 Project		Imminent Rehabilitation
31		FA NORGE MACHINE/EDGEWATER 1051687793	10	1 Project		Imminent Rehabilitation
32		FA STANDALE/CHESTERFIELD 1051790164	17	1 Project		Imminent Rehabilitation
33		FA HANNAH/HANNAH 1051848859	10	1 Project		Imminent Rehabilitation
34		FA MAPLE CITY/CEDAR 1051860037	10	1 Project		Imminent Rehabilitation
35		FA NORTHPORT/LIGHTHOUSE 1051964823	10	1 Project		Imminent Rehabilitation
36		FA SIMMONS/DAM ROAD 1052030219	8	1 Project		Imminent Rehabilitation
37		FA HANNAH/HANNAH 1052087928	10	1 Project		Imminent Rehabilitation
38		FA ADAMAS 1052153906	8	1 Project		Imminent Rehabilitation
39		FA BEALS ROAD/BURTON HEIGHTS 1052254524	17	1 Project		Imminent Rehabilitation
40		FA CRAHEN/GREENBRIER 1052286764	28	1 Project		Imminent Rehabilitation
41		FA KEATON 1052293080	10	1 Project		Imminent Rehabilitation
42		FA CANNONSVILLE 1052345372	7	1 Project		Imminent Rehabilitation
43		FA MAGNUS/EAGLE CORN 1052372947	12	1 Project		Imminent Rehabilitation
44		FA PORTER 1052381463	10	1 Project		Imminent Rehabilitation
45		FA MT PLEASANT/COLLEGE 1052643358	12	1 Project		Imminent Rehabilitation
46		FA JACKSON RD 1052680195	10	1 Project		Imminent Rehabilitation
47		FA CANNONSBURG/GRASS LAKE 1052755378	3	1 Project		Imminent Rehabilitation
48		FA NEWBERRY 1052793899	10	1 Project		Imminent Rehabilitation
49		FA GEORGETOWN 1052820039	10	1 Project		Imminent Rehabilitation
50		FA JOHNSON 1052871294	8	1 Project		Imminent Rehabilitation
51		Subtotal \$	676			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<u>Reliability (cont.)</u>					
1		FA AIRPORT RD 1052950964	11	1	Project	Imminent Rehabilitation
2		FA JANES/BELAIR 1053050562	8	1	Project	Imminent Rehabilitation
3		FA GOOD HARBOR 1053093364	11	1	Project	Imminent Rehabilitation
4		FA MANCERLONA/LEETSVILLE 1053108020	10	1	Project	Imminent Rehabilitation
5		FA PARAMOUNT/NORTHLAND FARMS 1053126682	12	1	Project	Imminent Rehabilitation
6		FA HERKNER 1053138748	10	1	Project	Imminent Rehabilitation
7		FA WHITING 1053270280	14	1	Project	Imminent Rehabilitation
8		FA DOEHLER JARVIS/SEYMOUR 1053340956	28	1	Project	Imminent Rehabilitation
9		FA RIVERDALE/SUMNER 1053349965	12	1	Project	Imminent Rehabilitation
10		FA MESICK/SPRINGVILLE 1053369098	14	1	Project	Imminent Rehabilitation
11		FA RAMONA/ROBINSON 1053369100	28	1	Project	Imminent Rehabilitation
12		FA RIVER HILL 1053369102	14	1	Project	Imminent Rehabilitation
13		FA ARBUTUS 1053370888	14	1	Project	Imminent Rehabilitation
14		FA MARKEY/CARRICK 1053392268	12	1	Project	Imminent Rehabilitation
15		FA M 75 1053501391	14	1	Project	Imminent Rehabilitation
16		FA 60TH 1053639763	10	1	Project	Imminent Rehabilitation
17		FA MICHIGAN/LYDIA 1053662228	28	1	Project	Imminent Rehabilitation
18		FA 26TH 1053736766	14	1	Project	Imminent Rehabilitation
19		FA 16TH 1053736767	10	1	Project	Imminent Rehabilitation
20		FA RIVERDALE/SUMNER 1053765340	8	1	Project	Imminent Rehabilitation
21		FA ORLEANS 1053887978	14	1	Project	Imminent Rehabilitation
22		FA ST HELEN/ST HELEN 1053981270	14	1	Project	Imminent Rehabilitation
23		FA SWIFT DEER 1054053570	10	1	Project	Imminent Rehabilitation
24		FA STEVENS/CAMPAU 1054084187	28	1	Project	Imminent Rehabilitation
25		FA ALABAMA/YANKEE 1054090045	12	1	Project	Imminent Rehabilitation
26		FA ST HELEN/ARTESIA 1054157751	14	1	Project	Imminent Rehabilitation
27		FA ST HELEN/ARTESIA 1054157751	14	1	Project	Imminent Rehabilitation
28		FA ABERDEEN/ABERDEEN 1054176233	5	1	Project	Imminent Rehabilitation
29		FA FORDYCE/LINCOLN 1054331139	31	1	Project	Imminent Rehabilitation
30		FA VAN BUREN 1054334895	14	1	Project	Imminent Rehabilitation
31		FA FLAT RIVER 1054405324	8	1	Project	Imminent Rehabilitation
32		FA PALMER 1054464631	8	1	Project	Imminent Rehabilitation
33		FA SURREY/SURREY 1054529302	8	1	Project	Imminent Rehabilitation
34		FA DIVINE 1054590967	23	1	Project	Imminent Rehabilitation
35		FA GREENWOOD/INDIAN LAKE 1054605369	12	1	Project	Imminent Rehabilitation
36		FA EAST JORDAN/IRONTON 1054627208	26	1	Project	Imminent Rehabilitation
37		FA EAST JORDAN/IRONTON 1054627208	26	1	Project	Imminent Rehabilitation
38		FA MITCHELL 1054697825	14	1	Project	Imminent Rehabilitation
39		FA HARBOUR TOWNE 1054697828	11	1	Project	Imminent Rehabilitation
40		FA MESICK 1054758303	14	1	Project	Imminent Rehabilitation
41		FA BRIDGE ST 1054792419	14	1	Project	Imminent Rehabilitation
42		FA MAPLEHURST 1055024439	14	1	Project	Imminent Rehabilitation
43		FA FREMONT 1055031192	8	1	Project	Imminent Rehabilitation
44		FA 5 MILE 1055117146	14	1	Project	Imminent Rehabilitation
45		FA 150TH 1055124976	14	1	Project	Imminent Rehabilitation
46		FA WALKER 1055170490	10	1	Project	Imminent Rehabilitation
47		FA ABERDEEN/KNAPP 1055339142	28	1	Project	Imminent Rehabilitation
48		FA ABERDEEN/KNAPP 1055420654	5	1	Project	Imminent Rehabilitation
49		FA RIVERVIEW 1055464525	14	1	Project	Imminent Rehabilitation
50		FA HOMESTEAD/BEULAH 1055562256	10	1	Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>	<b>713</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 13 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA BUTLER RD 1055854436		8	1 Project	Imminent Rehabilitation
2		FA BAYBERRY/KOSTER 1055882068		10	1 Project	Imminent Rehabilitation
3		FA ALLENDALE/BLENDON 1055898091		11	1 Project	Imminent Rehabilitation
4		FA HAYES RD 1055903240		14	1 Project	Imminent Rehabilitation
5		FA MORGAN MILLS 1055903242		14	1 Project	Imminent Rehabilitation
6		FA MONTCALM 1055918148		14	1 Project	Imminent Rehabilitation
7		FA 117TH 1055923344		10	1 Project	Imminent Rehabilitation
8		FA GUN LAKE/TRAIL END 1055939719		10	1 Project	Imminent Rehabilitation
9		FA HASTINGS/BROADWAY 1055939724		10	1 Project	Imminent Rehabilitation
10		FA HASTINGS/BROADWAY 1055939728		10	1 Project	Imminent Rehabilitation
11		FA HASTINGS/BROADWAY 1055939731		10	1 Project	Imminent Rehabilitation
12		FA WESTMOOR 1051430151		14	1 Project	Imminent Rehabilitation
13		FA MARNE/MARNE 1046563276		10	1 Project	Imminent Rehabilitation
14		FA LINCOLN 1046784755		14	1 Project	Imminent Rehabilitation
15		FA DICK RD 1046814935		14	1 Project	Imminent Rehabilitation
16		FA 4TH ST 1047050410		14	1 Project	Imminent Rehabilitation
17		FA RIVERDALE/RIVERDALE 1047412787		12	1 Project	Imminent Rehabilitation
18		FA LEE STREET/LEE 1055092523		10	1 Project	Imminent Rehabilitation
19		FA RIVERTOWN/SATTTLER 1055452486		10	1 Project	Imminent Rehabilitation
20		FA BEECH-NUT/BEECH-NUT 1035638796		96	1 Project	Imminent Rehabilitation
21		FA ELLIS/LAKES MALL 1036647598		5	1 Project	Imminent Rehabilitation
22		FA BOYNE CITY/VETERANS 1037890997		8	1 Project	Imminent Rehabilitation
23		FA JEFFS ROAD/ADLER ROAD 1042929555		12	1 Project	Imminent Rehabilitation
24		FA FENNVILLE/COMMERCIAL 1046943286		7	1 Project	Imminent Rehabilitation
25		FA BURLINGAME/NEWHALL 1026867235		4	1 Project	Imminent Rehabilitation
26		FA BYRON CENTER/BYRON CENTER 1029969858		4	1 Project	Imminent Rehabilitation
27		FA MAYNARD/MAYNARD 1034960931		5	1 Project	Imminent Rehabilitation
28		FA STONEGATE/CHRISTIAN 1035053279		12	1 Project	Imminent Rehabilitation
29		FA STONEGATE/CHRISTIAN 1035053280		11	1 Project	Imminent Rehabilitation
30		FA KENTWOOD/PARIS PARK 1035282574		6	1 Project	Imminent Rehabilitation
31		FA RAMONA/REEDS LAKE 1035908223		4	1 Project	Imminent Rehabilitation
32		FA CALEDONIA/92ND STREET 1037751568		8	1 Project	Imminent Rehabilitation
33		FA RAMONA/BLODGETT 1038124243		4	1 Project	Imminent Rehabilitation
34		FA JAMESTOWN/JAMESTOWN 1040120720		8	1 Project	Imminent Rehabilitation
35		FA LYONS/LYONS-MUIR 1041526214		7	1 Project	Imminent Rehabilitation
36		FA WEALTHY STREET/GODFREY 1041610250		3	1 Project	Imminent Rehabilitation
37		FA ABERDEEN/KNAPP 1042003043		5	1 Project	Imminent Rehabilitation
38		FA GREENVILLE/WILLIAMS STREET 1042242278		26	1 Project	Imminent Rehabilitation
39		FA ABERDEEN/KNAPP 1042337519		2	1 Project	Imminent Rehabilitation
40		FA RAMONA/ROBINSON 1043162971		65	1 Project	Imminent Rehabilitation
41		FA BOSTON SQUARE/HALL 1043230872		16	1 Project	Imminent Rehabilitation
42		FA WALKER/ROSALIE 1044689551		32	1 Project	Imminent Rehabilitation
43		FA GREENVILLE/WILLIAMS STREET 1044784203		2	1 Project	Imminent Rehabilitation
44		FA GREENVILLE/WILLIAMS STREET 1044784204		2	1 Project	Imminent Rehabilitation
45		FA LEFFINGWELL/MICHIGAN OAKS 1044923614		9	1 Project	Imminent Rehabilitation
46		FA KENTWOOD/STAUFFER 1045111386		10	1 Project	Imminent Rehabilitation
47		FA THORNAPPLE/HEADLEY 1045661132		6	1 Project	Imminent Rehabilitation
48		FA KNAPP/DUNNIGAN 1045315262		5	1 Project	Imminent Rehabilitation
49		FA RED CEDAR/NORTHWIND 1047461654		15	1 Project	Imminent Rehabilitation
50		FA KELLOGGSVILLE/HOME ACRES 1053320379		28	1 Project	Imminent Rehabilitation
51		<b>Subtotal</b>	<b>\$</b>	<b>642</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

Page: 14 of 16

Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA ALTO/MCCORDS 1051743899		4	1 Project	Imminent Rehabilitation
2		FA BARNARD/WEISS 1049568807		5	1 Project	Imminent Rehabilitation
3		FA HAWLEY 1051413038		11	1 Project	Imminent Rehabilitation
4		FA W MAIN 1052381461		11	1 Project	Imminent Rehabilitation
5		FA STANDALE/PARKSIDE 1041416414		20	1 Project	Imminent Rehabilitation
6		FA COOLEY/WESTNEDGE 1043897785		4	1 Project	Imminent Rehabilitation
7		FA STANLEY/SUMMIT 1049871835		19	1 Project	Imminent Rehabilitation
8		FA SALEM/BURNIPS 1051964045		2	1 Project	Imminent Rehabilitation
9		FA KENDALL/SAGE 1054053904		4	1 Project	Imminent Rehabilitation
10		FA PRESCOTT/LOGAN 1056085856		12	1 Project	Imminent Rehabilitation
11		FA MILLERS POINT/MEADOW VIEW 1053946759		2	1 Project	Imminent Rehabilitation
12		FA REMUS/MILLBROOK 1056095236		22	1 Project	Imminent Rehabilitation
13		FA BELDING/CITY 1035773478		28	1 Project	Imminent Rehabilitation
14		FA OTISVILLE/IRISH ROAD 1054408109		9	1 Project	Imminent Rehabilitation
15		FA STRUBLE 1054519080		11	1 Project	Imminent Rehabilitation
16		FA BRICKER/BRICKER 1054793515		2	1 Project	Imminent Rehabilitation
17		FA MCCracken/SHERMAN 1054310417		2	1 Project	Imminent Rehabilitation
18		FA CENTREVILLE/INDUSTRIAL 1054230201		2	1 Project	Imminent Rehabilitation
19		FA STANLEY/NORTHLAND 1056046921		9	1 Project	Imminent Rehabilitation
20		FA ROSCOMMON/PIONEER 1054077879		4	1 Project	Imminent Rehabilitation
21		FA HYDE PARK/DUCK LAKE 1054067935		17	1 Project	Imminent Rehabilitation
22		FA MCCracken/SHERMAN 1053486535		82	1 Project	Imminent Rehabilitation
23		FA TERRACE/MALL 1038574945		6	1 Project	Imminent Rehabilitation
24		FA TERRACE/MALL 1052345375		7	1 Project	Imminent Rehabilitation
25		FA BLINTON/MCWAIN 1033821002		8	1 Project	Imminent Rehabilitation
26		FA STACEY/STONEGATE 1053829905		39	1 Project	Imminent Rehabilitation
27		FA LAKE CITY/JENNINGS 1055768331		14	1 Project	Imminent Rehabilitation
28		FA CONKLIN PARK/HOLLY 1056073633		20	1 Project	Imminent Rehabilitation
29		FA LENNON ROAD/SHOPPERS 1042832064		19	1 Project	Imminent Rehabilitation
30		FA HOGAN ROAD/MCCASLIN LAKE 1046447914		3	1 Project	Imminent Rehabilitation
31		FA BLINTON/VEMCO 1053482550		3	1 Project	Imminent Rehabilitation
32		FA FINE LAKE/DOWLING 1054003977		6	1 Project	Imminent Rehabilitation
33		FA SAUGATUCK/SAUGATUCK 1054204173		4	1 Project	Imminent Rehabilitation
34		FA MARKEY/MONTYVILLE 1054370310		3	1 Project	Imminent Rehabilitation
35		FA FOUR MILE/CORDES 1054556610		71	1 Project	Imminent Rehabilitation
36		FA HONOR/PLATTE 1054800847		56	1 Project	Imminent Rehabilitation
37		FA EAST GENESEE AVE/OUTER DRIVE 1055765499		12	1 Project	Imminent Rehabilitation
38		FA PORTSMOUTH/INDIANTOWN 1055877255		8	1 Project	Imminent Rehabilitation
39		FA BIRCH RUN/SAGINAW ROAD 1056173972		8	1 Project	Imminent Rehabilitation
40		FA FINE LAKE/DOWLING 1054484808		11	1 Project	Imminent Rehabilitation
41		FA WHITEHALL/HANSON 1052703533		3	1 Project	Imminent Rehabilitation
42		FA BLINTON/MCWAIN 1053298221		14	1 Project	Imminent Rehabilitation
43		FA LONG LAKE/TORREY RD 1034726252		3	1 Project	Imminent Rehabilitation
44		FA CLEAR LAKE/HARVEY 1051152325		7	1 Project	Imminent Rehabilitation
45		FA GREENVILLE 1055930902		14	1 Project	Imminent Rehabilitation
46		FA BULLOCK/PRAIRIE 1054719378		11	1 Project	Imminent Rehabilitation
47		FA SINCLAIR 1055763136		2	1 Project	Imminent Rehabilitation
48		FA BULLOCK/PRAIRIE 1056029815		5	1 Project	Imminent Rehabilitation
49		FA JUDD ROAD/AINSWORTH 1036047772		9	1 Project	Imminent Rehabilitation
50		FA BEADLE/CREST 1041288123		3	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>		<b>651</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Distribution Projects

Summary Projected Electric Capital Expenditures

For the Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-51 (RTB-18)

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Witness: RTBlumenstock

Date: March 2021

Line	(a)	(b)	(c)	(d)	(e)	(f)
No.	Sub-Program	Project Description, Line, Substation, or Location	Projected 2022 Test Year Spending	Units	Unit Type	Investment Category
	<b>Reliability (cont.)</b>					
1		FA MORGAN/ORCHARD 1043316503		1	1 Project	Imminent Rehabilitation
2		FA APPLE/BROOKS ROAD 1047880849		97	1 Project	Imminent Rehabilitation
3		FA DEAN ROAD/PARSHALLVILLE 1051355267		14	1 Project	Imminent Rehabilitation
4		FA LENNON ROAD/OTTERBURN 1052030276		33	1 Project	Imminent Rehabilitation
5		FA HOLTON/MAPLE ISLAND 1052105036		10	1 Project	Imminent Rehabilitation
6		FA DEAN ROAD/PARSHALLVILLE 1053138773		14	1 Project	Imminent Rehabilitation
7		FA DICKINSON 1053419818		17	1 Project	Imminent Rehabilitation
8		FA 116TH 1053719539		14	1 Project	Imminent Rehabilitation
9		FA FRANKFORT/GATEWAY 1053796061		7	1 Project	Imminent Rehabilitation
10		FA COTTAGE GROVE/HURON 1053813091		2	1 Project	Imminent Rehabilitation
11		FA BEADLE/CREST 1054225278		6	1 Project	Imminent Rehabilitation
12		FA WATKINS/CHRISTY 1054437829		71	1 Project	Imminent Rehabilitation
13		FA HOSPITAL/ELMWOOD 1054602782		17	1 Project	Imminent Rehabilitation
14		FA FLETCHER/ODEN 1054711650		10	1 Project	Imminent Rehabilitation
15		FA SCHUSS MOUNTAIN/PUMP 1055849627		6	1 Project	Imminent Rehabilitation
16		FA TRAVERSE 1055927507		14	1 Project	Imminent Rehabilitation
17		FA MICHIGAN CENTER/BALLARD 1056078316		23	1 Project	Imminent Rehabilitation
18		FA MAPLE CITY/SUGAR LOAF 1027984442		73	1 Project	Imminent Rehabilitation
19		FA WALDO/JEFFERSON 1055820883		12	1 Project	Imminent Rehabilitation
20		FA M 66 1054350449		10	1 Project	Imminent Rehabilitation
21		FA HACKETT/DICE ROAD 1054354504		12	1 Project	Imminent Rehabilitation
22		FA CARLOS 1052705014		10	1 Project	Imminent Rehabilitation
23		FA BEADLE/CREST 1053602970		21	1 Project	Imminent Rehabilitation
24		FA PORTER/KNOLLWOOD 1037803083		10	1 Project	Imminent Rehabilitation
25		FA KILGORE/WISTERIA 1040031794		24	1 Project	Imminent Rehabilitation
26		FA PHILLIPS/FACTORY 1040152532		68	1 Project	Imminent Rehabilitation
27		FA KILGORE/WISTERIA 1040982721		2	1 Project	Imminent Rehabilitation
28		FA PHILLIPS/FACTORY 1042049612		10	1 Project	Imminent Rehabilitation
29		FA PHILLIPS/FACTORY 1042116320		2	1 Project	Imminent Rehabilitation
30		FA PHILLIPS/FACTORY 1042520801		2	1 Project	Imminent Rehabilitation
31		FA KILGORE/WISTERIA 1043415704		2	1 Project	Imminent Rehabilitation
32		FA KILGORE/WISTERIA 1043415717		2	1 Project	Imminent Rehabilitation
33		FA WILMOTT/WILMOTT 1048987001		12	1 Project	Imminent Rehabilitation
34		FA BIL-MAR/POLK 1051430245		12	1 Project	Imminent Rehabilitation
35		FA ELM STREET/CHAMPION 1053327228		23	1 Project	Imminent Rehabilitation
36		FA READING/CAMBRIA 1053372030		14	1 Project	Imminent Rehabilitation
37		FA COMSTOCK/SHIELDS 1053609854		6	1 Project	Imminent Rehabilitation
38		FA MERSON/DUCK LAKE 1054100766		12	1 Project	Imminent Rehabilitation
39		FA GOGUAC/GOGUAC 1054422214		11	1 Project	Imminent Rehabilitation
40		FA MERSON/MERSON 1054793866		12	1 Project	Imminent Rehabilitation
41		FA COTTAGE GROVE/HURON 1055894073		10	1 Project	Imminent Rehabilitation
42		FA CALKINS/BEECHER ROAD 1033098348		3	1 Project	Imminent Rehabilitation
43		FA BEERS/BALDWIN 1050489206		7	1 Project	Imminent Rehabilitation
44		FA CALKINS/DYE ROAD 1053025782		5	1 Project	Imminent Rehabilitation
45		FA GIRARD/DAYBURG ROAD 1053909230		15	1 Project	Imminent Rehabilitation
46		FA ATHENS/ATHENS 1055191620		4	1 Project	Imminent Rehabilitation
47		FA HASTINGS/VIKING 1049102723		8	1 Project	Imminent Rehabilitation
48		FA EAST MUSKEGON/QUARTERLINE 1055818603		160	1 Project	Imminent Rehabilitation
49		FA TINSMAN/PETTS ROAD 1033794438		10	1 Project	Imminent Rehabilitation
50		FA MAYFAIR/SHERATON 1034078499		8	1 Project	Imminent Rehabilitation
51		<b>Subtotal \$</b>		<b>945</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Distribution Projects  
Summary Projected Electric Capital Expenditures  
For the Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-51 (RTB-18)  
Page: 16 of 16  
Witness: RTBlumenstock  
Date: March 2021

Line No.	(a) Sub-Program	(b) Project Description, Line, Substation, or Location	(c) Projected 2022 Test Year Spending	(d) Units	(e) Unit Type	(f) Investment Category
	<b>Reliability (cont.)</b>					
1		FA RUTLAND/COOK ROAD 1050778234		8	1 Project	Imminent Rehabilitation
2		FA SWARTZ CREEK/MORRISH ROAD 1053135779		7	1 Project	Imminent Rehabilitation
3		FA ELM STREET/VERONA 1053408746		45	1 Project	Imminent Rehabilitation
4		FA GOGUAC/LAKEVIEW 1053487654		52	1 Project	Imminent Rehabilitation
5		FA SWARTZ CREEK/WINCHESTER 1053655579		5	1 Project	Imminent Rehabilitation
6		FA 3RD 1055091686		6	1 Project	Imminent Rehabilitation
7		FA NEFF ROAD/DODGE ROAD 1053639812		16	1 Project	Imminent Rehabilitation
8		FA FOURTEENTH STREET/LIBERTY STREET 1007209358		51	1 Project	Imminent Rehabilitation
9		FA LENNON ROAD/SHOPPERS 1039795744		16	1 Project	Imminent Rehabilitation
10		FA BLINTON/VEMCO 1041190612		8	1 Project	Imminent Rehabilitation
11		FA IRON STREET/ATHERTON ROAD 1053078238		54	1 Project	Imminent Rehabilitation
12		FA PITCHER/ATLAS 1054422212		38	1 Project	Imminent Rehabilitation
13		FA WHITTEMORE/SAND LAKE 1055790666		8	1 Project	Imminent Rehabilitation
14		FA COMSTOCK/TUNIER 1054989844		3	1 Project	Imminent Rehabilitation
15		FA STATE STREET/MACKINAW 1056129951		2	1 Project	Imminent Rehabilitation
16		FA STATE STREET/MACKINAW 1056141029		2	1 Project	Imminent Rehabilitation
17		FA STATE STREET/MACKINAW 1056141057		2	1 Project	Imminent Rehabilitation
18		FA STATE STREET/MACKINAW 1056141058		2	1 Project	Imminent Rehabilitation
19		FA STATE STREET/MACKINAW 1056141059		2	1 Project	Imminent Rehabilitation
20		FA STATE STREET/MACKINAW 1056141060		2	1 Project	Imminent Rehabilitation
21		FA STATE STREET/MACKINAW 1056141061		2	1 Project	Imminent Rehabilitation
22		FA MILLERS POINT/HOLIDAY 1053408737		43	1 Project	Imminent Rehabilitation
23		FA BENSTON/LEWIS 1054538945		2	1 Project	Imminent Rehabilitation
24		FA BENSTON/LEWIS 1054538969		20	1 Project	Imminent Rehabilitation
25		FA NORTH MUSKEGON/STATE PARK 1054901033		10	1 Project	Imminent Rehabilitation
26		FA FORDYCE/LINCOLN 1056060416		2	1 Project	Imminent Rehabilitation
27		FA FORDYCE/LINCOLN 1056060420		2	1 Project	Imminent Rehabilitation
28		FA FORDYCE/LINCOLN 1056060422		6	1 Project	Imminent Rehabilitation
29		FA BREEDSVILLE/BREEDSVILLE 1056035842		2	1 Project	Imminent Rehabilitation
30		FA SAUGATUCK/DOUGLAS 1053637166		14	1 Project	Imminent Rehabilitation
31		FA SPICEBUSH/LESTER LAKE 1053206278		7	1 Project	Imminent Rehabilitation
32		FA AUSTIN/LONG LAKE 1053408744		55	1 Project	Imminent Rehabilitation
33		FA BAGLEY/ALPINE 1042511336		1	1 Project	Imminent Rehabilitation
34		FA CHAUNCEY/AUSTIN 1055954763		2	1 Project	Imminent Rehabilitation
35		FA MILLERS POINT/HOLIDAY 1055932465		7	1 Project	Imminent Rehabilitation
36		FA KENDALL/WESTWOOD 1052077511		4	1 Project	Imminent Rehabilitation
37		FA PENINSULA/MAPLETON 1055863853		65	1 Project	Imminent Rehabilitation
38		FA STARKS/LEE 1055820952		2	1 Project	Imminent Rehabilitation
39		FA MILL GROVE/ALLEGAN HYDRO 1055781473		11	1 Project	Imminent Rehabilitation
40		FA 7TH 1053156596		14	1 Project	Imminent Rehabilitation
41		FA 6TH 1053849967		14	1 Project	Imminent Rehabilitation
42		FA SAUGATUCK/DOUGLAS 1053514359		12	1 Project	Imminent Rehabilitation
43		FA COMSTOCK/TUNIER 1054536291		48	1 Project	Imminent Rehabilitation
44		FA COMSTOCK/TUNIER 1054989843		6	1 Project	Imminent Rehabilitation
45		FA HOSPITAL/ELMWOOD 1041796750		38	1 Project	Imminent Rehabilitation
46		<b>Subtotal</b>	<b>\$ 715</b>			
		<b>Imminent Rehabilitation Projects Total</b>	<b>\$ 11,715</b>			

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
LINE NAME	POLES FOR INSPECTION	REJECTION RATE	PROJECTED REJECTIONS	HVD LINES RELIABILITY REPLACEMENTS	HVD LINES RELIABILITY COST	HVD REHABILITATION REPLACEMENTS	HVD REHABILITATION COSTS
ACUGLAS	1	0.14	0	0	-	0	-
ACUGLAS	9	0.14	1	1	21,119	0	-
CROTON - MECOSTA	3	0.14	0	0	-	0	-
L-12	25	0.14	0	0	-	0	-
ARGENTA - MILHAM #2	22	0.14	0	0	-	0	-
TUSTIN	159	0.14	22	19	401,256	3	63,356
MCBAIN	147	0.14	21	17	359,019	3	63,356
MCBAIN	1	0.14	0	0	-	0	-
LAKE CITY	2	0.14	0	0	-	0	-
SUNFIELD	212	0.14	30	25	527,969	4	84,475
SUNFIELD	24	0.14	3	3	63,356	1	21,119
WEST PHALIA	59	0.14	8	7	147,831	1	21,119
SUNFIELD	23	0.14	3	3	63,356	0	-
WEST PHALIA	80	0.14	11	10	211,188	2	42,238
DAVID	38	0.14	5	5	105,594	1	21,119
WESTPHALIA	1	0.14	0	0	-	0	-
LEONI-BEECHER	8	0.14	1	1	21,119	0	-
AMASTEEL	15	0.14	2	2	42,238	0	-
SOLVAY	90	0.14	13	11	232,306	2	42,238
LEONI-BEECHER	1	0.14	0	0	-	0	-
ONEKAMA	309	0.14	43	37	781,394	6	126,713
REED CITY	373	0.14	52	44	929,225	8	168,950
REED CITY	4	0.14	1	0	-	0	-
REED CITY	1	0.14	0	0	-	0	-
BIG RAPIDS	271	0.14	38	32	675,800	6	126,713
REED CITY	6	0.14	1	1	21,119	0	-
NORTH ADAMS	29	0.14	0	0	-	0	-
TEKONSHA	43	0.14	6	5	105,594	1	21,119
BURR OAK	105	0.14	15	12	253,425	2	42,238
NORTH ADAMS	1	0.14	0	0	-	0	-
TEKONSHA	112	0.14	16	13	274,544	2	42,238
LESLIE	1	0.14	0	0	-	0	-
CHRYSLER	2	0.14	0	0	-	0	-
CHRYSLER	131	0.14	0	0	-	0	-
FAIRFIELD	30	0.14	4	4	84,475	1	21,119
RED CEDAR	73	0.14	10	9	190,069	2	42,238
RED CEDAR	19	0.14	3	2	42,238	0	-
RED CEDAR	32	0.14	4	4	84,475	1	21,119
MORRICE	104	0.14	15	12	253,425	2	42,238
MORRICE	105	0.14	15	12	253,425	2	42,238
OWOSSO	24	0.14	3	3	63,356	1	21,119
OWOSSO	9	0.14	1	1	21,119	0	-
VENICE	93	0.14	13	11	232,306	2	42,238
LINCOLN	1	0.14	0	0	-	0	-
OSCODA	1	0.14	0	0	-	0	-
LINCOLN	226	0.14	32	27	570,206	5	105,594
OSCODA	82	0.14	11	10	211,188	2	42,238
LINCOLN	1	0.14	0	0	-	0	-
OSCODA	22	0.14	3	3	63,356	0	-
SILVER LAKE	90	0.14	13	11	232,306	2	42,238
SILVER LAKE	68	0.14	10	8	168,950	1	21,119
UNION ST	7	0.14	1	1	21,119	0	-
SILVER LAKE	3	0.14	0	0	-	0	-
SILVER LAKE	3	0.14	0	0	-	0	-
SALZBURG	1	0.14	0	0	-	0	-
HENRY	36	0.14	5	4	84,475	1	21,119
PATTERSON #1	94	0.14	13	11	232,306	2	42,238
FRUITPORT	59	0.14	8	7	147,831	1	21,119
COPPERSVILLE	5	0.14	1	1	21,119	0	-
LINDEN	1	0.14	0	0	-	0	-
RANKIN	292	0.14	41	35	739,156	6	126,713
LINDEN	4	0.14	1	0	-	0	-
RANKIN	11	0.14	2	1	21,119	0	-
LINDEN	137	0.14	19	16	337,900	3	63,356
FENTON	14	0.14	2	2	42,238	0	-
LINDEN	1	0.14	0	0	-	0	-
LINDEN	24	0.14	3	3	63,356	1	21,119
RANKIN	1	0.14	0	0	-	0	-
LINDEN	15	0.14	2	2	42,238	0	-
RANKIN	12	0.14	2	1	21,119	0	-
LINDEN	30	0.14	4	4	84,475	1	21,119
JANES	199	0.14	28	24	506,850	4	84,475
JANES	26	0.14	4	3	63,356	1	21,119
JANES	2	0.14	0	0	-	0	-
JANES	1	0.14	0	0	-	0	-

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
AGNEW	2	0.14	0	0	-	0	-
LAKE SHORE	22	0.14	0	0	-	0	-
TECUMSEH PRODUCTS	37	0.14	0	0	-	0	-
STAUFFER	9	0.14	1	1	21,119	0	-
STERN RD	74	0.14	10	9	190,069	2	42,238
JACKMAN	38	0.14	0	0	-	0	-
LASALLE	3	0.14	0	0	-	0	-
GRODI RD	1	0.14	0	0	-	0	-
ERIE (ERIE - SAMARIA)	1	0.14	0	0	-	0	-
RIGA	5	0.14	1	1	21,119	0	-
GERRISH	53	0.14	7	6	126,713	1	21,119
GERRISH	7	0.14	1	1	21,119	0	-
BURDETT	1	0.14	0	0	-	0	-
MILHAM	144	0.14	20	17	359,019	3	63,356
MORROW	63	0.14	9	7	147,831	1	21,119
KILGORE	69	0.14	10	8	168,950	1	21,119
KILGORE	20	0.14	3	2	42,238	0	-
GLEN OAKS	47	0.14	7	6	126,713	1	21,119
OAKWOOD	129	0.14	18	15	316,781	3	63,356
OAKWOOD	33	0.14	5	4	84,475	1	21,119
METRO	50	0.14	7	6	126,713	1	21,119
METRO	39	0.14	5	5	105,594	1	21,119
HUDSONVILLE	17	0.14	2	2	42,238	0	-
METRO	15	0.14	2	2	42,238	0	-
ST CHARLES	19	0.14	0	0	-	0	-
MONTROSE	7	0.14	0	0	-	0	-
ONSTED	68	0.14	10	8	168,950	1	21,119
ONSTED	104	0.14	15	12	253,425	2	42,238
ONSTED	118	0.14	17	14	295,663	2	42,238
ONSTED	76	0.14	11	9	190,069	2	42,238
MANCHESTER	30	0.14	4	4	84,475	1	21,119
ONSTED	1	0.14	0	0	-	0	-
ONSTED	2	0.14	0	0	-	0	-
PARR RD - WHITING	1	0.14	0	0	-	0	-
PARR RD - WHITING	1	0.14	0	0	-	0	-
ARGENTA - VERONA	2	0.14	0	0	-	0	-
SCOTT LAKE - ARGENTA	1	0.14	0	0	-	0	-
BASS CREEK - STERNBERG	1	0.14	0	0	-	0	-
CLIO	11	0.14	2	1	21,119	0	-
CLIO	205	0.14	29	24	506,850	4	84,475
CLIO	9	0.14	1	1	21,119	0	-
MILLER RD	57	0.14	8	7	147,831	1	21,119
BEERS	48	0.14	0	0	-	0	-
MILLER RD	2	0.14	0	0	-	0	-
BEERS	133	0.14	19	16	337,900	3	63,356
BEERS	5	0.14	1	1	21,119	0	-
SARANAC	98	0.14	14	12	253,425	2	42,238
SARANAC	1	0.14	0	0	-	0	-
SARANAC	2	0.14	0	0	-	0	-
NASHVILLE	6	0.14	1	1	21,119	0	-
ATTWOOD	6	0.14	1	1	21,119	0	-
SARANAC	9	0.14	1	1	21,119	0	-
CONWAY	129	0.14	18	15	316,781	3	63,356
CONWAY	170	0.14	24	20	422,375	4	84,475
CONWAY	5	0.14	1	1	21,119	0	-
MACINAW	37	0.14	5	4	84,475	1	21,119
MACINAW	3	0.14	0	0	-	0	-
CONWAY	88	0.14	12	10	211,188	2	42,238
CONWAY	37	0.14	5	4	84,475	1	21,119
MACINAW	3	0.14	0	0	-	0	-
CONWAY	2	0.14	0	0	-	0	-
CONWAY	6	0.14	1	1	21,119	0	-
JOPPA	31	0.14	4	4	84,475	1	21,119
DIETZ - GAYLORD	304	0.14	43	36	760,275	6	126,713
BOYNE CITY	159	0.14	22	19	401,256	3	63,356
BOYNE CITY	43	0.14	6	5	105,594	1	21,119
CHARLEVOIX	22	0.14	3	3	63,356	0	-
CHARLEVOIX	328	0.14	46	40	844,750	7	147,831
EAST JORDAN	5	0.14	1	1	21,119	0	-
CHARLEVOIX	9	0.14	1	1	21,119	0	-
CHARLEVOIX	11	0.14	2	1	21,119	0	-
CHARLEVOIX	7	0.14	1	1	21,119	0	-
CHARLEVOIX	2	0.14	0	0	-	0	-
DIETZ - GAYLORD	40	0.14	6	5	105,594	1	21,119
EAST JORDAN	14	0.14	2	2	42,238	0	-
CHARLEVOIX	2	0.14	0	0	-	0	-
BELLEVUE			17	15	316,781	2	42,238
BELLEVUE			8	8	168,950	0	-
TOTALS	7625		1040	880	18,584,500	154	3,125,575

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**PAMELA L. BOLDEN**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Line Clearing O&M Expense

2017-2019 Historic Actuals/2020 9-Months Actual + 3-Months Projected/2021-2026 Forecast

Case No.: U-20963  
Exhibit No.: A-53 (PLB-1)  
Page: 1 of 1  
Witness: PL Bolden  
Date: March 2021

Line No.	(a) Description	(b) Expense Type	(c) Year	(d) 2017	(e) 2018	(f) 2019	(g) 2020	(h) 2021	(i) 2022	(j) 2023	(k) 2024	(l) 2025	(m) 2026
1	Electric System						9-3 Projected						
2	Electric HVD			\$11,393,937	\$12,035,797	\$12,211,819	\$9,475,000	\$12,600,000	\$12,870,000	\$13,190,000	\$13,510,000	\$13,835,000	\$14,178,000
3	Contractor	Maintenance Clearing		\$7,658,022	\$8,438,081	\$7,571,492	\$4,704,000	\$6,955,000	\$7,130,000	\$7,300,000	\$7,480,000	\$7,665,000	\$7,855,000
4	Contractor	Brushing - Cut		\$2,388,351	\$2,682,986	\$3,823,127	\$2,516,000	\$2,400,000	\$2,460,000	\$2,520,000	\$2,585,000	\$2,650,000	\$2,718,000
5	Contractor	Brushing - Spray		N/A	N/A	N/A	\$1,390,000	\$2,310,000	\$2,320,000	\$2,390,000	\$2,450,000	\$2,505,000	\$2,565,000
6	Contractor	Demand Clearing		\$375,620	\$152,548	\$87,281	\$85,000	\$75,000	\$75,000	\$75,000	\$85,000	\$60,000	\$55,000
7	Contractor	Noxious Weed Control		\$20,546	\$70,093	\$52,416	\$95,600	\$40,000	\$45,000	\$45,000	\$50,000	\$50,000	\$55,000
8	Contractor	HVD Salaries		\$709,395	\$666,847	\$650,467	\$666,000	\$760,000	\$775,000	\$790,000	\$810,000	\$830,000	\$845,000
9	Labor	HVD Expenses		\$242,003	\$25,242	\$27,036	\$19,400	\$60,000	\$65,000	\$70,000	\$70,000	\$75,000	\$85,000
10	Other	Miles		1,019	1,081	1,102	1,103	1,129	1,131	1,134	1,136	1,138	1,140
11	Electric LVD			\$38,359,929	\$39,912,561	\$41,078,112	\$45,275,000	\$71,430,000	\$81,485,000	\$86,840,000	\$104,100,000	\$106,520,000	\$105,520,000
12	Contractor	Maintenance Clearing		\$29,372,207	\$31,038,484	\$32,173,215	\$36,126,000	\$54,890,000	\$64,037,000	\$68,361,000	\$84,157,000	\$86,640,000	\$86,640,000
13	Contractor	Repetitive Outage Zone		\$934,465	\$2,054,288	\$995,575	\$1,461,000	\$2,000,000	\$1,900,000	\$1,700,000	\$1,500,000	\$1,350,000	\$1,215,000
14	Contractor	CEMI Clearing		N/A	N/A	N/A	\$561,000	\$1,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
15	Contractor	First Zone Clearing		\$399,793	\$102,600	\$1,523,542	\$779,000	\$1,875,000	\$1,975,000	\$2,175,000	\$2,375,000	\$2,525,000	\$2,660,000
16	Contractor	Demand Clearing		\$2,642,665	\$1,444,228	\$1,695,571	\$1,206,000	\$2,735,000	\$2,673,000	\$2,614,000	\$2,558,000	\$2,505,000	\$2,505,000
17	Contractor	Brushing - Spray		\$1,807,622	\$1,679,301	\$989,772	\$1,542,000	\$2,900,000	\$2,900,000	\$3,190,000.0	\$3,510,000.0	\$3,500,000	\$3,500,000
18	Labor	Distribution Salaries		\$2,388,399	\$2,532,425	\$2,683,107	\$2,517,000	\$4,305,000	\$4,640,000	\$5,210,000	\$6,070,000	\$6,070,000	\$6,070,000
19	Other	Distribution Expenses		\$814,778	\$1,061,235	\$1,017,330	\$1,083,000	\$1,725,000	\$1,860,000	\$2,090,000	\$2,430,000	\$2,430,000	\$2,430,000
20	Miles			3,503	3,218	3,518	4,120	5,223	5,986	6,346	7,654	7,914	7,918
21	Electric Total	O&M Expense		\$49,753,866	\$51,948,358	\$53,289,931	\$54,750,000	\$84,030,000	\$94,355,000	\$100,030,000	\$117,610,000	\$120,355,000	\$120,698,000
22	Contractor	Clearing		\$45,599,291	\$47,662,609	\$48,911,991	\$50,465,600	\$77,180,000	\$87,015,000	\$91,870,000	\$108,230,000	\$110,950,000	\$111,288,000
23	Labor	Salaries		\$3,087,794	\$3,199,272	\$3,333,574	\$3,182,000	\$5,065,000	\$5,415,000	\$6,000,000	\$6,880,000	\$6,900,000	\$6,915,000
24	Other	Expenses		\$1,056,781	\$1,086,477	\$1,044,366	\$1,102,400	\$1,785,000	\$1,925,000	\$2,160,000	\$2,500,000	\$2,505,000	\$2,515,000
25	O&M Miles			4,522	4,299	4,620	5,223	6,352	7,117	7,480	8,790	9,052	9,058
26	HVD Cost/Mile			\$11,181	\$11,134	\$11,082	\$8,590	\$11,160	\$11,377	\$11,636	\$11,895	\$12,157	\$12,433
27	LVD Cost/Mile			\$10,951	\$12,403	\$11,677	\$10,989	\$13,676	\$13,613	\$13,684	\$13,600	\$13,460	\$13,453
28	LVD Target Cycle Miles			8,362	8,362	8,362	8,362	8,362	8,362	8,362	8,362	8,362	8,362
29	LVD O&M Program Miles			3,503	3,218	3,518	4,120	5,223	5,986	6,346	7,654	7,914	7,918
30	Capital Clearing Miles			442	489	301	430	500	525	515	500	475	425
31	Percent of 7 Year Cycle			47%	44%	46%	54%	68%	78%	82%	98%	100%	100%

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company  
Line Clearing Ramp-up Plan Estimated Service Restoration Reductions

Case No.: U-20963  
Exhibit No.: A-54 (PLB-2)  
Page: 1 of 1  
Witness: PLBolden  
Date: March 2021

Line No.	(a) Description	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	<u>Year</u>	<u>2019</u>	<u>2020</u>	<u>2019-20</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
		Actual	9+3 Projected	Average	Forecast	Forecast	Forecast	Forecast	Forecast
2	Line Clearing Program Funding Level (\$M)	\$53.3	\$54.8	\$54.1	\$84.0	\$94.3	\$100.0	\$117.6	\$120.3
3	Projected Tree-Related Primary Outage Incidents with MED <sup>1</sup>	11,247	10,117	10,682	10,319	9,725	8,912	8,380	7,959
4	Primary Voltage Outage Incidents Reduced with MED				363	957	1,770	2,302	2,723
5	Outage Incident Reduction Percent				3.40%	8.96%	16.57%	21.55%	25.49%
6	Service Restoration Savings Potential (\$M)				\$0.381	\$1.005	\$1.859	\$2.417	\$2.859
7	Note <sup>1</sup> - Based on Statistical Average Weather Year								

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company

2022 HVD Line Clearing Work Plan

Case No.: U-20963  
Exhibit No.: A-55 (PLB-3)  
Page: 1 of 1  
Witness: PLBorden  
Date: March 2021

Line No.	(a) Description	(b) Miles	(c) Voltage	(d) Last Yr. Cleared	(e) Line Name	(f) Miles	(g) Voltage	(h) Last Yr. Cleared
1	AC - DELANEY	1.47	46	2018	HASKELITE	3.51	46	2018
2	ALLEGAN	13.08	46	2018	HENPHILL - HALSEY	0.01	138	2018
3	ASTLUM	0.19	46	2018	HOMESTEAD	39.18	46	2018
4	ATHERTON	0.21	46	2018	HOOKEE	10.08	46	2018
5	ATWATER	15.62	46	2018	INGERSOLL	18.16	46	2018
6	BARTON LAKE-BATAVIA	3.45	138	2018	JACKMAN	9.63	46	2018
7	BEERS	2.08	46	2018	JANES	15.38	46	2018
8	BELDING	6.69	138	2018	JOPPA	21.21	46	2018
9	BISHOP	4.47	46	2018	KELVINATOR	5.26	46	2018
10	BLENDON-FOUR MILE	0.12	138	2019	KENDALL	4.75	46	2018
11	BOSTON SQUARE	2.76	46	2018	KIRK ST	3.75	23	2018
12	BOWEN	2.57	46	2018	KNIGHT	14.82	46	2018
13	BREEDSVILLE	22.05	46	2018	LASALLE	13.85	46	2018
14	BRETEN	6.23	46	2018	LEE ST	11.37	46	2018
15	BRIDGEPORT	23.08	46	2018	LEONARD	2.76	46	2018
16	BURDETT	11.29	46	2018	LESUE	30.10	46	2018
17	BURROWS (LAWDALE - SALT	5.96	46	2017	MASON	21.48	46	2018
18	BURROWS (SALT ST - CLAREM	2.52	46	2018	MERRILL	29.36	46	2018
19	CALKINS	14.69	46	2018	MILLER RD	19.64	46	2018
20	CANNONSBURG	20.77	46	2018	MONTAGUE	0.68	46	2019
21	CARSON CITY (DEJA - MIDDLE	25.66	46	2018	MONTROSE	26.52	46	2018
22	CARSON CITY (ALMA-MIDDLE	14.86	46	2018	N BELDING-EUREKA	0.01	138	2018
23	CHEVROLET - ADRIAN #2	0.24	46	2018	NEW HAVEN	15.20	46	2018
24	CHEVROLET #3	3.49	23	2018	ORIOLE	0.02	46	2018
25	CHEVROLET #4	2.80	46	2018	ORLEANS	13.96	46	2018
26	COLDBROOK	1.83	46	2018	OSHTIMO	8.59	46	2018
27	CONWAY	32.94	46	2018	PENTWATER	21.64	46	2018
28	COOPER	17.14	46	2018	PIERSON	67.98	46	2018
29	COURT #1	8.72	46	2018	PLAINWELL	7.53	46	2018
30	COURT #2	6.53	46	2020	POTTER	4.44	46	2017
31	CROTTY	1.52	46	2018	QUINCY	21.30	46	2018
32	CUMBERLAND (CLAREMONT - CUMBERLAND)	5.66	46	2017	RED ARROW	0.30	46	2018
33	CUMBERLAND (EAST GENESEE - CUMBERLAND)	0.04	46	2017	RIFLE RIVER - GALLAGHER	6.46	138	2018
34	DELHI TOMPKINS #2	12.20	138	2018	RIGA	11.57	46	2019
35	DEWEY	2.90	46	2018	RIVERDALE	24.09	46	2018
36	DEWITT	23.07	46	2018	ROCKFORD	12.31	46	2018
37	DIESEL	2.15	46	2018	SALZBURG	6.12	46	2018
38	DOEHLER JARVIS	4.88	46	2018	SIEGLER	3.85	46	2018
39	DONTZ RD	10.85	46	2018	SPAUDING - BEALS RD	1.81	138	2018
40	E GENESEE	1.56	46	2018	SQUIRES	27.74	46	2018
41	EASTWOOD	6.75	46	2018	STADIUM	2.78	46	2018
42	EDDY	3.84	23	2017	STANDISH	38.62	46	2018
43	ERIE (ERIE - SAMARIA)	9.62	46	2018	STERNIS RD	29.27	46	2018
44	ERIE (WHITING - MAE)	11.10	46	2018	T-20 (CROTON-MECOSTA)	0.19	138	2018
45	FAIRBANKS	0.10	46	2018	THOMAS	11.77	46	2018
46	FAIRFIELD	29.88	46	2018	TRUMBULL	4.74	46	2018
47	FENTON	19.99	46	2018	UNION CITY (ATHENS - TEKONSHA)	17.97	46	2018
48	FITZNER	2.05	138	2018	UNION CITY (ELM ST - UNION CITY)	18.32	46	2018
49	FRAME PLANT	2.33	46	2018	UNION CITY (UNION CITY - BATAVIA)	13.73	46	2018
50	GAINES - BRADLEY	0.01	138	2018	UPTON	9.30	46	2018
51	GALLAGHER - BARD RD	3.62	138	2018	VAN SYKE #1	4.44	46	2018
52	GMI	7.63	46	2018	VAN SYKE #2	0.51	46	2018
53	GRAND LEDGE (DELI - GRAND LEDGE)	20.70	46	2018	VERGENNES-NORTH BELDING	0.04	138	2018
54	GRAND LEDGE (LOOKING GLASS - GRAND LEDGE)	9.03	46	2018	VERONA-BATAVIA	0.01	138	2018
55	GREENVILLE	13.30	46	2018	WALKER	15.36	46	2018
56	GRODI RD	0.02	46	2018	WASHINGTON - HYDRAMAG	0.15	46	2020
57	HARBISON	5.36	46	2020	WEADOCK - DORT	0.05	138	2018
58	HARVEY ST #1	0.10	46	2018	WEALTHY - ELLSWORTH	0.25	46	2018
59	HARVEY ST #2	0.06	46	2018	WEALTHY-LAGRAVE	0.40	46	2018
60	HARVEY STREET #3	0.06	46	2018	WEISS	3.70	23	2018
61	TOTAL WORK PLAN MILES	1,230.30			WHITEHALL	18.39	46	2018
62								



MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company  
Justification of 7-Year Cycle v Other Cycles

Case No.: U-20963  
Exhibit No.: A-57 (PLB-5)  
Page: 1 of 1  
Witness: PLBorden  
Date: March 2021

Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
		4.8/8.32 kV System				7.2/12.47 kV System				14.4/24.9 kV System				
	Years Since Last Cleared / Cycle Years	Incidents per Mile per Year	Incidents Per Year for Cycle Years	Contractor Cycle \$ Per Incident	Contractor \$ Annual LVD Cycle Cost	7.2 kV Incidents / Mile / Year	Incidents Per Year	Contractor Cycle \$ Per Incident	Contractor \$ Annual LVD Cycle Cost	14.4 kV Incidents / Mile / Year	Incidents Per Year	Contractor Cycle \$ Per Incident	Contractor \$ Annual LVD Cycle Cost	
1	1	0.1951				0.2450				0.2445				
2	2	0.1999	6198	\$18,639	\$115,519,106	0.2611	2503	\$14,548	\$36,411,711	0.2593	4360	\$14,614	\$63,723,255	
3	3	0.2025	6250	\$12,322	\$77,012,737	0.2720	2565	\$9,462	\$24,274,474	0.2693	4461	\$9,523	\$42,482,170	
4	4	0.2035	6284	\$9,192	\$57,759,553	0.2795	2615	\$6,962	\$18,205,855	0.2757	4539	\$7,020	\$31,861,627	
5	5	0.2035	6304	\$7,554	\$47,622,523	0.2854	2657	\$5,650	\$15,010,656	0.2797	4599	\$5,712	\$26,269,786	
6	6	0.2031	6316	\$6,440	\$40,673,509	0.2915	2694	\$4,758	\$12,820,321	0.2825	4648	\$4,827	\$22,436,534	
7	7	0.2029	6323	\$5,638	\$35,648,322	0.2996	2733	\$4,112	\$11,236,378	0.2853	4689	\$4,194	\$19,664,514	
8	8	0.2035	6331	\$5,041	\$31,914,869	0.3115	2776	\$3,623	\$10,059,591	0.2893	4729	\$3,723	\$17,605,047	
9	9	0.2055	6344	\$4,590	\$29,121,986	0.3290	2829	\$3,244	\$9,179,272	0.2957	4772	\$3,366	\$16,064,422	
10	10	0.2095	6367	\$4,250	\$27,058,974	0.3539	2897	\$2,945	\$8,529,009	0.3057	4824	\$3,094	\$14,926,413	
11	11	0.2161	6405	\$3,996	\$25,591,754	0.3880	2982	\$2,705	\$8,066,540	0.3205	4890	\$2,887	\$14,117,057	
12	12	0.2259	6462	\$3,812	\$24,630,938	0.4331	3091	\$2,512	\$7,763,691	0.3413	4975	\$2,731	\$13,587,047	
13	13	0.2395	6543	\$3,663	\$24,114,643	0.4910	3226	\$2,342	\$7,600,954	0.3693	5084	\$2,600	\$13,302,246	
14	14	0.2575	6653	\$3,567	\$23,998,667	0.5635	3394	\$2,205	\$7,564,398	0.4057	5222	\$2,506	\$13,238,271	
15	15	0.2805	6796	\$3,513	\$24,250,595	0.6524	3598	\$2,093	\$7,643,806	0.4517	5396	\$2,441	\$13,377,240	

	Cost per Incident Reduced	Incident Expected	Reduction from 2019 Total	Contractor Full Cycle Dollars	Cycle 14.4/7.2/4.8	Years Since Last Cleared	Miles Cleared	Total Contractor Dollars	\$/Mile	Trendline \$/Mile
18										
19	\$12,515.01	13676	5324	\$66,628,150	5/7/9	4	171.1231272	\$1,095,666	\$6,403	\$7,363
20	\$13,687.09	13655	5345	\$73,154,487	5/7/7	5	853.7307575	\$5,371,519	\$6,292	\$7,588
21	\$16,343.15	13560	5440	\$88,902,965	5/5/5	6	2577.505368	\$19,533,047	\$7,578	\$7,777
22	\$14,191.04	13579	5421	\$76,928,764	5/5/7	7	3078.678373	\$21,201,586	\$6,887	\$7,952
23	\$13,037.44	13600	5400	\$70,402,427	5/5/9	8	4160.676719	\$32,609,605	\$7,838	\$8,136
24	\$12,720.75	13638	5362	\$68,212,093	5/6/9	9	4146.990126	\$32,802,966	\$7,910	\$8,352
25	\$13,883.67	13617	5383	\$74,738,429	5/6/7	10	4604.511367	\$35,166,933	\$7,637	\$8,623
26						11	4339.964728	\$36,632,176	\$8,441	\$8,971
27						12	3627.496385	\$28,521,785	\$7,863	\$9,419
28						13	3122.514371	\$28,638,438	\$9,172	\$9,990
29						14	2574.423293	\$22,158,274	\$8,607	\$10,707
30						15	2584.876247	\$25,524,567	\$9,875	\$11,592
31						16	1600.97892	\$16,078,818	\$10,043	\$12,669
32						17	1486.689814	\$14,825,354	\$9,972	\$13,959
33						18	981.2217905	\$11,757,733	\$11,983	\$15,486

kV System Miles
31380
9891
17310



**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Summary of Actual & Projected O&M Expenses  
 Forestry Operations  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-58 (PLB-6)  
 Page: 1 of 2  
 Witness: PLBolden  
 Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
<b>Forestry Operations Administration and</b>			
<b>1</b>	<b>Work Planning</b>	<b>5,450</b>	<b>7,340</b>
<b>2</b>	Labor	3,334	4,204
<b>3</b>	Material		0
<b>4</b>	Contractor	1,072	1,787
<b>5</b>	Non-Labor Overheads		0
<b>6</b>	Non-Labor Other	1,044	1,349
<b>7</b>	<b>Line Clearing Contractor Costs</b>	<b>47,840</b>	<b>87,015</b>
<b>8</b>	Labor		
<b>9</b>	Material		
<b>10</b>	Contractor	47,840	87,015
<b>11</b>	Non-Labor Overheads		
<b>12</b>	Non-Labor Other		
<b>Total Forestry Operations Electric Line</b>			
<b>13</b>	<b>Clearing O&amp;M Expenses</b>	<b>\$ 53,290</b>	<b>\$ 94,355</b>
<b>14</b>	Labor	3,334	4,204
<b>15</b>	Material	0	0
<b>16</b>	Contractor	48,912	88,802
<b>17</b>	Non-Labor Overheads	0	0
<b>18</b>	Non-Labor Other	1,044	1,349

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company

Case No.: U-20963  
Exhibit No.: A-58 (PLB-6)

Summary of O&M Expenses Projected Using Merit and Inflation  
Forestry Operations  
(\$000)

Page: 2 of 2  
Witness: PLBlden  
Date: March 2021

Line No.	Description	2019 Actual	Base O&M for Merit & Inflation 12 Mos Ended		Merit & Inflation 12 Mos Ended		Base O&M for Merit & Inflation 12 Mos Ended		Merit & Inflation 12 Mos Ended		Base O&M for Merit & Inflation 12 Mos Ended		Merit & Inflation 12 Mos Ended		Other Adjustments <sup>1</sup>		Projected O&M 12 Mos Ending	
			(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
					(c) * Inflation Rate		(e) * Inflation Rate		(g) * Inflation Rate								(b) + (d) + (f) + (h) + (j)	
1																		
2	Forestry Operations Administration and Work																	
3	Planning	5,450	5,450	132	5,278	154	5,278	154	6,850	192	6,850	192	1,412	1,412	7,340	7,340		
4	Labor	3,334	3,334	107	3,130	100	3,130	100	3,800	122	3,800	122	542	542	4,204	4,204		
5	Material	1,072	1,072	13	1,068	27	1,068	27	1,725	40	1,725	40	636	636	1,787	1,787		
6	Contractor	1,044	1,044	13	1,080	27	1,080	27	1,325	30	1,325	30	234	234	1,348	1,348		
7	Non-Labor Overheads																	
8	Non-Labor Other																	
8	Line Clearing Contractor Costs	47,840	47,840	574	49,472	1,237	49,472	1,237	77,180	1,775	77,180	1,775	35,589	35,589	87,015	87,015		
9	Labor																	
10	Material																	
11	Contractor	47,840	47,840	574	49,472	1,237	49,472	1,237	77,180	1,775	77,180	1,775	35,589	35,589	87,015	87,015		
12	Non-Labor Overheads																	
13	Non-Labor Other																	
14	Total Forestry Operations Electric Line Clearing O&M	\$ 53,290	\$ 53,290	\$ 706	\$ 54,750	\$ 1,391	\$ 54,750	\$ 1,391	\$ 84,030	\$ 1,967	\$ 84,030	\$ 1,967	\$ 37,001	\$ 37,001	\$ 94,355	\$ 94,355		
15	Expenses																	
16	Labor	3,334	3,334	107	3,130	100	3,130	100	3,800	122	3,800	122	542	542	4,204	4,204		
17	Material	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
18	Contractor	48,912	48,912	587	50,540	1,264	50,540	1,264	78,905	1,815	78,905	1,815	36,225	36,225	88,802	88,802		
19	Non-Labor Overheads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	Non-Labor Other	1,044	1,044	13	1,080	27	1,080	27	1,325	30	1,325	30	234	234	1,348	1,348		

Notes

	12-Mo Ending 2020	12-Mo Ending 2021	12-Mo Ending 2022
21			
22	Annual merit increase (Testimony of Amy M. Conrad)		
23	Annual Merit Increase	3.20%	3.20%
24	Number of Months in Period	12	12
25	Pro-rated Merit Increase	3.2%	3.2%
26			
27	Annual inflation rates per WP-JRC-59		
28	Annual Inflation Rates per WP-JRC-59	2.50%	2.30%
29	Number of Months in Period	12	12
30	Pro-rated Inflation Rate	2.5%	2.3%

Note<sup>1</sup> - Other Adjustments include increased Company employees and contractor employees to complete the additional line clearing work and associated business expenses.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**HEATHER A. BREINING**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Projected Capital Expenditures  
 Environmental - 316(b) Compliance  
 Summary of Actual and Projected Electric Capital Expenditures  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-59 (HAB-1)  
 Page: 1 of 1  
 Witness: HABreining  
 Date: March 2021

		(a)	(b)	(c)	(d)	(e)	(f)
		Capital Expenditures				Projected Test Year	
Line No.	Description	Historical	Projected Bridge Year				
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ending 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022	
col. (c)+(d)							
1	J.H. Campbell, Units 1&2 - 316(b)		-	-	-	500	
2	Labor		-	-	-	-	
3	Contractor		-	-	-	465	
4	Materials		-	-	-	-	
5	Business Expenses		-	-	-	-	
6	Contingency		-	-	-	-	
7	Other (Loadings, Chargebacks)		-	-	-	35	
8	Total Capital (\$000)	-	-	-	-	500	

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Capital Expenditures

Environmental - SEEG Compliance

Summary of Actual and Projected Electric Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-60 (HAB-2)

Page: 1 of 1

Witness: HABreining

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
		<b>Capital Expenditures</b>				<b>Projected Test</b>
Line	<b>Description</b>	<b>Historical</b>	<b>Projected Bridge Year</b>			<b>Year</b>
No.		<b>12 Mos Ended</b>	<b>12 Mos Ended</b>	<b>12 Mos Ending</b>	<b>24 Mos Ending</b>	<b>12 Mos Ending</b>
		<b>12/31/2019</b>	<b>12/31/2020</b>	<b>12/31/2021</b>	<b>12/31/2021</b>	<b>12/31/2022</b>
					<i>col. (c)+(d)</i>	
1	J.H. Campbell Site - SEEG	1	76	1,929	2,005	15,421
2	Labor	-	12	473	485	608
3	Contractor	(1)	48	323	371	10,117
4	Materials	2	-	659	659	1,293
5	Business Expenses	-	-	9	9	21
6	Contingency	-	-	72	72	602
7	Other (Loadings, Chargebacks)	-	16	393	409	2,781
8	<b>Total Capital (\$000)</b>	<b>1</b>	<b>76</b>	<b>1,929</b>	<b>2,005</b>	<b>15,421</b>

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**EUGÈNE M.J.A. BREURING**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

## Schedule E-1

### MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Annual Service Area Calendar Sales by Major Customer Classes and System Output

5-Year Historical

(GWh)

Case No.: U-20963  
Exhibit No.: A-5 (EMB-1)  
Schedule: E-1  
Page: 1 of 1  
Witness: EMBreuring  
Date: March 2021

Line No.	(a) Total Company Electric Deliveries			(b)		(c)		(d)	(e)	(f) Losses & Company Use		(g) % of	System Output (h)
	Year	Residential	Commercial	Industrial	Other	Total	GW/h	Output					
1	2015	Hist	12,495	12,696	11,546	544	37,281	2,892	7.2%	40,173			
2	2016	Hist	12,789	12,868	11,709	545	37,911	3,020	7.4%	40,931			
3	2017	Hist	12,341	12,749	11,759	544	37,394	2,639	6.6%	40,032			
4	2018	Hist	13,051	13,046	11,599	535	38,231	3,101	7.5%	41,331			
5	2019	Hist	12,485	12,619	11,209	503	36,815	2,917	7.3%	39,732			

### Bundled Electric Deliveries

Bundled Electric Deliveries																	
Year			Residential		Commercial		Industrial		Other		Total		Losses & Company Use		System Output		
6	2015	Hist		12,495		11,699		8,605		544		33,342		2,771		7.7%	36,114
7	2016	Hist		12,789		11,843		8,839		545		34,016		2,964		8.0%	36,980
8	2017	Hist		12,341		11,763		8,966		544		33,614		2,522		7.0%	36,136
9	2018	Hist		13,051		12,034		8,833		535		34,453		2,997		8.0%	37,450
10	2019	Hist		12,485		11,638		8,424		503		33,050		2,862		8.0%	35,911

### Choice Electric Deliveries

Choice Electric Deliveries									
Year		Residential	Commercial	Industrial	Other	Total	Losses & Company Use		System Output
							GWh	% of Output	
11	2015	Hist	-	997	2,941	-	121	3.0%	4,059
12	2016	Hist	-	1,025	2,870	-	56	1.4%	3,951
13	2017	Hist	-	986	2,793	-	117	3.0%	3,896
14	2018	Hist	-	1,012	2,766	-	104	2.7%	3,881
15	2019	Hist	-	980	2,785	-	56	1.5%	3,821

# Schedule E-1

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Annual Service Area Calendar Sales by Major Customer Classes and System Output

5-Year Projected

(GWh)

Case No.: U-20963  
Exhibit No.: A-15 (EMB-2)  
Schedule: E-1  
Page: 1 of 1  
Witness: EMBreuring  
Date: March 2021

Line No.	(a) <u>Total Company Electric Deliveries</u>					(e)	(f) <u>Losses &amp; Company Use</u>		(h) <u>System Output</u>	
	Year	(b)		(c)			GWh	(g) <u>% of Output</u>		
		Residential	Commercial	Industrial	Other					Total
1	2020	Fcst	12,821	12,090	9,543	511	34,965	2,986	7.9%	37,951
2	2021	Fcst	12,480	12,262	9,972	524	35,238	2,495	6.6%	37,733
3	2022	Fcst	12,585	12,232	10,074	526	35,418	2,453	6.5%	37,871
4	2023	Fcst	12,576	12,231	10,293	528	35,627	2,415	6.3%	38,042
5	2024	Fcst	12,809	11,950	10,256	529	35,545	2,384	6.3%	37,930

## Bundled Electric Deliveries

Bundled Electric Deliveries													
	Year	Residential		Commercial		Industrial		Other		Total	Losses & Company Use		System Output
								GWh	Output		% of Output		
6	2020	Fcst	12,821	11,172		6,950		511		31,455	2,903	8.4%	34,357
7	2021	Fcst	12,480	11,317		7,297		524		31,618	2,409	7.1%	34,027
8	2022	Fcst	12,585	11,279		7,421		526		31,812	2,368	6.9%	34,179
9	2023	Fcst	12,576	11,266		7,533		528		31,903	2,327	6.8%	34,230
10	2024	Fcst	12,809	11,009		7,511		529		31,858	2,297	6.7%	34,156

## Choice Electric Deliveries

Choice Electric Deliveries									
Year		Residential	Commercial	Industrial	Other	Total	Losses & Company Use		System Output
							GWh	% of Output	
11	2020	Fcst	918	2,593	-	3,510	83	2.3%	3,593
12	2021	Fcst	945	2,675	-	3,620	86	2.3%	3,706
13	2022	Fcst	953	2,653	-	3,606	85	2.3%	3,692
14	2023	Fcst	964	2,760	-	3,724	88	2.3%	3,812
15	2024	Fcst	941	2,746	-	3,687	87	2.3%	3,774

Schedule E-2

Line No.	Description	(a) 2019 Actual	(b) PSCR Factor	(c) Less Non-Base Tariff Items Surcharges	(d) Other Adjustments	(e) L/T Industrial Load Rate	(f) Weather Normalization	(g) Change In Determinants	(h) U-20134 Pro Forma	(i) Test Year PSCR Factor	(j) Total Company	(k) Test Year Non- Jurisdictional	(l) Jurisdictional
<b>Adjusted Operating Revenues (\$000)</b>													
1	Cycle Billed Tariff Revenue												
2	Base Tariff	\$ 2,179,634	\$ -	\$ -	\$ -	\$ (96,668)	\$ (34)	\$ (23,441)	\$ 215,729	\$ -	\$ 2,275,219	\$ 9,985	\$ 2,265,234
3	GSG Power Supply (1)	3,600	(3,600)	-	-	-	-	-	-	5,582	5,582	-	5,582
4	Base PSCR	1,791,139	-	-	-	-	(31)	(11,888)	48,548	-	1,827,768	13,922	1,813,846
5	PSCR Factor	77,943	(77,943)	-	-	-	-	-	-	17,240	17,240	11	17,229
6	Total Cycle Billed Tariff Revenue	4,052,316	(81,543)	-	-	(96,668)	(65)	(35,329)	264,276	22,822	4,125,809	23,918	4,101,891
7	Cycle Billed Surcharge Revenue												
8	Energy Optimization	124,741	-	(124,741)	-	-	-	-	-	-	-	-	-
9	PEM & OEM	-	-	-	-	-	-	-	-	-	-	-	-
10	Renewable Energy	6,424	-	(6,424)	-	-	-	-	-	-	-	-	-
11	Security Recovery Factor	-	-	-	-	-	-	-	-	-	-	-	-
12	Major Maintenance	-	-	-	-	-	-	-	-	-	-	-	-
13	Low-Income Assistance Fund	20,320	-	(20,320)	-	-	-	-	-	-	-	-	-
14	Stranded Cost Recovery	-	-	-	-	-	-	-	-	-	-	-	-
15	Securitization (Classic7)	33,545	-	(33,545)	-	-	-	-	-	-	-	-	-
16	Securitization	-	-	-	-	-	-	-	-	-	-	-	-
17	Securitization Tax	-	-	-	-	-	-	-	-	-	-	-	-
18	Regulatory Asset Recovery 10d(4)	-	-	-	-	-	-	-	-	-	-	-	-
19	ERIP	-	-	-	-	-	-	-	-	-	-	-	-
20	Other Provisions for Refund	(21,646)	-	21,646	-	-	-	-	-	-	-	-	-
21	Total Cycle Billed Surcharge Revenue	163,384	-	(163,384)	-	-	-	-	-	-	-	-	-
22	Unbilled Revenue												
23	Base Tariff	13,849	-	-	(13,849)	-	-	-	-	-	-	-	-
24	Base PSCR	(4,574)	-	-	4,574	-	-	-	-	-	-	-	-
25	PSCR Factor	(2,451)	2,451	-	-	-	-	-	-	-	-	-	-
26	Total Unbilled Revenue	6,823	2,451	-	(9,275)	-	-	-	-	-	-	-	-
27	PSCR Over/Under Recovery	(26,706)	26,706	-	(9,275)	-	-	-	-	-	-	-	-
28	Total Calendar Revenue	4,195,817	(52,386)	(163,384)	(9,275)	(96,668)	(65)	(35,329)	264,276	22,822	4,125,809	23,918	4,101,891
29	Miscellaneous Revenue (2) (3) (4) (5)	88,174	(610)	-	(47,512)	50,409	-	-	-	-	90,460	702	89,758
30	Intersystem Sales Revenue	107,819	-	-	(107,819)	-	-	-	-	-	83,076	27	83,049
31	Total Operating Revenue	4,391,810	(52,996)	(163,384)	(164,605)	(46,259)	(65)	(35,329)	264,276	22,822	4,299,345	24,647	4,274,698
32	Revenue Adjustments												
33	Jobwork Revenue	13,627	-	-	-	-	-	-	-	-	13,627	-	13,627
34	Jobwork Expense	(11,576)	-	-	-	-	-	-	-	-	(11,576)	-	(11,576)
35	Total Revenue Adjustments	2,051	-	-	-	-	-	-	-	-	2,051	-	2,051
36	Adjusted Total Operating Revenue	4,393,861	(52,996)	(163,384)	(164,605)	(46,259)	(65)	(35,329)	264,276	22,822	4,301,397	24,647	4,276,750
37	Electric Deliveries (MWh)												
38	Cycle Billed Bundled Service	32,941,365	-	-	-	(1,947,264)	(92,459)	(218,628)	-	-	30,683,014	379,931	30,303,083
39	Cycle Billed Self-generation	75,396	-	-	-	-	-	(3,245)	-	-	72,151	-	72,151
40	Cycle Billed Electric Choice	3,773,309	-	-	-	-	(1,505)	(173,793)	-	-	3,598,011	-	3,598,011
41	Intersystem Sales	3,310,165	-	-	(3,310,165)	-	-	-	-	-	-	-	-
42	Unbilled Bundled Service	32,970	-	-	(32,970)	-	-	-	-	-	-	-	-
43	Unbilled Electric Choice	(7,882)	-	-	7,882	-	-	-	-	-	-	-	-
44	Total Electric Deliveries	40,125,323	-	-	(3,335,253)	(1,947,264)	(93,964)	(395,666)	-	-	34,353,176	379,931	33,973,245

Notes:  
(1) GSG Power Supply (ln2, col. i), includes GL-2 PSCR revenue (EMB-6)  
(2) Miscellaneous Revenues (ln26, col. B); PSCR Admin Fees (U-20220, A-19 (KGT-1))  
(3) Miscellaneous Revenues (ln26, col.d); Authorized Return on Renewable Energy Assets (2019 P-521, pg 301.1) and Revenues from Transmission of Electricity of Others (2019 P-521,pg 300(M)) removed

# Schedule E-3

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Electric Deliveries & Customer Counts by Rate Category  
(Annual Deliveries in MWh)

Case No.: U-20963  
Exhibit No.: A-15 (EMB-4)  
Schedule: E-3  
Page: 1 of 1  
Witness: EMBreuring  
Date: March 2021

		(a)	(b)	(c)	(d)	(e)	(f)
				Test Year			
		2019 Actual		Total Company		Jurisdictional	
Line	Description	Avg. No. of	Annual	Avg. No. of	Annual	No. of	Annual
No.		Customers	Deliveries	Customers	Deliveries	Customers	Deliveries
	<u>Bundled Residential Service</u>						
1	Standard Service RS	1,490,221	11,431,913	21,468	155,849	21,468	155,849
2	Peak Pwr Savers / Dynamic Pricing	89,742	737,542	-	-	-	-
3	Time-of-Day RT	2,756	62,645	-	-	-	-
4	Electric Vehicles REV-1	619	7,799	-	-	-	-
5	Electric Vehicles REV-2	30	51	-	-	-	-
6	Nighttime Savers (RPM)	-	-	661	7,781	661	7,781
7	Summer On-Peak (RSP)	27,952	223,559	1,602,108	12,395,969	1,602,108	12,395,969
8	Smart Hours (RSH)	-	-	3,426	61,751	3,426	61,751
9	Total Bundled Residential	1,611,320	12,463,509	1,627,664	12,621,350	1,627,664	12,621,350
	<u>Bundled Secondary Service</u>						
10	Secondary Energy-only GS	194,436	3,893,922	196,245	3,830,222	196,245.3	3,830,222
11	Secondary Demand GSD	21,336	3,258,550	19,658	3,125,108	19,658.1	3,125,108
12	Secondary GSTU	67	5,602	130	9,438	129.9	9,438
13	Total Bundled Secondary	215,839	7,158,074	216,033	6,964,768	216,033	6,964,768
	<u>Bundled Primary Service</u>						
14	Primary Energy-only GP	1,603	920,160	1,545	831,038	1,545.5	831,038
15	Primary Demand GPD	1,300	7,826,906	882	4,265,717	882.0	4,265,717
16	Primary Time-of-Use GPTU	792	3,527,355	1,238	4,967,400	1,237.8	4,967,400
17	General Service Primary (EIP)	20	474,616	18	457,385	17.9	457,385
18	Special Contract	-	-	-	-	-	-
19	Total Bundled Primary	3,715	12,749,037	3,683	10,521,539	3,683	10,521,539
	<u>Bundled Street Lighting Service</u>						
20	Unmetered Lighting GUL	4,478	101,787	3,735	62,386	3,735	62,386
21	Metered Lighting GML	395	5,359	359	13,118	359	13,118
22	Unmetered GU	515	94,380	476	100,655	476	100,655
23	Unmetered Lighting GU-XL	388	6,090	797	19,268	797	19,268
24	Total Bundled Street Lighting	5,776	207,616	5,367	195,426	5,367	195,426
	<u>Bundled Self-generation Service</u>						
25	Self-generation GSG-1	8	7,758	-	-	-	-
26	Self-generation GSG-2	9	67,638	15	72,151	15	72,151
27	Total Bundled Self-generation	17	75,396	15	72,151	15	72,151
	<u>Bundled Other Service</u>						
28	Wholesale	1	343,165	1	360,744	-	-
29	Grand Rapids	1	19,965	1	19,187	-	-
30	Total Bundled Other	2	363,130	2	379,931	-	-
25	Cycle Billed Bundled Service	1,836,669	33,016,761	1,852,764	30,755,165	1,852,762	30,375,234
31	Unbilled		32,970		-	-	-
32	Calendar Bundled Service	1,836,669	33,049,731	1,852,764	30,755,165	1,852,762	30,375,234
	<u>ROA Secondary Service</u>						
33	Secondary Energy-only GS	114	24,728	105	23,110	105	23,110
34	Secondary Demand GSD	495	186,633	469	181,201	469	181,201
35	Total ROA Secondary	609	211,361	574	204,311	574	204,311
	<u>ROA Primary Service</u>						
36	Primary Energy-only GP	59	79,652	60	74,933	60	74,933
37	Primary Demand GPD	352	3,482,296	346	3,318,767	346	3,318,767
38	Total ROA Primary	411	3,561,948	405	3,393,700	405	3,393,700
39	Cycle Billed ROA Service	1,020	3,773,309	979	3,598,011	979	3,598,011
40	Unbilled ROA		(7,882)		-	-	-
41	Calendar ROA Service	1,020	3,765,427	979	3,598,011	979	3,598,011
42	<b>Cycle Billed Total Deliveries</b>	1,837,689	36,790,070	1,853,743	34,353,176	1,853,741	33,973,245
43	<b>Unbilled</b>	-	25,088		-	-	-
44	<b>Calendar Total Deliveries</b>	1,837,689	36,815,158	1,853,743	34,353,176	1,853,741	33,973,245

Case No.: U-20963  
Exhibit No.: A-15 (EMB-5)  
Schedule: E-4  
Page: 1 of 1  
Witness: EMBreuring  
Date: March 2021

Schedule E-4

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Calculation of Annual System Load Factor  
2015 - 2019 Historical / 2020 - 2024 Forecast

Line No.	Year	(a)			(b)		(c)	
		System Output GWh	System Demand MW	Annual Load Factor	System Peak Demand MW	Annual Load Factor	System Peak Demand MW	Annual Load Factor
1	2015	Hist	40,173	7,812	58.7%			
2	2016	Hist	40,931	8,227	56.6%			
3	2017	Hist	40,032	7,634	59.9%			
4	2018	Hist	41,331	8,084	58.4%			
5	2019	Hist	39,732	8,039	56.4%			
6	2020	Hist/Fcst	37,951	8,215	52.6%			
7	2021	Fcst	37,733	7,648	56.3%			
8	2022	Fcst	37,871	7,670	56.4%			
9	2023	Fcst	38,042	7,704	56.4%			
10	2024	Fcst	37,930	7,716	56.0%			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Estimated Electric Rate Case PSQR Factor

January 2022 - December 2022

Case No.: U-20963

Exhibit No.: A-61 (EMB-6)

Page: 1 of 1

Witness: EMBreuring

Date: March 2021

Line No.	Description	(a) Total Company	(b) Jurisdictional Factors	(c) Jurisdictional	(d) Non-Jurisdictional Factors	(e) Non-Jurisdictional
	<u>Expenses (\$000)</u>					
1	System Power Supply Costs	(1) \$ 1,466,886	98.91%	\$ 1,450,824	1.09%	\$ 16,062
2	Transmission & Market Administrative Expense	(2) 498,412	98.99%	493,380	1.01%	5,032
3	PSQR Expenses	\$ 1,965,298		\$ 1,944,204		\$ 21,094
	<u>PSQR Revenue Contributions (\$000)</u>					
4	Intersystem Sales Revenue	(3) \$ 83,076	99.97%	\$ 83,049	0.03%	\$ 27
5	Self-Generation	(5) 3,509	100.00%	3,509	0.00%	-
6	GI-2	(9) 2,073	100.00%	2,073	0.00%	-
7	Base Jurisdictional PSQR x \$0.06001	1,813,846	100.00%	1,813,846	0.00%	-
8	Base Non-Jurisdictional PSQR x \$0.06001	1,151	0.00%	-	100.00%	1,151
9	Long-Term Industrial Load Retention Rate	24,418	100.00%	24,418	0.00%	-
10	Wholesale Fuel Revenue	12,770	0.00%	-	100.00%	12,770
11	PSQR Revenue Contributions	\$ 1,940,844		\$ 1,926,895		\$ 13,949
12	PSQR (Over)/Under Recovery	\$ 24,454		\$ 17,309		\$ 7,145
	<u>Electric Deliveries (MWh)</u>					
13	Jurisdictional Bundled Deliveries	(7) 31,432,517		31,432,517		(72,151)
14	Less: Self-Generation	(8) (72,151)		(72,151)		(76,651)
15	Less: GI-2	(10) (1,057,283)		(1,057,283)		30,226,432
16	Less: Long-Term Industrial Load Retention Rate					
17	Total Bundled PSQR Deliveries					
	<u>Estimated Jurisdictional PSQR Factor</u>					
18	PSQR (Over)/Under Recovery (\$000)			\$ 17,309		\$ 13,949
19	Total Bundled PSQR Deliveries (MWh)			30,226,432		-
20	Total Jurisdictional PSQR Factor (\$ per kWh)			\$ 0.00057		\$ 13,960
	<u>Estimated PSQR Recovery</u>					
21	PSQR Revenue Contributions	\$ 1,940,844		\$ 1,926,895		\$ 13,949
22	Plus: PSQR (Over)/Under Recovery	17,229		17,229		-
23	Non-Jurisdictional PSQR Factor Contribution	11		-		11
24	Total PSQR Recoveries	\$ 1,958,084		\$ 1,944,124		\$ 13,960
25	Total PSQR (Over)/Under Recovery	\$ 7,214		\$ 80		\$ 7,134
	<u>Total Losses</u>					
	Less: Transmission			0.0718		
	System Losses			0.0000		
	System Efficiency			0.0718		
	PSQR Base @ Gen			1.07735		
	System Efficiency			0.05570		
	PSQR Base @ Del			1.0774		
				0.06001		

Notes:

(1) Exhibit A-101 (JSR-1), page 1, line 40; plus page 3, line 59; less page 1, line 34.

(2) Exhibit A-101 (JSR-1), page 1, line 34.

(3) Exhibit A-101 (JSR-1), page 3, line 59.

(4) Exhibit A-101 (JSR-1), page 1, line 41.

(5) Self-Generation PSQR Revenue from A-16 (HWM-1), WP-HWM-20

(6) \$0.0354/kWh from U-20800, Exhibit A-1, Schedule 4, page 1 (Supplemental Power: Energy Charge rate)

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBIT**  
**OF**  
**ADAM S. CARVETH**  
**ON BEHALF OF**  
**CONSUMERS ENERGY COMPANY**

March 2021

## Schedule: B-5.6

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Fleet Services

Summary of Actual and Projected Capital Expenditures

(\$000)

Case No.: U-20963

Exhibit No.: A-12 (ASC-1)

Schedule: B-5.6

Page: 1 of 1

Witness: ASCarveth

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022	
1	<b>Transportation Equipment</b>	<b>35,364</b>	<b>32,736</b>	<b>69,494</b>	<b>102,230</b>	<b>40,198</b>
	Contractor	4,244	6,875	14,594	21,469	8,441
	Labor	-	-	-	-	-
	Materials	30,413	25,534	54,205	79,739	31,354
	Business Expenses	707	327	695	1,022	402
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
2	<b>Other Equipment</b>	<b>266</b>	<b>240</b>	<b>240</b>	<b>480</b>	<b>240</b>
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Materials	266	240	240	480	240
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other (Loadings, Chargebacks)	-	-	-	-	-
3	<b>Total Capital</b>	<b>35,630</b>	<b>32,976</b>	<b>69,734</b>	<b>102,710</b>	<b>40,438</b>

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**LORA B. CHRISTOPHER**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Summary of Actual and Projected Employee Benefits O&amp;M Expenses

For the Years 2019, 2020, 2021, Test Year 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-62 (LBC-1)

Page: 1 of 2

Witness: LBChristopher

Date: March 2021

Line No.	(a) Description	(b)	(c)	(d)	(e)
		12 mos. ended 12/31/2019	12 mos. ended 12/31/2020	12 mos. ended 12/31/2021	12 mos. ended 12/31/2022
1	Pension Plans A/B	\$5,546	\$4,540	(\$3,426)	(\$8,902)
2	Defined Company Contribution Plan	8,567	9,674	10,564	12,128
3	401 (k) Employees' Savings Plan	8,273	8,632	10,963	11,573
4	Active Health Care/Life Insurance/LTD	25,353	25,822	22,640	23,856
5	Retiree Health Care and Life Insurance	(40,032)	(52,085)	(63,291)	(63,301)
6	Other Benefits	1,695	2,337	2,984	2,984
7	<b>Total Expense</b>	<b>\$9,402</b>	<b>(\$1,080)</b>	<b>(\$19,566)</b>	<b>(\$21,662)</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Summary of Actual and Projected Employee Benefits O&M Expenses  
For the Years 2019, 2020, 2021, Test Year 2022

Case No.: U-20963  
Exhibit No.: A-62 (LBC-1)  
Page: 2 of 2  
Witness: LBChristopher  
Date: March 2021

Summary of O&M Expenses Projected Using Merit and Inflation  
Actual and Projected Employee Benefits O&M Expenses  
(\$000)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Line No.	Description	2019 Actual	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2019	Merit & Inflation 12 Mos Ending Dec 31, 2020	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2020	Merit & Inflation 12 Mos Ending Dec 31, 2021	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2021	Merit & Inflation 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
				(c) * Inflation Rate		(e) * Inflation Rate		(g) * Inflation Rate		(b) + (d) + (f) + (h) + (i)
1	Pension Plans A/B	\$ 5,546	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (14,448)	\$ (8,902)
2	Defined Company Contribution Plan	8,567	-	-	-	-	-	-	3,561	12,128
3	401 (k) Employees' Savings Plan	8,273	-	-	-	-	-	-	3,300	11,573
4	Active Health Care/Life Insurance/LTD	25,353	-	-	-	-	-	-	(1,497)	23,856
5	Retiree Health Care and Life Insurance	(40,032)	-	-	-	-	-	-	(23,269)	(63,301)
6	Other Benefits	1,695	-	-	-	-	-	-	1,289	2,984
3	Total Employee Benefits O&M Expenses	\$ 9,402	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (31,064)	\$ (21,662)

\*Pension and Retiree HC are based on AON Hewitt actuarial studies.

\*\*DCCP, 401k, Active HC and Other are based on projected participation by employees

Notes

	12-Mo Ending 2020	12-Mo Ending 2021	12-Mo Ending 2022
4 Annual merit increase (Testimony of Amy M. Conrad)			
Annual Merit Increase	3.20%	3.20%	3.20%
Number of Months in Period	12	12	12
Pro-rated Merit Increase	3.2%	3.2%	3.2%
5 Annual inflation rates per WP-JRC-59			
Annual Inflation Rates per WP-JRC-59	1.20%	2.50%	2.30%
Number of Months in Period	12	12	12
Pro-rated Inflation Rate	1.2%	2.5%	2.3%

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
CMS Energy - Pension Plans A and B -  
ASC 715 Pension Expense Estimates  
(\$ millions)

Case No.: U-20963  
Exhibit No.: A-63 (LBC-2)  
Page: 1 of 3  
Witness: LBChristopher  
Date: March 2021

**CMS Energy - Pension Plan A**  
**ASC 715 Pension Expense Estimates (\$ millions)**  
**Minimum Required Contributions - Baseline Scenario**

Prepared on January 19, 2021

	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Funding Target</b>	\$ 995.0	\$ 1,089.9	\$ 1,199.2	\$ 1,314.0	\$ 1,435.4	\$ 1,503.6	\$ 1,575.5	\$ 1,649.2	\$ 1,718.8
<b>Value of Plan Assets</b>	\$ 1,671.7	\$ 1,858.4	\$ 1,947.8	\$ 1,990.2	\$ 2,002.5	\$ 2,012.6	\$ 2,023.4	\$ 2,031.3	\$ 2,034.7
<b>Funding Balance</b>	\$ 875.6	\$ 986.5	\$ 928.1	\$ 856.1	\$ 773.3	\$ 689.7	\$ 589.3	\$ 488.0	\$ 389.3
<b>Funded %</b>	80.0%	80.0%	85.0%	86.3%	85.6%	88.0%	91.0%	93.6%	95.7%
<b>Effective Interest Rate</b>	5.42%	5.00%	4.55%	4.13%	3.72%	3.59%	3.46%	3.32%	3.17%
<b>Contribution by Plan Year</b>									
Utility	\$ 164.6	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0
Nonutility	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>\$ 169.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>	<b>\$ 0.0</b>
<b>At-Risk?</b>	No	No	No	No	No	No	No	No	No
<b>Benefit Restrictions?</b>	No	No	No	No	No	No	No	No	No
<b>Participant Count</b>	3,293	3,161	3,069	2,983	2,905	2,830	2,753	2,683	2,616
<b>PBGC Liability</b>	\$ 1,147.9	\$ 1,269.8	\$ 1,467.6	\$ 1,558.6	\$ 1,605.4	\$ 1,653.4	\$ 1,705.6	\$ 1,752.7	\$ 1,791.7
<b>Market Value of Assets</b>	\$ 1,734.2	\$ 1,981.4	\$ 2,000.3	\$ 2,018.2	\$ 2,038.3	\$ 2,054.3	\$ 2,068.3	\$ 2,075.5	\$ 2,080.1
<b>PBGC Flat Rate Premium</b>	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3
<b>PBGC Variable Rate Premium</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total PBGC Premium</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>	<b>\$ 0.3</b>
<b>Projected Benefit Obligation</b>	\$ 1,735.6	\$ 1,977.9	\$ 1,998.4	\$ 2,013.9	\$ 2,030.1	\$ 2,044.0	\$ 2,053.4	\$ 2,057.8	\$ 2,056.8
<b>Market Value of Assets</b>	1,204.6	1,981.4	2,000.3	2,018.2	2,038.3	2,054.3	2,068.3	2,075.5	2,080.1
<b>Funded Status</b>	<b>\$ 531.0</b>	<b>\$ (3.5)</b>	<b>\$ (1.9)</b>	<b>\$ (4.3)</b>	<b>\$ (8.2)</b>	<b>\$ (10.3)</b>	<b>\$ (14.9)</b>	<b>\$ (17.7)</b>	<b>\$ (23.3)</b>
<b>ASC 715 Funded %</b>	69.4%	100.2%	100.1%	100.2%	100.4%	100.5%	100.7%	100.9%	101.1%
<b>ASC 715 Accounting Expense</b>									
Utility	\$ 56.5	\$ 46.7	\$ 38.7	\$ 26.7	\$ 17.3	\$ 8.6	\$ 8.7	\$ 5.6	\$ 6.9
Nonutility	1.3	1.2	1.0	0.7	0.4	0.2	0.2	0.1	0.2
<b>Total ASC 715 Accounting Expense</b>	<b>\$ 57.8</b>	<b>\$ 47.9</b>	<b>\$ 39.7</b>	<b>\$ 27.4</b>	<b>\$ 17.7</b>	<b>\$ 8.8</b>	<b>\$ 8.9</b>	<b>\$ 5.7</b>	<b>\$ 7.1</b>
2020 Settlement Accounting Nonutility	1.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2020 Settlement Accounting Utility Amortization <sup>1</sup>	1.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
<b>Total Expense</b>	<b>\$ 60.4</b>	<b>\$ 53.2</b>	<b>\$ 45.0</b>	<b>\$ 32.7</b>	<b>\$ 23.0</b>	<b>\$ 14.1</b>	<b>\$ 14.2</b>	<b>\$ 11.0</b>	<b>\$ 12.4</b>
<b>Components of Total Expense</b>									
Service Cost	\$ 48.0	\$ 51.3	\$ 50.1	\$ 46.6	\$ 44.6	\$ 42.9	\$ 40.7	\$ 38.5	\$ 35.5
Interest Cost	46.1	38.0	37.9	38.0	37.9	37.8	37.5	37.2	36.7
Expected Return on Assets	(106.9)	(120.8)	(120.3)	(122.8)	(122.2)	(124.6)	(120.6)	(121.1)	(116.3)
Amortization of Outstanding Components	70.6	79.4	72.0	65.6	57.4	52.7	51.3	51.1	51.2
<b>Total ASC 715 Accounting Expense</b>	<b>\$ 57.8</b>	<b>\$ 47.9</b>	<b>\$ 39.7</b>	<b>\$ 27.4</b>	<b>\$ 17.7</b>	<b>\$ 8.8</b>	<b>\$ 8.9</b>	<b>\$ 5.7</b>	<b>\$ 7.1</b>
2020 Settlement Accounting Nonutility	1.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2020 Settlement Accounting Utility Amortization <sup>1</sup>	1.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
<b>Total Expense</b>	<b>\$ 60.4</b>	<b>\$ 53.2</b>	<b>\$ 45.0</b>	<b>\$ 32.7</b>	<b>\$ 23.0</b>	<b>\$ 14.1</b>	<b>\$ 14.2</b>	<b>\$ 11.0</b>	<b>\$ 12.4</b>
<b>Assumptions</b>									
Discount Rate	3.37%/2.81%	2.73%	2.71%	2.70%	2.68%	2.66%	2.64%	2.62%	2.60%
Expected Return on Assets	6.75%	6.75%	6.50%	6.50%	6.25%	6.25%	6.00%	6.00%	5.75%
Salary Increases	3.50%	3.70%	3.70%	3.70%	3.70%	3.70%	3.70%	3.70%	3.70%

<sup>1</sup> The information related to the 2020 Settlement Accounting Utility Amortization was provided directly by CMS and was not calculated or reviewed by Aon. The amortization was set up as a regulatory asset for the utility portion of the 2020 settlement loss of \$35.5 million at August 31, 2020. As provided by CMS, the amortizations starts in September 2020 over service life of 8.55 years. Additionally, the settlement attributable to the utility portion on December 31, 2020 is \$9.8 million, which is also amortized over service of 8.55 years beginning in January 2021. Nonutility portions of the settlement loss are \$0.9 million and \$0.3 million for August 31, 2020 and December 31, 2020 respectively.

## Consumers Energy Company

### ASC 715 Pension Expense Estimates

Case No.: U-20963

Exhibit No.: A-63 (LBC-2)

Page: 2 of 3

Witness: LBChristopher

Date: March 2021

Prepared on January 19, 2021

### Minimum Required Contributions - Baseline Scenario

[illegible]

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

CMS Energy - Pension Plans A and B -

ASC 715 Pension Expense Estimates

(\$ millions)

Case No.: U-20963

Exhibit No.: A-63 (LBC-2)

Page: 3 of 3

Witness: LBChristopher

Date: March 2021

**2021-2028 projections reflect the following:**

- January 1, 2020 census data.
- PBO discount rates of 2.73% (Plan A) and 2.41% (Plan B) in fiscal 2021, based on December 31, 2020 yield curve analysis.
- Service Cost effective interest rate of 2.83% (Plan A) for fiscal 2021, based on December 31, 2010 yield curve analysis.
- Interest Cost effective interest rates of 1.97% (Plan A) and 1.70% (Plan B) in fiscal 2021, based on December 31, 2020 yield curve analysis.
- Fiscal 2022+ effective interest rates determined based on December 31, 2020 yield curve.
- Expense is allocated to Utility/Non Utility based on PBO using the allocation percentages as will be provided for 2021 expense.
- Contributions are allocated to Utility/Non Utility based on the most recent allocation percentages provided by CMS for the December 2020 contributions.
- December 31, 2020 market assets provided by CMS, with expected returns thereafter.
- Expected and actual asset returns drop 25 basis points every other year, starting with a drop from 6.75% to 6.50% in 2022.
- The plans will waive Funding Balance when necessary, in order to maintain a Funded Percentage of at least 80%.
- Other provisions, assumptions and methods are the same as those used for December 31, 2020 ASC 715 disclosures.

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
CMS Energy - ASC 715 OPEB  
Expense Estimates  
(\$ millions)

Case No.: U-20963  
Exhibit No.: A-64 (LBC-3)  
Page: 1 of 1  
Witness: LBChristopher  
Date: March 2021

**CMS Energy**
**ASC 715 OPEB Expense Estimates (\$ millions)**

Prepared on January 19, 2021

	2019	2020	2021	2022	2023	2024	2025	2026
<b>Funded Status, January 1</b>								
Accumulated Postretirement Benefit Obligation	\$ (1,045.6)	\$ (1,165.1)	\$ (1,204.7)	\$ (1,202.4)	\$ (1,197.5)	\$ (1,190.2)	\$ (1,180.5)	\$ (1,169.0)
Plan Assets at Fair Value	\$ 1,280.2	\$ 1,509.0	\$ 1,644.5	\$ 1,702.0	\$ 1,757.0	\$ 1,813.6	\$ 1,867.8	\$ 1,925.0
Funded Status	\$ 234.6	\$ 343.9	\$ 439.8	\$ 499.6	\$ 559.5	\$ 623.4	\$ 687.3	\$ 756.0
<b>ASC 715 Accounting Expense</b>								
Utility	\$ (64.0)	\$ (86.1)	\$ (105.1)	\$ (105.3)	\$ (99.3)	\$ (89.4)	\$ (92.6)	\$ (91.0)
Nonutility	\$ (5.3)	\$ (6.4)	\$ (7.8)	\$ (7.7)	\$ (7.7)	\$ (7.3)	\$ (7.6)	\$ (7.0)
Total	\$ (69.3)	\$ (92.5)	\$ (112.9)	\$ (113.0)	\$ (107.0)	\$ (96.7)	\$ (100.2)	\$ (98.0)
<b>Components of Total Expense</b>								
Service Cost	\$ 13.7	\$ 16.0	\$ 17.8	\$ 17.4	\$ 16.9	\$ 16.5	\$ 16.1	\$ 16.0
Interest Cost	\$ 41.0	\$ 32.7	\$ 23.4	\$ 23.4	\$ 23.3	\$ 23.1	\$ 22.9	\$ 23.0
Expected Return on Assets	\$ (87.7)	\$ (100.0)	\$ (109.4)	\$ (108.9)	\$ (112.4)	\$ (111.5)	\$ (114.9)	\$ (114.0)
Amortization of Net (Gain) or Loss	\$ 26.3	\$ 14.6	\$ 7.7	\$ 7.5	\$ 7.2	\$ 6.9	\$ 6.6	\$ 6.0
Amortization of Prior Service Cost	\$ (62.6)	\$ (55.8)	\$ (52.4)	\$ (52.4)	\$ (42.0)	\$ (31.7)	\$ (30.9)	\$ (29.0)
Total Expense	\$ (69.3)	\$ (92.5)	\$ (112.9)	\$ (113.0)	\$ (107.0)	\$ (96.7)	\$ (100.2)	\$ (98.0)
<b>Assumptions</b>								
APBO Discount Rate	4.42%	3.32%	2.69%	2.69%	2.69%	2.69%	2.69%	2.69%
Service Cost Effective Interest Rate	4.63%	3.57%	3.03%	3.03%	3.03%	3.03%	3.03%	3.03%
Interest Cost Effective Interest Rate	4.03%	2.88%	1.99%	1.99%	1.99%	1.99%	1.99%	1.99%
Expected Return on Assets	7.00%	6.75%	6.75%	6.50%	6.50%	6.25%	6.25%	6.00%
Trend Rate—Initial Pre-65	6.75%	6.50%	6.25%	6.00%	5.75%	5.50%	5.25%	5.00%
Trend Rate—Initial Post-65	7.25%	7.00%	6.75%	6.50%	6.00%	5.75%	5.50%	5.00%
Trend Rate—Ultimate	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%
Trend Rate—Ultimate Year Pre-65	2027	2027	2027	2027	2027	2027	2027	2027
Trend Rate—Ultimate Year Post-65	2027	2027	2027	2027	2027	2027	2027	2027
<b>Expected Contribution</b>	\$ 0.4	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0

**2021-2026 expense projections reflect the following:**

- January 1, 2020 census data.
- APBO discount rate of 2.69% in fiscal 2021+, based on December 31, 2020 yield curve.
- Service Cost effective interest rate of 3.03% in fiscal 2021+, based on December 31, 2020 yield curve.
- Interest Cost effective interest rate of 1.99% in fiscal 2021+, based on December 31, 2020 yield curve.
- December 31, 2020 market assets provided by CMS.
- Updates to retirement, withdrawal and HRA utilization assumptions as described in the 2020 assumption study.
- Other provisions, assumptions and methods are the same as those used for December 31, 2020 ASC 715 disclosures.

A-65 (LBC-4)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**JASON R. COKER**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

**Schedule: A-1****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Revenue Deficiency (Sufficiency)

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-1 (JRC-1)

Schedule: A-1

Page: 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Rate Base	Exhibit No.: A-2 (JRC-3)	10,768,554	10,728,332
2	Adjusted Net Operating Income	Exhibit No.: A-3 (JRC-9)	<u>641,609</u>	<u>639,287</u>
3	Overall Rate of Return	Line 2 / Line 1	5.96%	5.96%
4	Required Rate of Return	Exhibit No.: A-4 (JRC-22)	5.78%	5.78%
5	Income Required	Line 1 * Line 4	<u>622,891</u>	<u>620,564</u>
6	Income Deficiency (Sufficiency)	Line 5 - Line 2	(18,718)	(18,722)
7	Revenue Conversion Factor	Exhibit No.: A-3 (JRC-10)	<u>1.3391</u>	<u>1.3391</u>
8	Revenue Deficiency (Sufficiency)	Line 6 * Line 7	<u>(25,065)</u>	<u>(25,071)</u>

## Schedule: A-2

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Historical Financial Metrics - Financial Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
 Schedule: A-2  
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 Witness: JRCoker  
 Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )
Line		Calendar Year				
No	Description	2015	2016	2017	2018	2019
1	Operating Revenue	4,249,518	4,379,111	4,447,710	4,561,203	4,439,232
2	Operating Expenses	<u>3,423,640</u>	<u>3,448,040</u>	<u>3,531,978</u>	<u>3,745,412</u>	<u>3,632,901</u>
3	Pre-Tax Operating Income	825,878	931,071	915,731	815,791	806,331
4	Income Taxes	<u>223,728</u>	<u>245,310</u>	<u>244,975</u>	<u>108,918</u>	<u>134,677</u>
5	Net Operating Income	602,150	685,761	670,757	706,874	671,655
6	Other Income and Deductions	8,173	(34,820)	(16,239)	35,098	47,194
7	AFUDC	8,808	7,849	4,901	5,095	5,918
8	Interest Charges	(180,418)	(198,810)	(202,755)	(210,785)	(214,929)
9	Preferred Stock Dividends	<u>(1,208)</u>	<u>(1,214)</u>	<u>(1,209)</u>	<u>(1,193)</u>	<u>(1,160)</u>
10	Net Income Available for Common	437,505	458,767	455,455	535,088	508,678
11	Average Common Equity	<u>3,838,084</u>	<u>4,116,231</u>	<u>4,488,159</u>	<u>4,808,892</u>	<u>5,282,036</u>
12	Earned Rate of Return on Common Equity	11.40%	11.15%	10.15%	11.13%	9.63%
13	Authorized Rate of Return on Common Equity	10.30% {3}	10.30% {3}	10.10% {4}	10.00% {5}	10.00% {6}

## Schedule: A-2

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Historical Financial Metrics - Financial Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
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 Witness: JRCoker  
 Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line	Calendar Year					
No	Description	2015	2016	2017	2018	2019
<b>EBIT Interest Coverage Ratio</b>						
14	Pre-Tax Operating Income	825,878	931,071	915,731	815,791	806,331
15	Other Income and Deductions	8,173	(34,820)	(16,239)	35,098	47,194
16	AFUDC	8,808	7,849	4,901	5,095	5,918
17	Total EBIT	842,859	904,101	904,394	855,985	859,443
18	Interest Charges	180,418	198,810	202,755	210,785	214,929
19	EBIT Interest Coverage Ratio	4.67	4.55	4.46	4.06	4.00
<b>EBITDA Interest Coverage Ratio</b>						
20	Total EBIT	842,859	904,101	904,394	855,985	859,443
21	Depreciation and Amortization	567,371	603,190	654,244	682,307	713,007
22	Total EBITDA	1,410,231	1,507,291	1,558,638	1,538,292	1,572,450
23	Interest Charges	180,418	198,810	202,755	210,785	214,929
24	EBITDA Interest Coverage Ratio	7.82	7.58	7.69	7.30	7.32
<b>Funds Flow from Operations (FFO) Interest Coverage Ratio</b>						
25	Net Operating Income	602,150	685,761	670,757	706,874	671,655
26	Depreciation and Amortization	567,371	603,190	654,244	682,307	713,007
27	Deferred Income Tax	143,401	341,939	(54,642)	124,791	38,192
28	AFUDC	8,808	7,849	4,901	5,095	5,918
29	Other Major Recurring Non-Cash Items	-	-	-	-	-
30	Interest Paid	165,485	190,245	193,634	196,495	200,213
31	Less: Operating Lease Adjustment to Depreciation	-	-	-	-	-
32	Subtotal	1,487,216	1,828,985	1,468,894	1,715,561	1,628,983
33	Interest Charges	180,418	198,810	202,755	210,785	214,929
34	FFO interest coverage ratio	8.24	9.20	7.24	8.14	7.58

## Schedule: A-2

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Historical Financial Metrics - Financial Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
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 Witness: JRCoker  
 Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )
Line	Calendar Year					
No	Description	2015	2016	2017	2018	2019
<b><u>Overall Fixed Charge Coverage Ratio</u></b>						
35	Net Income Available for Common	437,505	458,767	455,455	535,088	508,678
36	Interest Charges	180,418	198,810	202,755	210,785	214,929
37	Subtotal Numerator	617,923	657,577	658,210	745,874	723,606
38	Interest Charges	180,418	198,810	202,755	210,785	214,929
39	Preferred Stock Dividends	1,208	1,214	1,209	1,193	1,160
40	Subtotal Denominator	181,626	200,024	203,964	211,978	216,089
41	Overall Fixed Charge Coverage Ratio	3.40	3.29	3.23	3.52	3.35
<b><u>Cash Flow Coverage of Dividends Ratio</u></b>						
42	Net Income Available for Common	437,505	458,767	455,455	535,088	508,678
43	Depreciation and Amortization	567,371	603,190	654,244	682,307	713,007
44	Deferred Income Tax	143,401	341,939	(54,642)	124,791	38,192
45	Subtotal	1,148,277	1,403,896	1,055,057	1,342,186	1,259,876
46	Common Dividends {7}	350,004	367,014	364,364	428,071	406,942
47	Cash Flow Coverage of Dividends Ratio	3.28	3.83	2.90	3.14	3.10
<b><u>Common Dividend Payout Ratio</u></b>						
48	Common Dividends {7}	350,004	367,014	364,364	428,071	406,942
49	Net Income Available for Common	437,505	458,767	455,455	535,088	508,678
50	Common Dividend Payout Ratio	80%	80%	80%	80%	80%
<b><u>Permanent Capitalization</u></b>						
51	Long Term Debt	5,371,634	5,617,920	5,895,659	6,809,306	7,263,181
52	Preferred Stock	37,315	37,315	37,315	37,315	37,315
53	Common Equity	5,508,798	5,903,031	6,451,911	6,884,117	7,700,854
54	Total Permanent Capital	10,917,747	11,558,266	12,384,885	13,730,738	15,001,350
55	Long Term Debt	49.20%	48.61%	47.60%	49.59%	48.42%
56	Preferred Stock	0.34%	0.32%	0.30%	0.27%	0.25%
57	Common Equity	50.46%	51.07%	52.10%	50.14%	51.33%
58	Total Permanent Capital	100.00%	100.00%	100.00%	100.00%	100.00%

## Schedule: A-2

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Historical Financial Metrics - Ratemaking Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
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 Witness: JRCoker  
 Date: March 2021

( a )		( b )	( c )	( d )	( e )	( f )
Line		Calendar Year				
No	Description	2015	2016 {1}	2017 {2}	2018	2019
59	Operating Revenue	4,225,531	4,355,259	4,412,087	4,471,514	4,355,517
60	Operating Expense	<u>3,453,224</u>	<u>3,493,232</u>	<u>3,551,832</u>	<u>3,792,887</u>	<u>3,625,943</u>
61	Pre-Tax Operating Income	772,307	862,027	860,255	678,627	729,574
62	Income Taxes	<u>180,456</u>	<u>239,709</u>	<u>220,597</u>	<u>58,632</u>	<u>82,880</u>
63	Net Operating Income	591,852	622,319	639,659	619,995	646,693
64	Tax Impact of Pro-Forma Interest on NOI	(1,076)	(7,096)	(10,112)	(12,859)	(13,290)
65	AFUDC	8,808	7,849	4,901	5,070	5,884
66	Interest Charges	(178,276)	(181,322)	(177,389)	(159,794)	(161,635)
67	Preferred Stock Dividends	<u>(1,230)</u>	<u>(1,215)</u>	<u>(1,175)</u>	<u>(1,070)</u>	<u>(1,026)</u>
68	Net Income Available for Common and JDITC	420,078	440,535	455,884	451,342	476,626
69	Return Assignable to JDITC	<u>(2,986)</u>	<u>(3,643)</u>	<u>(4,277)</u>	<u>(3,213)</u>	<u>(3,547)</u>
70	Net Income Available for Common	417,092	436,892	451,607	448,130	473,079
71	Average Common Equity	<u>3,973,729</u>	<u>4,174,355</u>	<u>4,400,725</u>	<u>4,306,516</u>	<u>4,543,533</u>
72	Earned Rate of Return on Common Equity	10.50%	10.47%	10.26%	10.41%	10.41%
73	Authorized Return on Equity	10.30% {3}	10.30% {3}	10.10% {4}	10.00% {5}	10.00% {6}

## Schedule: A-2

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Historical Financial Metrics - Ratemaking Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
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 Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Calendar Year				
		2015	2016 {1}	2017 {2}	2018	2019
<b><u>EBIT Interest Coverage Ratio</u></b>						
74	Pre-Tax Operating Income	772,307	862,027	860,255	678,627	729,574
75	AFUDC	8,808	7,849	4,901	5,070	5,884
76	Total EBIT	781,115	869,877	865,157	683,697	735,457
77	Interest Charges, Net of Pro-Forma Interest	177,200	174,225	167,277	146,935	148,345
78	EBIT Interest Coverage Ratio	4.41	4.99	5.17	4.65	4.96
<b><u>EBITDA Interest Coverage Ratio</u></b>						
79	Total EBIT	781,115	869,877	865,157	683,697	735,457
80	Depreciation and Amortization	554,165	590,050	641,020	665,312	694,677
81	Total EBITDA	1,335,280	1,459,927	1,506,177	1,349,008	1,430,134
82	Interest Charges, Net of Pro-Forma Interest	177,200	174,225	167,277	146,935	148,345
83	EBITDA Interest Coverage Ratio	7.54	8.38	9.00	9.18	9.64
<b><u>Funds Flow from Operations (FFO) Interest Coverage Ratio</u></b>						
84	Net Operating Income	591,852	622,319	639,659	619,995	646,693
85	Depreciation and Amortization	554,165	590,050	641,020	665,312	694,677
86	Deferred Income Tax	143,401	341,939	(54,642)	124,791	38,192
87	AFUDC	8,808	7,849	4,901	5,070	5,884
88	Other Major Recurring Non-Cash Items	-	-	-	-	-
89	Interest Paid	165,485	190,245	193,634	196,495	200,213
90	Less: Operating Lease Adjustment to Depreciation	-	-	-	-	-
91	Subtotal	1,463,711	1,752,402	1,424,572	1,611,662	1,585,658
92	Interest Charges, Net of Pro-Forma Interest	177,200	174,225	167,277	146,935	148,345
93	FFO interest coverage ratio	8.26	10.06	8.52	10.97	10.69
<b><u>Overall Fixed Charge Coverage Ratio</u></b>						
94	Net income Available for Common	417,092	436,892	451,607	448,130	473,079
95	Interest Charges, Net of Pro-Forma Interest	177,200	174,225	167,277	146,935	148,345
96	Subtotal Numerator	594,292	611,117	618,884	595,065	621,424
97	Interest Charges, Net of Pro-Forma Interest	177,200	174,225	167,277	146,935	148,345
98	Preferred Stock Dividends	1,230	1,215	1,175	1,070	1,026
99	Subtotal Denominator	178,430	175,440	168,452	148,005	149,371
100	Overall Fixed Charge Coverage Ratio	3.33	3.48	3.67	4.02	4.16

## Schedule: A-2

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Historical Financial Metrics - Ratemaking Basis  
 ELECTRIC RESULTS ONLY  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-1 (JRC-2)  
 Schedule: A-2  
 Page: 6 of 6  
 Witness: JRCoker  
 Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Calendar Year				
		2015	2016 {1}	2017 {2}	2018	2019
<b><u>Cash Flow Coverage of Dividends Ratio</u></b>						
101	Net Income Available for Common	417,092	436,892	451,607	448,130	473,079
102	Depreciation and Amortization	554,165	590,050	641,020	665,312	694,677
103	Deferred Taxes	143,401	341,939	(54,642)	124,791	38,192
104	Subtotal	1,114,658	1,368,881	1,037,985	1,238,232	1,205,947
105	Common Dividends {7}	333,674	349,513	361,286	358,504	378,463
106	Cash Flow Coverage of Dividends Ratio	3.34	3.92	2.87	3.45	3.19
<b><u>Common Dividend Payout Ratio</u></b>						
107	Common Dividends {7}	333,674	349,513	361,286	358,504	378,463
108	Net Income Available for Common	417,092	436,892	451,607	448,130	473,079
109	Common Dividend Payout Ratio	80%	80%	80%	80%	80%
<b><u>Permanent Capitalization</u></b>						
110	Long Term Debt	5,027,277	5,299,006	5,599,864	6,311,870	6,997,291
111	Preferred Stock	37,315	37,315	37,315	37,315	37,315
112	Common Equity	5,515,574	5,905,957	6,464,167	6,904,894	7,728,910
113	Total Permanent Capital	10,580,166	11,242,278	12,101,346	13,254,079	14,763,516
114	Long Term Debt	47.52%	47.13%	46.27%	47.62%	47.40%
115	Preferred Stock	0.35%	0.33%	0.31%	0.28%	0.25%
116	Common Equity	52.13%	52.53%	53.42%	52.10%	52.35%
117	Total Permanent Capital	100.00%	100.00%	100.00%	100.00%	100.00%

## Notes

- {1} 2016 data does not reflect all ratemaking normalizations  
 {2} Prior to 2017, all transmission assets are reflected in total rate base  
 {3} Case No. U-17735 Final Order dated November 19, 2015  
 {4} Case No. U-17990 Final Order dated February 18, 2017  
 {5} Case No. U-18322 Final Order dated July 24, 2018  
 {6} Case No. U-20134 Settlement Agreement dated January 10, 2019  
 {7} CEC Co pays dividends to the parent as a total company. This number represents the company's 80% dividend policy applied to net income available to common

**Schedule: B-1****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Historical Rate Base

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-2 (JRC-3)

Schedule: B-1

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Witness: JRCoker

Date: March 2021

( a )		( b )	( c )	( d )
Line No	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Total Utility Plant	Exhibit No.: A-2 (JRC-4)	15,825,821	15,763,789
2	Depreciation Reserve	Exhibit No.: A-2 (JRC-5)	<u>(5,881,882)</u>	<u>(5,856,578)</u>
3	Net Utility Plant	Line 1 + Line 2	9,943,939	9,907,211
4	Working Capital	Exhibit No.: A-2 (JRC-6)	<u>824,615</u>	<u>821,121</u>
5	Historical Rate Base	Line 3 + Line 4	<u>10,768,554</u>	<u>10,728,332</u>

**Schedule: B-2**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Total Utility Plant

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-2 (JRC-4)

Schedule: B-2

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )	( e )
Line No	Description	MPSC Account Number	Source	Total (\$000)	Jurisdictional (\$000)
1	Plant-In-Service	101	WP-JRC-17, Line 13	15,407,619	15,347,986
1	Property Held for Future Use	105	WP-JRC-17, Line 14	2,501	2,481
2	Deferred Debits	182	WP-JRC-17, Line 34	-	-
3	Construction Work in Progress	107	WP-JRC-17, Line 23	<u>415,701</u>	<u>413,322</u>
4	Total Utility Plant		Sum Lines 1 - 3	<u><u>15,825,821</u></u>	<u><u>15,763,789</u></u>

**Schedule: B-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Depreciation Reserve and Other Deductions

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-2 (JRC-5)

Schedule: B-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Accumulated Depreciation, Amortization and Depletion of Plant-In-Service	WP-JRC-17, Line 31	(5,830,121)	(5,804,847)
2	Customer Advances for Construction	WP-JRC-17, Line 40	<u>(51,761)</u>	<u>(51,731)</u>
3	Depreciation Reserve and Other Deductions	Line 1 + Line 2	<u>(5,881,882)</u>	<u>(5,856,578)</u>

**Schedule: B-4****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Working Capital

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-2 (JRC-6)

Schedule: B-4

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No	( a ) Description	( b ) Source	( c ) (\$000)
1	Cash	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 8	52,799
2	Accounts Receivable	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 11	299,529
3	Materials & Supplies	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 13	102,209
4	Fuel Stock	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 14	50,295
5	Clean Air Allowance	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 15	14
6	Accrued Revenues	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 17	235,796
7	Prepayments	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 18	213,254
8	Real & Personal Property Taxes	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 19	192,730
9	Deferred Debits	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 20	744,176
10	Total Assets	Sum Lines 1 - 9	1,890,802
11	Accounts Payable	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 28	417,217
12	Customer Deposits	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 29	15,152
13	Dividends Payable	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 30	32,454
14	Accrued Interest	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 31	45,484
15	Accrued Taxes	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 32	252,207
16	Other Current Liabilities	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 34	44,014
17	Deferred Credits	Exhibit No.: A-2 (JRC-7), Column ( j ), Line 38	259,660
18	Total Liabilities	Sum Lines 11 - 17	1,066,188
19	Working Capital	Line 10 - Line 18	824,615
20	Jurisdictional Factor	Cost of Service Study	0.995764
21	Jurisdictional Working Capital	Line 19 * Line 20	821,121

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
13-Month Average Working Capital Balance Sheet Summary  
For the Historical Year Ended December 31, 2019

Source: WP-JRC-19

**Schedule: B-5**

Case No.: U-20963  
Exhibit No.: A-2 (JRC-7)  
Schedule: B-5  
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Witness: JRCoker  
Date: March 2021

Line No	(a) Description	(b) Total	(c) CECo:		(d) Subsidiary:	(e) Electric Plant	(f) Gas Plant	(g) MGP Plant	(h) Non-Utility Plant	(i) Total Working Capital	(j) Electric Working Capital	(k) Gas Working Capital	(l) Non-Utility Working Capital
			Investor Supplied	Investor Supplied									
1	Utility Plant	\$24,073,019,742	\$	401,513,956	\$	\$15,713,334,976	\$7,958,170,810	\$	\$	\$	\$	\$	-
2	Common Plant	1,516,427,833	-	5,511,491	-	965,896,920	545,019,422	-	-	-	-	-	-
3	Total Gross Plant	25,589,447,575	-	407,025,447	-	16,679,231,896	8,503,190,232	-	-	-	-	-	-
4	Utility Plant Depreciation	(6,335,293,600)	-	443,777	-	(4,389,557,039)	(1,946,180,339)	-	-	-	-	-	-
5	Common Plant Depreciation	(826,483,610)	-	(5,338,822)	-	(532,439,421)	(288,705,368)	-	-	-	-	-	-
6	Total Depreciation	(7,161,777,211)	-	(4,895,045)	-	(4,921,996,460)	(2,234,885,706)	-	-	-	-	-	-
7	Other Property	170,355,533	-	158,624,960	(5,817,858)	-	-	-	17,548,431	-	-	-	-
8	Cash	82,510,492	-	21,779	-	-	-	-	-	82,488,714	52,799,005	29,689,709	-
9	Cash Equivalents	3,046,257	-	3,046,257	-	-	-	-	-	-	-	-	-
10	Notes Receivable	758	-	758	-	-	-	-	-	-	-	-	-
11	Accounts Receivable	465,558,695	-	30,067,711	-	-	-	-	-	435,490,984	299,528,848	132,849,183	3,112,952
12	CE Receivable Funding	9,909,671	-	-	-	-	-	-	-	9,909,671	-	-	9,909,671
13	Materials and Supplies	139,822,469	-	769,581	-	-	-	-	-	139,052,888	102,208,949	36,843,939	-
14	Fuel Stock	50,294,878	-	-	-	-	-	-	-	50,294,878	50,294,878	-	-
15	Clean Air Allowances	14,288	-	-	-	-	-	-	-	14,288	14,288	-	-
16	Gas Stored Underground	385,089,291	-	-	-	-	-	-	-	385,089,291	385,089,291	-	-
17	Accrued Revenues	348,345,681	-	13,628,095	-	-	-	-	-	334,717,586	235,795,927	98,921,659	-
18	Prepayments	350,816,163	-	-	-	-	-	-	-	350,816,163	213,254,287	137,562,012	(136)
19	Real and Personal Property Tax	304,386,714	-	-	-	-	-	-	-	304,386,714	192,730,251	111,379,984	276,479
20	Deferred Debits	4,252,508,517	-	3,010,846,959	-	-	-	130,803,140	-	1,110,858,418	744,175,726	366,514,348	168,344
21	Total Assets	24,990,329,773	-	3,619,136,503	(5,817,858)	11,757,235,436	6,268,304,526	130,803,140	17,548,431	3,203,119,595	1,890,802,159	1,298,850,126	13,467,310
22	Common Equity	(7,416,394,759)	-	(7,417,392,931)	998,173	-	-	-	-	-	-	-	-
23	Preferred Stock	(37,314,800)	-	(37,314,800)	-	-	-	-	-	-	-	-	-
24	Long Term Debt	(6,735,598,075)	-	(6,735,598,075)	-	-	-	-	-	-	-	-	-
25	Capital Leases	(144,511,624)	-	(144,511,624)	-	-	-	-	-	-	-	-	-
26	Total Capitalization	(14,333,819,257)	-	(14,334,817,430)	998,173	-	-	-	-	-	-	-	-
27	Notes Payable	(78,752,224)	-	(78,752,224)	-	-	-	-	-	-	-	-	-
28	Accounts Payable	(594,983,754)	-	(2,405,231)	-	-	-	-	-	(592,578,523)	(417,217,008)	(166,594,137)	(8,767,379)
29	Customer Deposits	(23,282,342)	-	-	-	-	-	-	-	(23,282,342)	(15,151,747)	(8,130,595)	-
30	Dividends Payable	(45,667,628)	-	-	-	-	-	-	-	(45,667,628)	(32,453,700)	(13,106,609)	(107,319)
31	Accrued Interest	(64,049,336)	-	(45,905)	-	-	-	-	-	(64,003,431)	(45,484,038)	(18,368,985)	(150,408)
32	Accrued Taxes	(356,389,365)	-	-	-	-	-	-	-	(356,389,365)	(252,206,548)	(108,672,159)	4,489,341
33	Current Maturities	(69,430,462)	-	(69,430,462)	-	-	-	-	-	-	-	-	-
34	Other Liabilities	(95,088,324)	-	(17,691,239)	-	-	-	(14,054,624)	-	(63,342,461)	(44,014,295)	(19,328,166)	-
35	Customer Advances	(80,686,552)	-	-	-	(51,761,389)	(28,925,162)	-	-	-	-	-	-
36	ITC/JDITC	(108,964,197)	-	(108,964,197)	-	-	-	-	-	-	-	-	-
37	Deferred Income Taxes	(5,815,643,083)	-	(5,815,643,083)	-	-	-	-	-	-	-	-	-
38	Deferred Credits	(3,323,573,248)	-	(796,262,286)	-	(1,014,239,680)	(1,037,672,275)	(55,724,600)	-	(419,674,408)	(259,660,168)	(157,706,356)	(2,307,883)
39	Total Liabilities and Equity	(24,990,329,773)	-	(21,224,012,056)	998,173	(1,066,001,069)	(1,066,597,437)	(69,779,224)	-	(1,564,938,159)	(1,066,187,505)	(491,907,007)	(6,843,647)
40	Net Assets	\$ -	-	\$ (17,604,875,552)	\$ (4,819,685)	\$ 10,691,234,367	\$ 5,201,707,088	\$ 61,023,916	\$ 17,548,431	\$ 1,638,181,436	\$ 824,614,654	\$ 806,943,120	\$ 6,623,662

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Point-In-Time Working Capital Balance Sheet Summary  
For the Historical Year Ended December 31, 2019

Source: WP-JRC-18

**Schedule: B-6**

Case No.: U-20963  
Exhibit No.: A-2 (JRC-8)  
Schedule: B-6  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

Line No	(a) Description	(b) Total	(c) CECo: Investor Supplied	(d) Subsidiary: Investor Supplied	(e) Electric Plant	(f) Gas Plant	(g) MGP Plant	(h) Non-Utility Plant	(i) Total Working Capital	(j) Electric Working Capital	(k) Gas Working Capital	(l) Non-Utility Working Capital
1	Utility Plant	\$ 24,977,163,584	\$ 425,675,628	\$ -	\$ 16,140,314,401	\$ 8,411,173,556	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Common Plant	1,496,277,684	5,148,898	-	953,247,153	537,881,633	-	-	-	-	-	-
3	Total Gross Plant	26,473,441,269	430,824,525	-	17,093,561,554	8,949,055,189	-	-	-	-	-	-
4	Utility Plant Depreciation	(6,446,764,967)	(16,261,284)	-	(4,448,667,137)	(1,981,836,546)	-	-	-	-	-	-
5	Common Plant Depreciation	(804,429,248)	(5,405,283)	-	(518,081,959)	(280,942,006)	-	-	-	-	-	-
6	Total Depreciation	(7,251,194,215)	(21,666,567)	-	(4,966,749,096)	(2,262,778,551)	-	-	-	-	-	-
7	Other Property	169,191,540	157,437,765	(6,250,171)	-	-	-	18,003,946	-	-	-	-
8	Cash	9,558,543	30,046	-	-	-	-	-	9,528,497	6,098,957	3,429,539	-
9	Cash Equivalents	3,452,670	3,452,670	-	-	-	-	-	-	-	-	-
10	Notes Receivable	758	758	-	-	-	-	-	-	-	-	-
11	Accounts Receivable	435,127,414	41,259,509	-	-	-	-	-	393,867,906	270,167,844	120,848,085	2,851,977
12	CE Receivable Funding	9,909,671	-	-	-	-	-	-	9,909,671	-	-	9,909,671
13	Materials and Supplies	134,723,949	559,475	-	-	-	-	-	134,164,474	100,401,687	33,762,788	-
14	Fuel Stock	63,365,800	-	-	-	-	-	-	63,365,800	63,365,800	-	-
15	Clean Air Allowances	14,288	-	-	-	-	-	-	14,288	14,288	-	-
16	Gas Stored Underground	399,121,089	-	-	-	-	-	-	399,121,089	-	399,121,089	-
17	Accrued Revenues	429,323,928	3,242,232	-	-	-	-	-	426,081,696	259,457,587	166,624,109	-
18	Prepayments	460,129,959	-	-	-	-	-	-	460,129,959	276,076,494	184,053,591	(126)
19	Real and Personal Property Tax	467,256,867	-	-	-	-	-	-	467,256,867	294,862,306	171,894,918	499,643
20	Deferred Debits	4,200,553,917	2,852,628,443	-	-	-	130,273,318	-	1,217,652,155	810,739,266	406,744,351	168,539
21	Total Assets	26,003,977,446	3,467,768,854	(6,250,171)	12,126,812,458	6,686,276,638	130,273,318	18,003,946	3,581,092,402	2,081,184,229	1,486,478,470	13,429,703
22	Common Equity	(7,700,865,234)	(7,701,863,407)	998,173	-	-	-	-	-	-	-	-
23	Preferred Stock	(37,314,800)	(37,314,800)	-	-	-	-	-	-	-	-	-
24	Long Term Debt	(7,087,531,901)	(7,087,531,901)	-	-	-	-	-	-	-	-	-
25	Capital Leases	(135,004,757)	(135,004,757)	-	-	-	-	-	-	-	-	-
26	Total Capitalization	(14,960,716,692)	(14,961,714,865)	998,173	-	-	-	-	-	-	-	-
27	Notes Payable	(116,154,688)	(116,154,688)	-	-	-	-	-	-	-	-	-
28	Accounts Payable	(604,518,759)	-	-	-	-	-	-	(604,518,759)	(452,891,084)	(141,799,818)	(9,827,857)
29	Customer Deposits	(22,246,318)	-	-	-	-	-	-	(22,246,318)	(14,571,289)	(7,675,029)	-
30	Dividends Payable	-	-	-	-	-	-	-	-	-	-	-
31	Accrued Interest	(65,774,621)	-	-	-	-	-	-	(65,774,621)	(46,742,734)	(18,877,316)	(154,570)
32	Accrued Taxes	(508,770,337)	-	-	-	-	-	-	(508,770,337)	(358,779,447)	(154,149,294)	4,158,404
33	Current Maturities	(175,649,000)	(175,649,000)	-	-	-	-	-	-	-	-	-
34	Other Liabilities	(77,866,904)	(27,207,629)	-	-	-	(12,710,758)	-	(37,948,518)	(28,298,522)	(9,649,996)	-
35	Customer Advances	(89,367,001)	-	-	(52,081,929)	(37,285,071)	-	-	-	-	-	-
36	ITC/JDITC	(119,830,213)	(119,830,213)	-	-	-	-	-	-	-	-	-
37	Deferred Income Taxes	(5,708,612,414)	(5,708,612,414)	-	-	-	-	-	-	-	-	-
38	Deferred Credits	(3,554,470,499)	(771,464,275)	-	(1,069,596,239)	(1,056,855,256)	(54,971,295)	-	(601,583,435)	(370,800,789)	(228,137,936)	(2,644,710)
39	Total Liabilities and Equity	(26,003,977,446)	(21,880,633,084)	998,173	(1,121,678,168)	(1,094,140,328)	(67,682,053)	-	(1,840,841,987)	(1,272,083,864)	(560,289,389)	(8,468,734)
40	Net Assets	\$ -	\$ (18,412,864,230)	\$ (5,251,998)	\$ 11,005,134,290	\$ 5,592,136,310	\$ 62,591,266	\$ 18,003,946	\$ 1,740,250,416	\$ 809,100,365	\$ 926,189,081	\$ 4,960,970

**Schedule: C-1**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Adjusted Net Operating Income  
For the Historical Year Ended December 31, 2019

Case No.: U-20963  
Exhibit No.: A-3 (JRC-9)  
Schedule: C-1  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

( a )		( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Sales Revenue	Exhibit No.: A-3 (JRC-11)	4,143,531	4,115,584
2	Sales For Resale	Exhibit No.: A-3 (JRC-11)	129,766	128,891
3	Other Electric Revenue	Exhibit No.: A-3 (JRC-11)	111,796	111,042
4	Total Operating Revenue	Sum Lines 1 - 3	4,385,093	4,355,517
5	Fuel Expense	Exhibit No.: A-3 (JRC-12)	378,402	374,341
6	Purchased & Interchange Power	Exhibit No.: A-3 (JRC-12)	1,569,404	1,552,562
7	Other Operation and Maintenance	Exhibit No.: A-3 (JRC-13)	725,005	722,414
8	Depreciation and Amortization Expense	Exhibit No.: A-3 (JRC-14)	697,909	694,677
9	Property Taxes	Exhibit No.: A-3 (JRC-15)	172,151	171,413
10	General Taxes - Other	Exhibit No.: A-3 (JRC-15)	32,497	32,301
11	Other (or Local) Taxes	Exhibit No.: A-3 (JRC-18)	1,540	1,547
12	State Income Tax	Exhibit No.: A-3 (JRC-17)	44,282	44,499
13	Federal Income Tax	Exhibit No.: A-3 (JRC-16)	82,476	82,880
14	Total Operating Expense	Sum Lines 5 - 13	3,703,665	3,676,634
15	Operating Income	Line 4 - Line 14	681,428	678,882
16	AFUDC	Exhibit No.: A-3 (JRC-19)	5,918	5,884
17	Operating Income, Including AFUDC	Line 15 + Line 16	687,345	684,766
<u>Adjustments to Operating Income</u>				
18	Weather Normalization	Exhibit No.: A-13 (JRC-51), Line 2	(49)	(48)
19	Purchased Power Administration Fee Revenue	Exhibit No.: A-13 (JRC-51), Line 3	(456)	(453)
20	MISO Reliability Schedule 10 Charge	Exhibit No.: A-13 (JRC-51), Line 4	260	258
21	Excess MDNR Fees	Exhibit No.: A-13 (JRC-51), Line 5	306	304
22	Surcharge Revenue and Expense/Amortization	Exhibit No.: A-13 (JRC-51), Line 6	(31,203)	(30,993)
23	Job Work Revenue	Exhibit No.: A-13 (JRC-51), Line 7	10,176	10,108
24	Interest Income on Cash Operating Accounts	Exhibit No.: A-13 (JRC-51), Line 8	855	850
25	Executive Annual Physicals	Exhibit No.: A-13 (JRC-51), Line 9	12	12
26	EICP	Exhibit No.: A-13 (JRC-51), Line 10	(4,078)	(4,055)
27	Corporate Giving - Staff Salaries	Exhibit No.: A-13 (JRC-51), Line 11	8	8
28	Corporate Communications - Staff Salaries	Exhibit No.: A-13 (JRC-51), Line 12	138	138
29	Advertising Expenses	Exhibit No.: A-13 (JRC-51), Line 13	-	-
30	Dues & Donations Expenses	Exhibit No.: A-13 (JRC-51), Line 14	555	552
31	Job Work Expense	Exhibit No.: A-13 (JRC-51), Line 15	(8,644)	(8,595)
32	Interest Expense on Security Deposits	Exhibit No.: A-13 (JRC-51), Line 16	(277)	(276)
33	Tax Benefit of Pro-Forma Interest	Exhibit No.: A-3 (JRC-20)	(13,655)	(13,603)
34	Interest Synchronization	Exhibit No.: A-3 (JRC-21)	314	313
35	Total Operating Income Adjustments	Sum Lines 18 - 34	(45,736)	(45,479)
36	Adjusted Net Operating Income	Line 17 + Line 35	641,609	639,287

**Schedule: C-2**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Revenue Conversion Factor

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-10)

Schedule: C-2

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a )	( b )	( c )
	Description	Source	Amount
1	Income Base - Before Taxes		100.0000
2	State Income Tax	Line 1 * 5.31% State Income Tax Rate	5.3100
3	Other (or Local) Income Tax	Line 1 * 0.16% Other (Local) Income Tax Rate	<u>0.1600</u>
4	Federal Income Tax Base	Line 1 - Line 2 - Line 3	94.5300
5	Federal Income Tax	Line 4 * 21.00% Federal Income Tax Rate	<u>19.8513</u>
6	Income Base - After Taxes	Line 4 - Line 5	<u>74.6787</u>
7	Revenue Conversion Factor	Line 1 / Line 6	<u><u>1.3391</u></u>

**Schedule: C-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Historical Operating Revenue

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-11)

Schedule: C-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No	Description	Source	Total (\$000)
1	Sales Revenue	WP-JRC-12	4,143,531
2	Sales For Resale	WP-JRC-12	129,766
3	Other Electric Revenue	WP-JRC-12	<u>111,796</u>
4	Historical Operating Revenue	Sum Lines 1 - 3	<u>4,385,093</u>

**Schedule: C-4**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Historical Cost of Fuel and Purchased Power

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-12)

Schedule: C-4

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Fuel Expense	WP-JRC-12	378,402
2	Purchased and Net Interchange Power	WP-JRC-12	<u>1,569,404</u>
3	Historical Cost of Fuel and Purchased Power	Line 1 + Line 2	<u>1,947,806</u>

**Schedule: C-5****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Historical Operation and Maintenance Expenses

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-13)

Schedule: C-5

Page 1 of 4

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Power Production Expense	WP-JRC-12, Line 17	155,262
2	Transmission Expense	WP-JRC-12, Line 18	1,749
3	Distribution Expense	WP-JRC-12, Line 19	237,645
4	Customer Accounts Expense	WP-JRC-12, Line 20	63,991
5	Customer Service & Information Expense	WP-JRC-12, Line 21	164,109
6	Sales Expense	WP-JRC-12, Line 22	77
7	Administrative & General Expense	WP-JRC-12, Line 23	<u>102,166</u>
8	Total Other O&M Expense	Sum Lines 1 - 7	724,998
9	Gains From Disposition of Allowances	WP-JRC-12, Line 24	<u>7</u>
10	Historical Operation and Maintenance Expenses	Line 8 + Line 9	<u><u>725,005</u></u>





Schedule C5

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Historical Operation and Maintenance Expenses by Witness  
For the Historical Year Ended December 31, 2019

Line	(a) Description	(b) Total	(c) Source
Reconcile Witness Exhibits To MPSC P-521			
110	Other O&M Expense Per BI Report	\$ 576,217,626	Line 93 Column (m)
111	Less:		Line 17 Column (o)
112	Fuel Handling	(4,862,311)	
113	Renewable wind/solar	8,241,697	
114	Excess MDNR Fees	288,356	
115	MISO Reliability	410,091	
116	Non-Energy Expenses	(567,131)	
117	Energy Efficiency Program	124,742,144	
118	LIEAF	20,319,812	
119	SERP & Other Benefits	25,034	
120	BTL true up, & proxy Incentive Compensation	(5,460,558)	
121	Corporate Giving, Communications, & Lobbying	938,851	
122	EXP JOBBING & CTR	(55,376)	
123	Zeeland and Jackson plant non-Fuel	(491,719)	
124	Significant FR Entries net	176,864	
125	Other Deductions	212,337	
126	Other O&M Expense Per MPSC P-521	\$ 720,135,718	Line 93 Column (n)
Reconcile MPSC P-521 To Schedule C5			
127	Other O&M Expense Per MPSC P-521	\$ 720,135,718	Line 93 Column (n)
128	Fuel Handling	4,862,311	Line 17 Column (m)
129	Rounding	7,014	
130	Exhibit: A-3 (JRC-13) Schedule C-5	\$ 725,005,043	Line 8

**Schedule: C-6**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Historical Depreciation and Amortization Expenses  
For the Historical Year Ended December 31, 2019

Case No.: U-20963  
Exhibit No.: A-3 (JRC-14)  
Schedule: C-6  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Power Production Expense	WP-JRC-12, Line 26	307,990
2	Transmission Expense	WP-JRC-12, Line 27	849
3	Distribution Expense	WP-JRC-12, Line 28	248,968
4	General Plant Expense	WP-JRC-12, Line 29	10,299
5	Allocated Portion of Common Plant	WP-JRC-12, Line 30	19,927
6	Amortization of Limited Term Electric Plant	WP-JRC-12, Line 31	587
7	Amortization of Other Electric Plant	WP-JRC-12, Line 32	78,662
8	Amortization of Utility Plant Acq. Adj	WP-JRC-12, Line 33	5,554
9	Regulatory Debits	WP-JRC-12, Line 34	<u>25,921</u>
10	Depreciation and Amortization Expenses	Sum Lines 1 - 9	698,758
11	Less: Transmission Expense	Line 2 *-1	<u>(849)</u>
12	Historical Depreciation and Amortization Expenses	SUM Lines 10 - 11	<u>697,909</u>

**Schedule C-7**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Historical General Taxes

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-15)

Schedule: C-7

Page 1 of 1

Witness: JRCoker

Date: March 2021

( a )		( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Real & Personal Property Tax	WP-JRC-13, Line 38	172,151
2	Payroll Taxes	WP-JRC-13, Line 42	21,824
3	Other General Taxes	WP-JRC-13, Line 44	<u>10,673</u>
4	Historical General Taxes	Sum Lines 1 - 3	<u>204,648</u>

**Schedule: C-8****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Historical Federal Income Tax

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-16)

Schedule: C-8

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) <b>Description</b>	( b ) <b>Source</b>	( c ) <b>(\$000)</b>
1	Federal Income Tax	WP-JRC-13, Line 51	58,740
2	Provision for Deferred Income Tax	WP-JRC-13, Line 52	327,383
3	Provision for Deferred Income Tax - Credit	WP-JRC-13, Line 53	(310,427)
4	Investment Tax Credit Adjustment - Net	WP-JRC-13, Line 54	21,236
4	Deferred State Income Tax	Tax Department	(14,143)
5	Deferred Other (Local) Income Tax	Tax Department	<u>(312)</u>
6	Historical Federal Income Tax	Sum Lines 1 - 5	<u><u>82,476</u></u>

**Schedule: C-9**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Historical State Income Tax  
For the Historical Year Ended December 31, 2019

Case No.: U-20963  
Exhibit No.: A-3 (JRC-17)  
Schedule: C-9  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	State Income Tax	WP-JRC-5	30,139
2	Deferred State Income Tax	Tax Department	<u>14,143</u>
3	Historical State Income Tax	Line 1 + Line 2	<u><u>44,282</u></u>

**Schedule: C-10**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Historical Other (or Local) Taxes

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-18)

Schedule: C-10

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a )	( b )	( c )
	Description	Source	(\$000)
1	Other (or Local) Taxes	WP-JRC-5	1,228
2	Deferred Local Income Tax	Tax Department	<u>312</u>
3	Historical Other (or Local) Taxes	Line 1 + Line 2	<u>1,540</u>

**Schedule: C-11**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Allowance for Funds Used During Construction

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-19)

Schedule: C-11

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	(\$000)
1	Allowance for Funds Used During Construction	WP-JRC-16	<u>5,918</u>

**Schedule: C-12****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Tax Effect of Pro-Forma Interest Adjustment

Impact on Net Operating Income

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-20)

Schedule: C-12

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Rate Base	Exhibit No.: A-2 (JRC-3)	10,768,554
2	Weighted Cost of Debt {1}	Exhibit No.: A-4 (JRC-22)	<u>0.0150</u>
3	Allowable Interest Expense	Line 1 * Line 2	161,003
4	Actual Interest Expense	WP-JRC-13, Line 61	<u>214,929</u>
5	Increase/ (Decrease) in Allowable Interest Deduction	Line 3 - Line 4	(53,926)
6	Impact on Taxable Income	Line 5 * -1	53,926
7	Impact on Other (Local) Income Tax	Line 6 * 0.16% Other (Local) Income Tax Rate	86
8	Impact on State Income Tax	Line 6 * 5.31% State Income Tax Rate	<u>2,863</u>
9	Impact on Federal Taxable Income	Line 6 - Line 7 - Line 8	50,976
10	Impact on Federal Income Tax	Line 9 * 21.00% Federal Income Tax Rate	<u>10,705</u>
11	Impact on Net Operating Income	(Line 7 + Line 8 + Line 10) * -1	<u>(13,655)</u>

**Notes**

{1} Excludes JDITC

**Schedule: C-13**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Tax Effect of Interest Synchronization Adjustment

Impact on Net Operating Income

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-3 (JRC-21)

Schedule: C-13

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Rate Base	Exhibit No.: A-2 (JRC-3)	10,768,554
2	JDITC Debt-Related Portion of the Capital Structure	Exhibit No.: A-4 (JRC-22)	0.0029
3	Portion of Rate Base Funded by JDITC	Line 1 * Line 2	31,118
4	Cost Rate of JDITC - Debt Portion	Exhibit No.: A-4 (JRC-22)	0.0399
5	Allowable JDITC Interest Expense	Line 3 * Line 4	1,242
6	Impact on Taxable Income	Line 5 * -1	(1,242)
7	Impact on City Income Tax	Line 6 * 0.16% Other (Local) Income Tax Rate	(2)
8	Impact on State Income Tax	Line 6 * 5.31% State Income Tax Rate	(66)
9	Impact on Federal Taxable Income	Line 6 - Line 7 - Line 8	(1,174)
10	Impact on Federal Income Tax	Line 9 * 21.00% Federal Income Tax Rate	(246)
11	Impact on Net Operating Income	(Line 7 + Line 8 + Line 10) * -1	314

## Schedule: D-1

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
Overall Rate of Return Summary  
For the Historical Year Ended December 31, 2019

Case No.: U-20963  
Exhibit No.: A-4 (JRC-22)  
Schedule: D-1  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

( a )		( b )	( c )	( d )	( e )	( f )	( g )	( h )	( i )
		Capital Structure			Weighted Cost				
Line No	Description	Amount (\$000) {1}	Percent Permanent Capital	Percent of Total Capital	Cost Rate %	Permanent Capital	Total Cost %	Conversion Factor	Pre-Tax Return
1	Long Term Debt	6,515,833	46.57%	37.10%	3.99% {2}	1.86%	1.48%		1.48%
2	Preferred Stock	37,315	0.27%	0.21%	4.50% {3}	0.01%	0.01%	1.3391	0.01%
3	Common Equity	<u>7,437,379</u>	53.16%	42.35%	10.00% {4}	5.32%	4.24%	1.3391	5.67%
4	Permanent Capital	13,990,527							
5	Notes Payable	69,279		0.39%	2.49% {5}		0.01%		0.01%
6	Advanced Renewable Reg Liability	<u>34,422</u>		0.20%	2.49% {5}		0.00%		0.00%
7	Short Term Debt	103,701							
8	Deferred Federal Income Tax	3,358,180		19.12%	0.00%		0.00%		0.00%
9	Deferred JDITC - Long Term Debt	50,748		0.29%	3.99%		0.01%		0.01%
10	Deferred JDITC - Preferred Stock	291		0.00%	4.50%		0.00%	1.3391	0.00%
11	Deferred JDITC - Common Equity	<u>57,925</u>		0.33%	10.00%		0.03%	1.3391	0.04%
12	Total Deferred JDITC {6}	108,964							
13	Total	<u>17,561,372</u>					<u>5.78%</u>		<u>7.23%</u>

## Notes

- {1} Amount reflects the 13-month average balance as of December 31, 2019  
{2} Exhibit No.: A-4 (JRC-23)  
{3} Exhibit No.: A-4 (JRC-25)  
{4} Exhibit No.: A-4 (JRC-26)  
{5} Exhibit No.: A-4 (JRC-24)  
{6} The total deferred JDITC balance on line 12 is allocated to lines 9 through 11 based on the percent of permanent capital in column ( c )

**Schedule: D-2**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Cost of Long Term Debt (Excluding Securitization)  
 For the Historical Year Ended December 31, 2019

Case No.: U-20963  
Exhibit No.: A-4 (JRC-23)  
Schedule: D-2  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

[illegible]

## Notes

{1} Amount reflects the outstanding balance for the 12-months ended December 31, 2019

**Schedule: D-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Cost of Short Term Debt

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-4 (JRC-24)

Schedule: D-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )	( e )
					<b>Weighted Average Cost of Short Term Debt</b>
Line No	<b>Description</b>	<b>Amount (\$000)</b>	<b>Percent Total Capital {1}</b>	<b>Cost Rate {2}</b>	<b>(\$000)</b>
1	Notes Payable	69,279	0.39%		
2	Advanced Renewable Regulatory Liability	<u>34,422</u>	0.20%		
3	Cost of Short Term Debt	103,701		2.49%	<u>2,582</u>

**Notes**

{1} Exhibit No.: A-4 (JRC-22)

{2} Treasury Department

**Schedule: D-4**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Cost of Preferred Stock  
 For the Historical Year Ended December 31, 2019

Case No.: U-20963  
 Exhibit No.: A-4 (JRC-25)  
 Schedule: D-4  
 Page 1 of 1  
 Witness: JRCoker  
 Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )	( g )	( h )	( i )	( j )
								<b>Total Value of Outstanding Proceeds</b>	<b>Cost</b>	<b>Annual Dollar Amount</b>
Line No	<b>Description</b>	<b>Annual Dividend (\$000)</b>	<b>Par Value (\$000)</b>	<b>Discount or Premium (\$000)</b>	<b>Finance Expense (\$000)</b>	<b>Net Proceeds Received (\$000)</b>	<b>Number of Shares Outstanding</b>	<b>(\$000)</b>	<b>Rate %</b>	<b>(\$000)</b>
1	Preferred Stock	4.50	100	-	-	100	373,148	37,315	4.50%	<u>1,679</u>

**Schedule: D-5**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Cost of Common Equity

For the Historical Year Ended December 31, 2019

Case No.: U-20963

Exhibit No.: A-4 (JRC-26)

Schedule: D-5

Page 1 of 1

Witness: JRCoker

Date: March 2021

( a )

Line No	Description
1	The Cost of Common Equity is 10.00%. This rate was authorized by the Michigan Public Service Commission in Electric Rate Case U-20134 issued on January 9, 2019.

**Schedule: A-1**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Revenue Deficiency (Sufficiency)

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-11 (JRC-27)

Schedule: A-1

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Rate Base	Exhibit No.: A-12 (JRC-30)	12,954,507	12,905,858
2	Adjusted Net Operating Income	Exhibit No.: A-13 (JRC-37)	<u>596,707</u>	<u>599,515</u>
3	Overall Rate of Return	Line 2 / Line 1	4.61%	4.65%
4	Required Rate of Return	Exhibit No.: A-14 (MRB-1)	5.95%	5.95%
5	Income Requirement	Line 1 * Line 4	<u>770,512</u>	<u>767,619</u>
6	Income Deficiency (Sufficiency)	Line 5 - Line 2	173,805	168,103
7	Revenue Conversion Factor	Exhibit No.: A-13 (JRC-38)	<u>1.3391</u>	<u>1.3391</u>
8	Revenue Deficiency (Sufficiency)	Line 6 * Line 7	<u><u>232,738</u></u>	<u><u>225,102</u></u>

**Schedule: A-2**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Financial Metrics - Ratemaking Basis

For the Projected 12-Month Period Ending December 31, 2022

ELECTRIC RESULTS ONLY

(\$000)

Case No.: U-20963

Exhibit No.: A-11 (JRC-28)

Schedule: A-2

Page 1 of 3

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) No Rate Relief	( c ) Full Rate Relief
1	Operating Revenue	4,288,325	4,513,428
2	Operating Expense	<u>3,633,741</u>	<u>3,633,741</u>
3	Pre-Tax Operating Income	654,585	879,687
4	Income Taxes	<u>68,005</u>	<u>(87,049)</u>
5	Net Operating Income	586,579	966,736
6	Tax Impact of Pro-Forma Interest on NOI	Included in Line 4	Included in Line 4
7	AFUDC	12,936	12,936
8	Interest Charges	(182,690)	(182,690)
9	Preferred Stock Dividends	<u>(940)</u>	<u>(940)</u>
10	Net Income Available for Common and JDITC	415,886	796,043
11	Return Assignable to JDITC	<u>(4,014)</u>	<u>(4,014)</u>
12	Net Income Available for Common	411,871	792,028
13	Average Common Equity	<u>7,543,127</u>	<u>7,543,127</u>
14	Earned Rate of Return on Common Equity	5.46%	10.50%
15	Authorized Return on Common Equity {1}	10.50%	10.50%

## Schedule: A-2

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Financial Metrics - Ratemaking Basis

For the Projected 12-Month Period Ending December 31, 2022

ELECTRIC RESULTS ONLY

(\$000)

Case No.: U-20963

Exhibit No.: A-11 (JRC-28)

Schedule: A-2

Page 2 of 3

Witness: JRCoker

Date: March 2021

Line No	(a) Description	(b) No Rate Relief	(c) Full Rate Relief
	<b><u>EBIT Interest Coverage Ratio</u></b>		
16	Pre-Tax Operating Income	654,585	879,687
17	AFUDC	12,936	12,936
18	Total EBIT	667,520	892,623
19	Interest Charges	182,690	182,690
20	EBIT Interest Coverage Ratio	3.65	4.89
	<b><u>EBITDA Interest Coverage Ratio</u></b>		
21	Total EBIT	667,520	892,623
22	Depreciation and Amortization	718,135	718,135
23	Total EBITDA	1,385,655	1,610,757
24	Interest Charges	182,690	182,690
25	EBITDA Interest Coverage Ratio	7.58	8.82
	<b><u>FFO Interest Coverage Ratio {2}</u></b>		
26	Net Operating Income	586,579	966,736
27	Depreciation and Amortization	718,135	718,135
28	Deferred Income Tax	38,192	38,192
29	AFUDC	12,936	12,936
30	Other Major Recurring Non-Cash Items	-	-
31	Interest Paid	200,213	200,213
32	Less: Operating Lease Adjustment to Depreciation	-	-
33	Subtotal	1,556,054	1,936,211
34	Interest Charges	182,690	182,690
35	FFO Interest Coverage Ratio	8.52	10.60
	<b><u>Overall Fixed Charge Coverage Ratio</u></b>		
36	Net Income Available for Common	411,871	792,028
37	Interest Charges	182,690	182,690
38	Subtotal Numerator	594,561	974,718
39	Interest Charges	182,690	182,690
40	Preferred Stock Dividends	940	940
41	Subtotal Denominator	183,629	183,629
42	Overall Fixed Charge Coverage Ratio	3.24	5.31

**Schedule: A-2**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Financial Metrics - Ratemaking Basis

For the Projected 12-Month Period Ending December 31, 2022

ELECTRIC RESULTS ONLY

(\$000)

Case No.: U-20963

Exhibit No.: A-11 (JRC-28)

Schedule: A-2

Page 3 of 3

Witness: JRCoker

Date: March 2021

Line No	(a) Description	(b) No Rate Relief	(c) Full Rate Relief
<b><u>Cash Flow Coverage of Dividend Ratio</u></b>			
43	Net Income Available for Common	411,871	792,028
44	Depreciation and Amortization	718,135	718,135
45	Deferred Taxes	38,192	38,192
46	Subtotal	1,168,198	1,548,355
47	Common Dividends {3}	329,497	633,623
48	Cash Flow Coverage of Dividend Ratio	3.55	2.44
<b><u>Common Dividend Payout Ratio</u></b>			
49	Common Dividends {3}	329,497	633,623
50	Net Income Available for Common	411,871	792,028
51	Common Dividend Payout Ratio	80%	80%
<b><u>Permanent Capitalization</u></b>			
52	Long Term Debt (Excluding Securitization)	9,072,264	9,072,264
53	Preferred Stock	37,315	37,315
54	Common Equity	9,869,545	9,869,545
55	Permanent Capitalization	18,979,124	18,979,124
56	Long Term Debt	47.80%	47.80%
57	Preferred Stock	0.20%	0.20%
58	Common Equity	52.00%	52.00%
59	Permanent Capital	100.00%	100.00%

**Notes**

- {1} The company is requesting an ROE of 10.50% in this case
- {2} FFO = Funds Flow from Operations
- {3} Consumers Energy pays dividends to the parent as a total company. This number represents the company's 80% dividend policy applied to Net Income Available for Common

**Schedule: A-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of the Electric Revenue Requirement

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-11 (JRC-29)

Schedule: A-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )
Line		Source		Jurisdictional		
No.	Description	Historical Year	Test Year	Historical Year	Change	Test Year
1	Net Utility Plant	Exhibit No.: A-2 (JRC-3)	Exhibit No.: A-12 (JRC-30)	9,907,211	1,588,991	11,496,202
2	Working Capital	Exhibit No.: A-2 (JRC-3)	Exhibit No.: A-12 (JRC-30)	<u>821,121</u>	<u>588,535</u>	<u>1,409,656</u>
3	Rate Base	Line 1 + Line 2	Line 1 + Line 2	10,728,332	2,177,525	12,905,858
4	Rate of Return	Exhibit No.: A-4 (JRC-22)	Exhibit No.: A-14 (MRB-1)	5.78%		5.95%
5	Income Requirement	Line 3 * Line 4	Line 3 * Line 4	620,564	147,054	767,619
6	Adjusted Net Operating Income	Exhibit No.: A-3 (JRC-9)	Exhibit No.: A-13 (JRC-37)	<u>639,287</u>	<u>(39,772)</u>	<u>599,515</u>
7	Revenue Deficiency (Sufficiency)	Line 5 - Line 6	Line 5 - Line 6	(18,722)	<u>186,826</u>	168,103
8	Revenue Conversion Factor	Exhibit No.: A-3 (JRC-10)	Exhibit No.: A-13 (JRC-38)	<u>1.3391</u>		<u>1.3391</u>
9	Revenue Deficiency (Sufficiency)	Line 7 * Line 8	Line 7 * Line 8	<u>(25,071)</u>	<u>250,173</u>	<u>225,102</u>

**Schedule: B-1****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Projected Rate Base

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-12 (JRC-30)

Schedule: B-1

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Total Utility Plant	Exhibit No.: A-12 (JRC-32)	18,622,721	18,549,556
2	Depreciation Reserve	Exhibit No.: A-12 (JRC-33)	<u>7,032,107</u>	<u>7,001,623</u>
3	Net Utility Plant	Line 1 - Line 2	11,590,614	11,547,933
4	Retainers & Customer Advances	WP-JRC-17, Line 40	<u>(51,761)</u>	<u>(51,731)</u>
5	Adjusted Net Utility Plant	Sum Lines 3 - 4	11,538,853	11,496,202
6	Working Capital	Exhibit No.: A-12 (JRC-34)	<u>1,415,654</u>	<u>1,409,656</u>
7	Projected Rate Base	Line 5 + Line 6	<u><u>12,954,507</u></u>	<u><u>12,905,858</u></u>

## Schedule: B-1a

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Rate Base

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-12 (JRC-31)

Schedule: B-1a

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Net Utility Plant	Exhibit No.: A-2 (JRC-3)	9,943,939	9,907,211
2	Working Capital	Exhibit No.: A-2 (JRC-3)	824,615	821,121
3	Historical Rate Base	Line 1 + Line 2	10,768,554	10,728,332
	<b><u>Adjustments To Rate Base</u></b>			
4	Change In Net Utility Plant {1}	Line 10	1,594,914	1,588,991
5	Change In Working Capital	Line 13	591,039	588,535
6	Net Change in Rate Base	Sum Lines 4 - 5	2,185,953	2,177,525
7	Projected Rate Base	Line 3 + Line 6	12,954,507	12,905,858
	<b><u>Adjustments for Utility Plant</u></b>			
8	Projected Net Utility Plant	Exhibit No.: A-12 (JRC-30)	11,538,853	11,496,202
9	Historical Net Utility Plant	Exhibit No.: A-2 (JRC-3)	9,943,939	9,907,211
10	Change in Net Utility Plant	Line 8 - Line 9	1,594,914	1,588,991
	<b><u>Adjustments to Working Capital</u></b>			
11	Projected Working Capital	Exhibit No.: A-12 (JRC-34)	1,415,654	1,409,656
12	Historical Working Capital	Exhibit No.: A-2 (JRC-6)	824,615	821,121
13	Change in Working Capital	Sum Lines 11 - 12	591,039	588,535
	<b><u>Adjustments Due to Changes in Jurisdictional Factors</u></b>			
14	Projected Net Utility Plant - Jurisdictional	Exhibit No.: A-12 (JRC-30)	11,496,202	
15	Projected Net Utility Plant - Total Electric	Exhibit No.: A-12 (JRC-30)	11,538,853	
16	Jurisdictional Factor	Line 14 / Line 15	0.9963	
17	Historical Net Utility Plant - Jurisdictional	Exhibit No.: A-2 (JRC-3)	9,907,211	
18	Historical Net Utility Plant - Jurisdictional, Using New Factor	Exhibit No.: A-2 (JRC-3), Line 3 * Line 16	9,907,183	
19	Change in Net Utility Plant Due to Change in Factor	Line 18 - Line 17	(27)	
20	Projected Working Capital - Jurisdictional	Exhibit No.: A-12 (JRC-30)	1,409,656	
21	Projected Working Capital - Total Electric	Exhibit No.: A-12 (JRC-30)	1,415,654	
22	Jurisdictional Factor	Line 20 / Line 21	0.9958	
23	Historical Working Capital - Jurisdictional	Exhibit No.: A-2 (JRC-3)	821,121	
24	Historical Working Capital - Jurisdictional, Using New Factor	Exhibit No.: A-2 (JRC-3), Line 4 * Line 22	821,121	
25	Change in Working Capital Due to Change in Factor	Line 24 - Line 23	(0)	

## Notes

{1} Includes impact of change in utility plant jurisdictional factors calculated on line 15

**Schedule: B-2****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Total Utility Plant

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-12 (JRC-32)

Schedule: B-2

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )	( e )
Line No.	Description	MPSC Account Number	Source	Total (\$000)	Jurisdictional (\$000)
1	Plant In Service	101	WP-JRC-33	18,038,060	17,968,247
2	Plant Held For Future Use	105	WP-JRC-17, Line 14	2,501	2,481
3	Construction Work In Progress	107	WP-JRC-34	<u>582,160</u>	<u>578,828</u>
4	Total Utility Plant		Sum Lines 1 - 3	<u>18,622,721</u>	<u>18,549,556</u>

**Schedule: B-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Depreciation Reserve and Other Deductions

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-12 (JRC-33)

Schedule: B-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Distribution	WP-JRC-35	3,263,101
2	Production (Hydro)	WP-JRC-35	242,152
3	Production (Hydro Ludington)	WP-JRC-35	207,964
4	Production (Steam)	WP-JRC-35	1,930,715
5	Production (Other)	WP-JRC-35	407,459
6	Intangibles	WP-JRC-35	552,818
7	E-GP Structures	WP-JRC-35	46,708
8	E-GP Computers	WP-JRC-35	(1,912)
9	E-GP Transportation	WP-JRC-35	57,786
10	E-GP Other	WP-JRC-35	30,712
11	C-GP Structures	WP-JRC-35	55,668
12	C-GP Computers	WP-JRC-35	58,459
13	C-GP Transportation	WP-JRC-35	53,867
14	C-GP Other	WP-JRC-35	46,322
15	Zeeland Acq Adjustment	WP-JRC-35	77,562
16	Production (Solar)	WP-JRC-35	2,728
17	Depreciation Reserve and Other Deductions	Sum Lines 1 - 16	<u>7,032,107</u>
18	Jurisdictional Factor	Cost of Service Study	<u>0.995665</u>
19	Jurisdictional Depreciation Reserve and Other Deductions	Line 17 * Line 18	<u>7,001,623</u>

**Schedule: B-4**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Working Capital

For the Projected 12-Month Period Ending December 31, 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-12 (JRC-34)

Schedule: B-4

Page 1 of 1

Witness: JRCoker

Date: March 2021

( a ) ( b ) ( c ) ( d ) ( e ) ( f )

Line No	Description	Historical Year Working Capital	Change	September 2020 Working Capital	Test Year Adjustments	Test Year Working Capital
1	Cash	52,799	245,337	298,136	(250,220)	47,915
2	Accounts Receivable	299,529	(37,921)	261,608	-	261,608
3	Materials & Supplies	102,209	2,376	104,585	-	104,585
4	Fuel Stock	50,295	12,332	62,627	-	62,627
5	Clean Air Allowances	14	-	14	-	14
6	Accrued Revenues	235,796	17,309	253,105	-	253,105
7	Prepayments	213,254	85,889	299,143	2,873	302,016
8	Real & Personal Property Tax	192,730	(1,001)	191,729	-	191,729
9	Deferred Debits	744,176	60,459	804,635	310,419	1,115,054
10	Total Assets	1,890,802	384,780	2,275,582	63,072	2,338,654
11	Accounts Payable	417,217	(1,198)	416,019	-	416,019
12	Customer Deposits	15,152	(911)	14,241	-	14,241
13	Dividends Payable	32,454	1,937	34,391	-	34,391
14	Accrued Interest	45,484	2,374	47,858	-	47,858
15	Accrued Taxes	252,207	(163,038)	89,168	137,820	226,988
16	Other Liabilities	44,014	3,820	47,835	-	47,835
17	Deferred Credits	259,660	(123,990)	135,670	-	135,670
18	Total Liabilities	1,066,188	(281,007)	785,181	137,820	923,000
19	Working Capital	824,615	665,787	1,490,402	(74,748)	1,415,654
20	Jurisdictional Factor					0.995763
21	Jurisdictional Working Capital					1,409,656

**Notes**

Column ( b ): Exhibit No.: A-2 (JRC-6)

Column ( c ): Column ( d ) - Column ( b )

Column ( d ): Exhibit No.: A-12 (JRC-35) Page 1 of 1, Column ( b )

Column ( e ): Exhibit No.: A-12 (JRC-35) Page 1 of 1, Column ( j )

Column ( f ): Column ( d ) + Column ( e )

## Schedule: B-4a

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Working Capital

For the Projected 12-Month Period Ending December 31, 2022  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (JRC-35)

Schedule: B-4a

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )	( g )	( h )	( i )	( j )	( k )
Line No	Description	September 2020 Working Capital	Pension Adjustment	OPEB Adjustment	Accrued Tax Adjustment	Cloud Prepayment	PowerMidDrive Adjustment	Karn Retention	Cash Adjustment	Total Adjustments	Test Year Working Capital
1	Cash	298,136	-	-	-	-	-	-	(250,220)	(250,220)	47,915
2	Accounts Receivable	261,608	-	-	-	-	-	-	-	-	261,608
3	Materials & Supplies	104,585	-	-	-	-	-	-	-	-	104,585
4	Fuel Stock	62,627	-	-	-	-	-	-	-	-	62,627
5	Clean Air Allowances	14	-	-	-	-	-	-	-	-	14
6	Accrued Revenues	253,105	-	-	-	-	-	-	-	-	253,105
7	Prepayments	299,143	-	-	-	2,873	-	-	-	2,873	302,016
8	Real & Personal Property Tax	191,729	-	-	-	-	-	-	-	-	191,729
9	Deferred Debits	804,635	151,963	148,042	-	-	1,645	8,768	-	310,419	1,115,054
10	Total Assets	2,275,582	151,963	148,042	-	2,873	1,645	8,768	(250,220)	63,072	2,338,654
11	Accounts Payable	416,019	-	-	-	-	-	-	-	-	416,019
12	Customer Deposits	14,241	-	-	-	-	-	-	-	-	14,241
13	Dividends Payable	34,391	-	-	-	-	-	-	-	-	34,391
14	Accrued Interest	47,858	-	-	-	-	-	-	-	-	47,858
15	Accrued Taxes	89,168	-	-	137,820	-	-	-	-	137,820	226,988
16	Other Liabilities	47,835	-	-	-	-	-	-	-	-	47,835
17	Deferred Credits	135,670	-	-	-	-	-	-	-	-	135,670
18	Total Liabilities	785,181	-	-	137,820	-	-	-	-	137,820	923,000
19	Working Capital	1,490,402	151,963	148,042	(137,820)	2,873	1,645	8,768	(250,220)	(74,748)	1,415,654

## Notes

Column ( b ): WP-JRC-42

Column ( c ): WP-JRC-43

Column ( d ): WP-JRC-44

Column ( e ): WP-JRC-45

Column ( f ): WP-JRC-46

Column ( g ): WP-JRC-47

Column ( h ): Exhibit A-67 (JRC-53)

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**

Projected Capital Expenditures  
For the Projected 12-Month Period Ending December 31, 2022  
(\$000)

**Schedule: B-5**

Case No.: U-20963  
Exhibit No.: A-12 (JRC-36)  
Schedule: B-5  
Page 1 of 1  
Witness: JRCoker  
Date: March 2021

Line No.	(a) Description	(b) 12 Months Ended 12/31/2019	(c) Capital Expenditures				(e) 12 Months Ended 12/31/2022	(f) 12 Months Ended 12/31/2021	(g) Source	(h) 12 Months Ended 12/31/2021	(i) 12 Months Ended 12/31/2021
			12 Months Ended 12/30/2020	12 Months Ended 12/31/2021	24 Months Ended 12/31/2021	Projected Bridge Year					
Historical											
1	Electric Distribution	641,213	581,166	696,073	col. (d)+(e) 1,277,238	766,266	Exhibit No.: A-12 (RTB-1)	632,887	696,073		
2	Generation	169,632	129,539	297,938	427,477	443,716	Exhibit No.: A-12 (SAH-3)	105,112	297,938		
3	Information Technology	52,547	51,508	58,640	110,149	77,209	Exhibit No.: A-12 (JDT-6)	55,920	58,640		
4	Residential Storage	-	-	-	-	3,200	Exhibit No.: A-12 (PDM-1)	-	-		
5	Operations Support	20,966	33,572	24,605	58,177	83,705	Exhibit No.: A-12 (SJB-1)	8,735	24,605		
6	Fleet Services	35,630	32,976	69,734	102,710	40,438	Exhibit No.: A-12 (ASC-1)	36,898	69,734		
7	Corporate	329	333	341	674	349	Exhibit No.: A-12 (KMG-6)	472	341		
8	Customer Experience & Operations	83	1,487	1,887	3,374	6,636	Exhibit No.: A-12 (AJG-1)	3	1,887		
9	Demand Response	13,048	8,784	9,192	17,976	9,317	Exhibit No.: A-12 (AJG-1)	8,868	9,192		
10	Total Capital Expenditures	933,448	839,365	1,158,409	1,997,775	1,430,835		848,895	1,158,409		

**Schedule: C-1**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Adjusted Net Operating Income

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-37)

Schedule: C-1

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Sales Revenue	Exhibit No.: A-13 (JRC-39)	4,184,940	4,184,940
2	Wholesale Revenue	Exhibit No.: A-13 (JRC-39)	23,945	-
3	Other Electric Revenue	Exhibit No.: A-13 (JRC-39)	104,087	103,385
4	Operating Revenue	Sum Lines 1 - 3	4,312,972	4,288,325
5	Power Supply Costs	Exhibit No.: A-13 (JRC-40)	1,965,298	1,944,208
6	Other O&M Expense	Exhibit No.: A-13 (JRC-41)	696,264	693,776
7	Depreciation and Amortization	Exhibit No.: A-13 (JRC-43)	721,485	718,135
8	R&PP Tax	Exhibit No.: A-13 (JRC-44)	209,100	208,203
9	Other General Taxes	Exhibit No.: A-13 (JRC-44)	33,658	33,455
10	Other (Local) Taxes	Exhibit No.: A-13 (JRC-47)	1,190	1,182
11	State Income Tax	Exhibit No.: A-13 (JRC-46)	34,610	34,781
12	Federal Income Tax	Exhibit No.: A-13 (JRC-45)	67,671	68,005
13	Operating Expense	Sum Lines 5 - 12	3,729,276	3,701,746
14	Net Operating Income	Line 4 - Line 13	583,697	586,579
15	AFUDC	Exhibit No.: A-13 (JRC-48)	13,010	12,936
16	Net Operating Income, Including AFUDC	Line 14 + Line 15	596,707	599,515
	<u>Net Operating Income Adjustments</u>			
17	Income Tax Effect of Interest {a}		Included in Lines 10, 11, and 12	
18	Interest Synchronization Adjustment {a}		Included in Lines 10, 11, and 12	
19	Adjusted Net Operating Income	Line 16	596,707	599,515

**Notes**

- {a} Income Tax Effect of Interest and Interest Synchronization Adjustment are included in the calculation of Local, State, and Federal income tax. The separate calculations can be found on Exhibit No.: A-13 (JRC-49) and Exhibit No.: A-13 (JRC-50)

**Schedule: C-2****MICHIGAN PUBLIC SERVICE COMMISSION**Consumers Energy Company

Projected Revenue Conversion Factor

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-38)

Schedule: C-2

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a )	( b )	( c )
	Description	Source	Amount
1	Income Base - Before Taxes		100.0000
2	State Income Tax	Line 1 * 5.31% State Income Tax Rate	5.3100
3	Other (Local) Income Tax	Line 1 * 0.16% Other {Local} Income Tax Rate	<u>0.1600</u>
4	Federal Income Tax Base	Line 1 - Line 2 - Line 3	94.5300
5	Federal Income Tax	Line 4 * 21.00% Federal Income Tax Rate	<u>19.8513</u>
6	Income Base - After Taxes	Line 4 - Line 5	<u>74.6787</u>
7	Projected Revenue Conversion Factor	Line 1 / Line 6	<u><u>1.3391</u></u>

**Schedule: C-3**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Operating Revenue

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-39)

Schedule: C-3

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )
Line No.	Description	Source	Total (\$000)
1	Sales Revenue	Exhibit No.: A-15 (EMB-3)	4,184,940
2	Wholesale Revenues	Exhibit No.: A-15 (EMB-3)	23,945
3	Other Electric Revenue	Exhibit No.: A-15 (EMB-3)	<u>104,087</u>
4	Projected Operating Revenue	Sum Lines 1 - 3	<u>4,312,972</u>

**Schedule: C-4**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Fuel and Purchased Power

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-40)

Schedule: C-4

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a )	( b )	( c )
	Description	Source	(\$000)
1	Projected Fuel and Purchased Power	Exhibit No.: A-61 (EMB-6)	<u>1,965,298</u>
2	Jurisdictional Factor	Cost of Service Study	<u>0.9893</u>
3	Jurisdictional Projected Fuel and Purchased Power	Line 1 * Line 2	<u><u>1,944,208</u></u>

## Schedule: C-5

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Projected Other Operation and Maintenance Expenses  
 For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963  
 Exhibit No.: A-13 (JRC-41)  
 Schedule: C-5  
 Page 1 of 1  
 Witness: JRCoker  
 Date: March 2021

( a )		( b )	( c )	( d )	( e )
Line			Historical		Projected
No	Description	Source	Year	Change	Year
			(\$000)	(\$000)	(\$000)
1	Electric Division - Electric & Common	Exhibit No.: A-42 (RTB-9)	174,012	11,027	185,039
2	Forestry	Exhibit No.: A-58 (PLB-6)	53,290	41,065	94,355
3	Generation	Exhibit No.: A-95 (SAH-5)	133,015	23,647	156,662
4	Operations Support	Exhibit No.: A-18 (SJB-2)	16,321	234	16,554
5	Information Technology Operations	Exhibit No.: A-104 (JDT-2)	43,830	3,412	47,242
6	Information Technology Investments	Exhibit No.: A-107 (JDT-5)	10,836	9,660	20,496
7	Customer Interactions	Exhibit No.: A-87 (AJG-2)	26,509	4,862	31,371
8	Billing & Payment	Exhibit No.: A-87 (AJG-2)	19,474	4,967	24,441
9	Demand Response	Exhibit No.: A-87 (AJG-2)	12,776	26,580	39,356
10	Pension Plans A/B	Exhibit No.: A-62 (LBC-1)	5,546	(14,448)	(8,902)
11	Defined Company Contribution Plan	Exhibit No.: A-62 (LBC-1)	8,567	3,561	12,128
12	401(k) Employees' Savings Plan	Exhibit No.: A-62 (LBC-1)	8,273	3,300	11,573
13	Active Health Care/Life Insurance/LTD	Exhibit No.: A-62 (LBC-1)	25,353	(1,497)	23,856
14	Retiree Health Care and Life Insurance	Exhibit No.: A-62 (LBC-1)	(40,032)	(23,269)	(63,301)
15	Other Benefits	Exhibit No.: A-62 (LBC-1)	1,695	1,289	2,984
16	Corporate Services	Exhibit No.: A-82 (KMG-1)	51,124	11,611	62,734
17	Uncollectible Expense	Exhibit No.: A-82 (KMG-1)	15,932	1,147	17,079
18	Injuries & Damages	Exhibit No.: A-82 (KMG-1)	2,951	834	3,785
19	Incentive Compensation	Exhibit No.: A-71 (AMC-3)	6,745	(894)	5,852
20	Job Work Expense	Exhibit No.: A-15 (EMB-3)	11,576	-	11,576
21	Interest Expense on Security Deposits	WP-JRC-31	371	-	371
22	DR Incentive/Recon	A.Griffin Testimony	-	1,014	1,014
23	Projected Other Operation and Maintenance Expenses	Sum Lines 1 - 21	588,164	108,101	696,264
24	Jurisdictional Factor	Cost of Service Study			0.9964
25	Jurisdictional Projected Other Operation and Maintenance Expenses	Line 23 * Line 24			693,776

## Schedule: C-5a

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Summary of Inflation and Merit Increases Included in Projected Other Operation and Maintenance Expenses

For the Projected 12-Month Period Ending December 31, 2022

(\$000)

Case No.: U-20963  
Exhibit No.: A-13 (JRC-42)

Schedule: C-5a

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	Description	Source	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
			Projected Adjustments							
			Historical 12 Months Ended 12/31/2019	Inflation for the 12 Months Ended 12/30/2020	Inflation for the 12 Months Ended 12/31/2021	Inflation for the 12 Months Ended 12/31/2022	Other Adjustments	Total Projected Adjustments	Σ ( d ) thru ( g )	
1	Electric Division - Electric & Common	Exhibit No.: A-47 (RTB-14)	174,012	1,524	3,380	3,354	2,769	11,027		
2	Forestry	Exhibit No.: A-58 (PLB-6)	53,290	706	1,391	1,967	37,001	41,065		
3	Generation	Exhibit No.: A-95 (SAH-5)	133,015	2,795	3,437	3,451	13,964	23,647		
4	Operations Support	Exhibit No.: A-18 (SJB-2)	16,321	106	112	118	(103)	234		
5	Information Technology Operations	Exhibit No.: A-104 (JDT-2)	43,830	341	352	363	2,355	3,412		
6	Information Technology Investments	Exhibit No.: A-107 (JDT-5)	10,836	-	-	-	9,660	9,660		
7	Customer Interactions	Exhibit No.: A-87 (AJG-2)	26,509	565	583	602	3,112	4,862		
8	Billing & Payment	Exhibit No.: A-87 (AJG-2)	19,474	100	103	106	4,658	4,967		
9	Demand Response	Exhibit No.: A-87 (AJG-2)	12,776	68	70	72	26,371	26,580		
10	Pension Plans A/B	Exhibit No.: A-62 (LBC-1)	5,546	-	-	-	(14,448)	(14,448)		
11	Defined Company Contribution Plan	Exhibit No.: A-62 (LBC-1)	8,567	-	-	-	3,561	3,561		
12	401(k) Employees' Savings Plan	Exhibit No.: A-62 (LBC-1)	8,273	-	-	-	3,300	3,300		
13	Active Health Care/Life Insurance/LTD	Exhibit No.: A-62 (LBC-1)	25,353	-	-	-	(1,497)	(1,497)		
14	Retiree Health Care and Life Insurance	Exhibit No.: A-62 (LBC-1)	(40,032)	-	-	-	(23,269)	(23,269)		
15	Other Benefits	Exhibit No.: A-62 (LBC-1)	1,695	-	-	-	1,289	1,289		
16	Corporate Services	Exhibit No.: A-83 (KMG-2)	51,124	1,315	1,652	1,654	6,990	11,611		
17	Uncollectible Expense	Exhibit No.: A-85 (KMG-4)	15,932	-	-	-	1,147	1,147		
18	Injuries & Damages	Exhibit No.: A-86 (KMG-5)	2,951	-	-	-	834	834		
19	Incentive Compensation	Exhibit No.: A-71 (AMC-3)	6,745	-	170	181	(1,246)	(894)		
20	Job Work Expense	Exhibit No.: A-15 (EMB-3)	11,576	-	-	-	-	-		
21	Interest Expense on Security Deposits	WP-JRC-31	371	-	-	-	-	-		
22	DR Incentive/Recon	A.Griffin Testimony	-	-	-	-	1,014	1,014		
23	Projected Inflation of Other O&M Expenses	Sum Lines 1 - 22	588,164	7,520	11,250	11,869	77,462	108,101		

**Schedule: C-6****MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Depreciation and Amortization Expenses

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-43)

Schedule: C-6

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Distribution	WP-JRC-36	303,213
2	Production (Hydro)	WP-JRC-36	38,107
3	Production (Hydro Ludington)	WP-JRC-36	15,671
4	Production (Steam)	WP-JRC-36	218,485
5	Production (Other)	WP-JRC-36	29,880
6	Intangibles	WP-JRC-36	69,933
7	E-GP Structures	WP-JRC-36	2,537
8	E-GP Computers	WP-JRC-36	2,563
9	E-GP Transportation	WP-JRC-36	-
10	E-GP Other	WP-JRC-36	3,774
11	C-GP Structures	WP-JRC-36	2,000
12	C-GP Computers	WP-JRC-36	16,807
13	C-GP Transportation	WP-JRC-36	-
14	C-GP Other	WP-JRC-36	4,481
15	Zeeland Acq Adjustment	WP-JRC-36	5,337
16	Production (Solar)	WP-JRC-36	5,456
17	PowerMiDrive	Exhibit No.: A-68 (JRC-54)	763
18	Karn Plant Retention and Separation Costs	Exhibit No.: A-67 (JRC-53)	2,480
19	Projected Depreciation and Amortization Expenses	Sum Lines 1 - 17	721,485
20	Jurisdictional Factor	Cost of Service Study	0.9954
21	Jurisdictional Projected Depreciation and Amortization Expenses	Line 19 * Line 20	718,135

**Schedule: C-7**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected General Taxes

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-44)

Schedule: C-7

Page 1 of 1

Witness: JRCoker

Date: March 2021

	( a )	( b )	( c )	( d )
Line No.	Description	Source	Total (\$000)	Jurisdictional (\$000)
1	Projected R&PP Tax	Exhibit No.: A-115 (BLV-1)	209,100	208,203
2	Projected Payroll Taxes	WP-JRC-32	23,159	23,019
3	Projected Other Taxes	WP-JRC-32	<u>10,499</u>	<u>10,436</u>
4	Projected General Taxes	Sum Lines 1 - 3	<u><u>242,758</u></u>	<u><u>241,659</u></u>

## Schedule: C-8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Federal Income Taxes

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-45)

Schedule: C-8

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No	( a ) Description	( b ) Source	( c ) (\$000)
1	Operating Revenue	Exhibit No.: A-13 (JRC-39)	4,312,972
2	Power Supply Costs	Exhibit No.: A-13 (JRC-40)	(1,965,298)
3	Other O&M Expense	Exhibit No.: A-13 (JRC-41)	(696,264)
4	Depreciation & Amortization	Exhibit No.: A-13 (JRC-43)	(721,485)
5	General Taxes	Exhibit No.: A-13 (JRC-44)	(242,758)
6	State Income Taxes	Exhibit No.: A-13 (JRC-46), Line 22 * -1	(34,610)
7	Other (Local) Income Taxes	Exhibit No.: A-13 (JRC-47), Line 20 * -1	(1,190)
8	Net Operating Income	Sum Lines 1 - 7	651,367
9	Allowable Interest Expense	Exhibit: Exhibit No.: A-13 (JRC-49)	(182,151)
10	JDITC Interest Expense	Exhibit: Exhibit No.: A-13 (JRC-50)	(1,227)
11	Pre-Tax Operating Income	Sum Lines 8 - 10	467,989
<u>Permanent Differences</u>			
12	Meals and Entertainment	Tax Department	512
13	Non-deductible Parking	Tax Department	103
14	Total Permanent Differences	Sum Lines 12 - 13	615
<u>Temporary Differences</u>			
15	Book Depreciation	Exhibit No.: A-13 (JRC-43)	721,485
16	Tax Depreciation	Tax Department	(769,238)
17	263A - Mixed Service Costs Deduction	Tax Department	(35,000)
18	Tax Repairs	Tax Department	(217,519)
19	Contributions In Aid of Construction	Tax Department	11,630
20	Cost of Removal	Tax Department	(128,090)
21	Gain/Loss on ACRS/MACRS Dispositions	Tax Department	(5,577)
22	Software Expense	Tax Department	(17,878)
23	Tax Interest During Construction	Tax Department	28,718
24	Bad Debt Allowance	Tax Department	-
25	OPEB - Book Expense	Exhibit No.: A-13 (JRC-41), Line 12	11,573
26	OPEB - Payments	Tax Department	-
27	Other Revenue Reserves	Tax Department	11,375
28	Pension - Book Expense	Exhibit No.: A-13 (JRC-41), Line 8 + Line 13	48,297
29	Pension - Payments	Tax Department	-
30	Power Supply Cost Recovery	Tax Department	-
31	Premium, Discount & Debt Expense Amortization	Tax Department	2,644
32	Real and Personal Property Taxes	Tax Department	(166,557)
33	Renewable Energy Reserve	Tax Department	(37,202)
34	Deferred State Income Taxes	Tax Department	41,581
35	Deferred City Income Taxes	Tax Department	1,238
36	Total Temporary Differences	Sum Lines 15 - 33	(498,520)
37	Federal Taxable Income	Line 11 + Line 14 + Line 36	(29,916)
<u>Calculation of Current Federal Income Tax Expenses</u>			
38	Current Federal Income Taxes	Line 37 * 21.00% Federal Income Tax Rate	(6,282)
39	Research & Development Credit	Tax Department	(2,315)
40	Total Current Federal Income Tax Expenses	Line 38 + Line 39	(8,597)
<u>Calculation of Deferred Federal Income Tax Expenses</u>			
41	Deferred Federal Income Tax	(Line 36 * 21.00% Federal Income Tax Rate) * -1	104,689
42	FAS 109	Tax Department	(144)
43	Investment Tax Credit Amortization	Tax Department	(3,690)
44	TCJA Amortization - ARAM	Tax Department	(23,441)
45	TCJA Amortization - NonARAM	Tax Department	(4,148)
46	Reg Tax Asset Amort-Transmission Assets U-13224	Tax Department	353
47	Repealed Medicare Subsidy Benefit	Tax Department	2,649
48	Total Deferred Federal Income Tax Expense	Sum Lines 41 - 47	76,268
49	Projected Federal Income Taxes	Line 40 + Line 48	67,671
50	Jurisdictional Factor	Cost of Service Study	1,0049
51	Jurisdictional Projected Federal Income Taxes	Line 49 * Line 50	68,005

## Schedule: C-9

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected State Income Taxes

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-46)

Schedule: C-9

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No	( a ) Description	( b ) Source	( c ) (\$000)
1	Operating Revenue	Exhibit No.: A-13 (JRC-39)	4,312,972
2	Power Supply Costs	Exhibit No.: A-13 (JRC-40)	(1,965,298)
3	Other O&M Expense	Exhibit No.: A-13 (JRC-41)	(696,264)
4	Depreciation & Amortization	Exhibit No.: A-13 (JRC-43)	(721,485)
5	General Taxes	Exhibit No.: A-13 (JRC-44)	(242,758)
6	Net Operating Income	Sum Lines 1 - 5	687,167
7	Interest Expense	Exhibit No.: A-13 (JRC-49)	(182,151)
8	Interest Synchronization	Exhibit No.: A-13 (JRC-50)	(1,227)
9	Pre-Tax Operating Income	Sum Lines 6 - 8	503,789
10	Schedule M Permanent Differences	Exhibit No.: A-13 (JRC-45)	615
11	Schedule M Temp Diff, Excluding DSIT and DCIT	Exhibit No.: A-13 (JRC-45)	(541,339)
12	Depreciation/Gain-Loss Adjustment	Tax Department	(94,348)
13	State Taxable Income	Sum Lines 9 - 12	(131,283)
14	Current State Income Tax Expenses	Line 13 * 5.31% State Income Tax Rate	(6,971)
<u>Calculation of Deferred State Income Tax Expense</u>			
15	Deferred State Income Tax Expense, Tax Effected	((Lines 11 + 12) * 5.31% State Income Tax Rate) * -1	33,755
16	FAS 109 - AFUDC-Equity Flow-through Reversal	Tax Department	117
17	Deferred - Amortization of Medicare Subsidy Benefit - State	Tax Department	454
18	Deferred - Amortization of State Income Tax Transition Reg Asset	Tax Department	7,255
19	Deferred State Income Tax Expenses	Sum Lines 15 - 18	41,581
20	Projected State Income Taxes	Line 14 + Line 19	34,610
21	Jurisdictional Factor	Cost of Service Study	1.0049
22	Jurisdictional Projected State Income Taxes	Line 20 * Line 21	34,781

**Schedule: C-10**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Other (or Local) Taxes

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-47)

Schedule: C-10

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Operating Revenue	Exhibit No.: A-13 (JRC-39)	4,312,972
2	Power Supply Costs	Exhibit No.: A-13 (JRC-40)	(1,965,298)
3	Other O&M Expense	Exhibit No.: A-13 (JRC-41)	(696,264)
4	Depreciation & Amortization	Exhibit No.: A-13 (JRC-43)	(721,485)
5	General Taxes	Exhibit No.: A-13 (JRC-44)	(242,758)
6	State Income Taxes	Exhibit No.: A-13 (JRC-46)	<u>(34,610)</u>
7	Net Operating Income	Sum Lines 1 - 6	652,557
8	Interest Expense	Exhibit: Exhibit No.: A-13 (JRC-49)	(182,151)
9	Interest Synchronization	Exhibit: Exhibit No.: A-13 (JRC-50)	<u>(1,227)</u>
10	Pre-Tax Operating Income	Sum Lines 7 - 9	469,179
11	Schedule M Permanent Differences	Exhibit No.: A-13 (JRC-45)	615
12	Schedule M Temporary Differences Excluding DCIT	Exhibit No.: A-13 (JRC-45)	<u>(499,758)</u>
13	Other (Local) Taxable Income	Sum Lines 10 - 12	(29,964)
14	Current Other (Local) Income Tax Expenses	Line 13 * 0.16% Other (Local) Income Tax Rate	<u>(48)</u>
<u>Calculation of Deferred Other (Local) Income Tax Expenses</u>			
15	Deferred Other (Local) Income Tax Expenses	(Line 12 * 0.16% Other (Local) Income Tax Rate) * -	800
16	Deferred - Amortization of Regulatory Asset	Exhibit No.: A-13 (JRC-45)	<u>438</u>
17	Deferred Other (Local) Income Tax Expenses	Line 15 + Line 16	<u>1,238</u>
18	Projected Other (or Local) Taxes	Line 14 + Line 17	1,190
19	Jurisdictional Factor	Cost of Service Study	<u>0.9940</u>
20	Jurisdictional Projected Other (or Local) Taxes	Line 18 * Line 19	<u>1,182</u>

**Schedule: C-11**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Projected Allowance for Funds Used During Construction

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-48)

Schedule: C-11

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No	( a )	( b )	( c )
	Description	Source	(\$000)
1	Projected Period Allowance for Funds Used During Construction	WP-JRC-41	13,010
2	Jurisdictional Factor	Cost of Service Study	0.9943
3	Jurisdictional Projected Allowance for Funds Used During Construction	Line 1 * Line 2	12,936

**Schedule: C-12**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Tax Effect of Pro-Forma Interest Adjustment

Impact on Net Operating Income

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-49)

Schedule: C-12

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Rate Base	Exhibit No.: A-12 (JRC-31)	12,954,507
2	Weighted Cost of Debt {1}	Exhibit No.: A-14 (MRB-1)	<u>0.0141</u>
3	Allowable Interest Expense	Line 1 * Line 2	182,151
4	Historical Year Pro-Forma Interest Expense	Exhibit No.: A-3 (JRC-20)	<u>161,003</u>
5	Increase/ (Decrease) in Allowable Interest Deduction	Line 3 - Line 4	21,148
6	Impact on Taxable Income	Line 5 * -1	(21,148)
7	Impact on State and Local Income Tax	Line 6 * 5.47% State and Local Income Tax Rate	<u>(1,157)</u>
8	Impact on Federal Taxable Income	Line 6 - Line 7	(19,991)
9	Impact on Federal Income Tax	Line 8 * 21.00% Federal Income Tax Rate	<u>(4,198)</u>
10	Impact on Net Operating Income	(Line 7 + Line 9) * -1	<u><u>5,355</u></u>

**Notes**

{1} Excludes JDITC

**Schedule C-13**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Tax Effect of Interest Synchronization Adjustment

Impact on Net Operating Income

For the Projected 12-Month Period Ending December 31, 2022

Case No.: U-20963

Exhibit No.: A-13 (JRC-50)

Schedule: C-13

Page 1 of 1

Witness: JRCoker

Date: March 2021

Line No.	( a ) Description	( b ) Source	( c ) (\$000)
1	Rate Base	Exhibit No.: A-12 (JRC-31)	12,954,507
2	JDITC Debt-Related Portion of the Capital Structure	Exhibit No.: A-14 (MRB-1)	<u>0.0027</u>
3	Portion of Rate Base Funded by JDITC	Line 1 * Line 2	34,581
4	Cost of Debt - JDITC Portion	Exhibit No.: A-14 (MRB-1)	0.0355
5	Allowable JDITC Interest Expense	Line 3 * Line 4	1,227
6	Historical Year Allowable JDITC Interest Expense	Exhibit No.: A-3 (JRC-21)	<u>1,242</u>
7	Increase/ (Decrease) in Allowable JDITC Interest Expense	Line 5 - Line 6	(14)
8	Impact on Taxable Income	Line 7 * -1	14
9	Impact on State and Local Income Tax	Line 8 * 5.47% State and Local Income Tax Rate	<u>1</u>
10	Impact on Federal Taxable Income	Line 8 - Line 9	14
11	Impact on Federal Income Tax	Line 10 * 21.00% Federal Income Tax Rate	<u>3</u>
12	Impact on Net Operating Income	(Line 9 + Line 11) * -1	<u><u>(4)</u></u>

Line No	(a) Description	(b) Source	(c) Sales	(d) Wholesale	(e) Other Revenue	(f) Fuel P&I	(g) Other O&M	(h) Deprec.	(i) Property Tax	(j) Other Taxes	(k) CIT	(l) MCIT	(m) FIT	(n) NOI	(o) AFUDC	(p) Adjusted NOI
1	Historical Net Operating Income		4,143,531	129,766	111,796	1,947,806	725,005	697,909	172,151	32,497	1,540	44,282	82,476	681,428	5,918	687,345
	<b>Historical Year Adjustments</b>															
2	Weather Normalization	Exhibit No.: A-15 (EMB-3)	(65)	-	-	-	-	-	-	-	(0)	(3)	(13)	(49)	-	(49)
3	Purchased Power Administration Fee Revenue	WP-JRC-21	(610)	-	-	-	-	-	-	-	(1)	(32)	(121)	(456)	-	(456)
4	MISO Reliability Schedule 10 Charge	WP-JRC-22	348	-	-	-	-	-	-	-	1	18	69	260	-	260
5	Excess MDNR Fees	WP-JRC-23	410	-	-	-	-	-	-	-	1	22	81	306	-	306
6	Surcharge Revenue and Expense/Amortization	WP-JRC-24	(249,734)	-	-	-	(182,030)	(25,921)	-	-	(67)	(2,219)	(8,294)	(31,203)	-	(31,203)
7	Job Work Revenue	Exhibit No.: A-15 (EMB-3)	-	-	13,627	-	-	-	-	-	22	724	2,705	10,176	-	10,176
8	Interest Income on Cash Operating Accounts	WP-JRC-25	-	-	1,145	-	-	-	-	-	2	61	227	855	-	855
9	Executive Annual Physicals	WP-JRC-26	-	-	-	-	(16)	-	-	-	0	1	3	12	-	12
10	EICP	WP-JRC-27	-	-	-	-	5,461	-	-	-	(9)	(290)	(1,084)	(4,078)	-	(4,078)
11	Corporate Giving - Staff Salaries	WP-JRC-28	-	-	-	-	(11)	-	-	-	0	1	2	8	-	8
12	Corporate Communications - Staff Salaries	WP-JRC-29	-	-	-	-	(185)	-	-	-	0	10	37	138	-	138
13	Advertising Expenses	WP-JRC-30	-	-	-	-	(743)	-	-	-	1	39	147	555	-	555
14	Dues & Donations Expenses	Exhibit No.: A-15 (EMB-3)	-	-	-	-	11,576	-	-	-	(19)	(615)	(2,298)	(8,644)	-	(8,644)
15	Job Work Expense	WP-JRC-31	-	-	-	-	371	-	-	-	(1)	(20)	(74)	(277)	-	(277)
16	Interest on Security Deposits		-	-	-	-	-	-	-	-	86	2,863	10,705	(13,655)	-	(13,655)
17	Tax Benefit of Pro-Forma Interest	Schedule: C-12	-	-	-	-	-	-	-	-	(2)	(66)	(246)	314	-	314
18	Interest Synchronization	Schedule: C-13	-	-	-	-	-	-	-	-					-	
19	Adjusted Historical Net Operating Income		3,893,880	129,766	126,568	1,947,806	559,427	671,988	172,151	32,497	1,555	44,776	84,323	635,692	5,918	641,609
	<b>Test Year Adjustments</b>															
20	Sales Revenue		291,060	-	-	-	-	-	-	-	466	15,455	57,779	217,360	-	217,360
21	Wholesale Revenues		-	(105,821)	-	-	-	-	-	-	(169)	(5,619)	(21,007)	(79,026)	-	(79,026)
22	Other Electric Revenue		-	-	(22,480)	-	-	-	-	-	(36)	(1,194)	(4,463)	(16,788)	-	(16,788)
23	Fuel and P&I		-	-	-	17,492	-	-	-	-	(28)	(929)	(3,472)	(13,063)	-	(13,063)
24	Other Operation & Maintenance		-	-	-	-	136,837	-	-	-	(219)	(7,266)	(27,164)	(102,188)	-	(102,188)
25	Depreciation & Amortization		-	-	-	-	-	49,497	-	-	(79)	(2,628)	(9,826)	(36,964)	-	(36,964)
26	Real and Personal Property Tax		-	-	-	-	-	-	36,949	-	(59)	(1,962)	(7,335)	(27,593)	-	(27,593)
27	Other General Taxes		-	-	-	-	-	-	-	1,161	(2)	(62)	(231)	(867)	-	(867)
28	Other (or Local) Taxes		-	-	-	-	-	-	-	-	(238)	-	50	188	-	188
29	State Income Tax Adjustments		-	-	-	-	-	-	-	-	-	(5,962)	1,252	4,710	-	4,710
30	AFUDC		-	-	-	-	-	-	-	-	-	-	-	-	7,093	7,093
31	FIT Adjustments		-	-	-	-	-	-	-	-	-	-	(2,237)	2,237	-	2,237
32	Projected Net Operating Income		4,184,940	23,945	104,087	1,965,298	696,264	721,485	209,100	33,658	1,190	34,610	67,671	583,697	13,010	596,707
33	Jurisdictional Factor		1,0000	-	0,9933	0,9893	0,9964	0,9954	0,9957	0,9940	1,0049	1,0049	1,0049	1,0049	0,9943	0,9943
34	Jurisdictional Projected Net Operating Income		4,184,940	-	103,385	1,944,208	693,776	718,135	208,203	33,455	1,196	34,781	68,005	586,579	12,936	599,515

Notes

Line 1, Col. ( c ) - Col. ( p ) Source: Exhibit No.: A-3 (JRC-9)  
Line 34, Col. ( c ) - Col. ( p ) Source: Exhibit No.: A-13 (JRC-37)

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Demand Response Revenue Requirement  
(000)

Case No.: U-20963  
Exhibit No.: A-66 (JRC-52)  
Page: 1 of 3  
Witness: JRCoker  
Date: March 2021

**Total Demand Response**

<u>Line</u>	<u>Description</u>	<u>Total</u>
(a)	(b)	(c)
1	Residential Revenue Requirement	\$27,566
2	C&I Revenue Requirement	18,182
3	Demand Response Incentive Reconciliation	<u>1,014</u>
4	Total Demand Response Revenue Requirement	<u><u>\$46,762</u></u>

**Residential Demand Response**

Line	Description	2020	2021	2022	Total	
(a)	(b)	(c)	(d)	(e)	(f)	
1	<b>Total Capital Spending</b>	<u>\$ 7,417</u>	<u>\$ 8,500</u>	<u>\$ 8,600</u>	<u>\$ 24,517</u>	Exhibit A-12 (AJG-1)
<b><u>Revenue Requirement Calculation:</u></b>						
					<u>2022 Average</u>	
2	Beginning Plant	\$ 19,928	\$ 29,012	\$ 37,512		
3	Closings	<u>9,085</u>	<u>8,500</u>	<u>8,600</u>		
4	Ending Plant	<u>\$ 29,012</u>	<u>\$ 37,512</u>	<u>\$ 46,112</u>	<u>\$ 41,812</u>	
5	Beginning CWIP	\$ 1,667	\$ -	\$ -		
6	Capital Spending	<u>7,417</u>	<u>8,500</u>	<u>8,600</u>		
7	Closings	<u>9,085</u>	<u>8,500</u>	<u>8,600</u>		
8	Ending CWIP	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	
9	Beginning Depreciation Reserve	\$ 1,170	\$ 2,173	\$ 3,537		
10	Depreciation Expense	<u>1,003</u>	<u>1,364</u>	<u>1,714</u>		
11	End Depreciation Reserve	<u>\$ 2,173</u>	<u>\$ 3,537</u>	<u>\$ 5,251</u>	<u>\$ 4,394</u>	
12	Total Rate Base				<u>\$ 37,418</u>	Line 4 + Line 8 - Line 11
13	Pre-Tax Rate of Return				<u>7.48%</u>	Exhibit A-14 (MRB-1)
14	Return on Investment				\$2,801	Line 12 * Line 13
15	Depreciation Expense				1,714	Line 11
16	O&M				22,557	Exhibit A-87 (AJG-2)
17	R&PP Tax				<u>494</u>	Footnote <sup>(1)</sup>
18	<b>Total Residential Revenue Requirement</b>				<u><b>\$27,566</b></u>	

**Footnotes**  
<sup>(1)</sup> Average Plant Balance Dec 31, 2021  
Property Tax Rate

\$ 41,812  
0.011806222  
\$ 494

See Exh A-112 (BJV-1)

**Commercial and Industrial Demand Response**

Line	Description	2020	2021	2022	Total	
(a)	(b)	(c)	(d)	(e)	(f)	
1	<b>Total Capital Spending</b>	<b>\$ 1,367</b>	<b>\$ 692</b>	<b>\$ 717</b>	<b>\$ 2,776</b>	Exhibit A-12 (AJG-1)

**Revenue Requirement Calculation:**

					2021 Average	
2	Beginning Plant	\$ 2,103	\$ 7,241	\$ 7,933		
3	Closings	5,138	692	717		
4	Ending Plant	\$ 7,241	\$ 7,933	\$ 8,650	\$ 8,291	
5	Beginning CWIP	\$ 3,771	\$ -	\$ -		
6	Capital Spending	1,367	692	717		
7	Closings	5,138	692	717		
8	Ending CWIP	\$ -	\$ -	\$ -	\$ -	
9	Beginning Depreciation Reserve	\$ 319	\$ 775	\$ 1,515		
10	Depreciation Expense	455	740	808		
11	End Depreciation Reserve	\$ 775	\$ 1,515	\$ 2,323	\$ 1,919	
12	Total Rate Base				\$ 6,373	Line 4 + Line 8 - Line 11
13	Pre-Tax Rate of Return				7.48%	Exhibit A-14 (MRB-1)
14	Return on Investment				\$477	Line 12 * Line 13
15	Depreciation Expense				808	Line 10
16	O&M				16,798	Exhibit A-87 (AJG-2)
17	R&PP Tax				98	Footnote <sup>(1)</sup>
18	<b>Total C&amp;I Revenue Requirement</b>				<b>\$18,182</b>	

**Footnotes**

(1) Average Plant Balance Dec 31, 2021  
Property Tax Rate

\$ 8,291  
0.011806222  
\$ 98

See Exh A-112 (BJV-1)

Consumers Energy Company

### Amortization of Kam Plant Retention and Senaration Costs

### Amortization of Kam Plant Retention and Senaration Costs

### Amortization of Kam Plant Retention and Separation Costs

(\$000)

Case No.: U-20963  
Exhibit No.: A 67 (IDC E2)

Case No.: U-20963  
Exhibit No.: A 67 / IDO E3\

Page: 1 of 1

Witness: JRCoker

Witness: JRCoker

- (1) Sum of Line 1 column (c) Less Line 8 column (c)
- (2) Line 9 column (d) Plus Line 1 column (d) Less Line 8 column (d)
- (3) (Line 9 column (d) Plus Line 9 column (e))/2

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

PowerMIDrive

2019 and 2020 Costs

(\$000)

Case No.: U-20963

Exhibit No.: A-68 (JRC-54)

Page: 1 of 1

Witness: JRCoker

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Line No.	Item Description	Actual 2019	Actual 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025
1	Electric Vehicle Expenditures <sup>4</sup>	\$ 917	\$ 2,896					
2	Amortization Expense							
3	2019	-	183	183	183	183	183	183
3	2020	-	-	579	579	579	579	579
4	Total amortization expense	\$ -	\$ 183	\$ 763	\$ 763	\$ 763	\$ 763	\$ 579
5	Electric Vehicle Deferred Balance	Avg Balance Dec 31, 2022 <sup>(3)</sup>	12 Mos Ending Dec 31, 2021 <sup>(1)</sup>	12 Mos Ending Dec 31, 2022 <sup>(2)</sup>				
		\$ 2,486	\$ 2,868	\$ 2,105				

<sup>(1)</sup> Sum of Line 1 columns (b) and (c) Less sum of Line 4 columns (c) and (d)

<sup>(2)</sup> Line 5 column (c) Less Line 4 column (e)

<sup>(3)</sup> (Line 5 column (c) Plus Line 5 column (d))/2

<sup>(4)</sup> Source: A-88 (AJG-3)

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**AMY M. CONRAD**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

2020 Plan Year								
Operational				Target				
1. Employee Safety (OSHA Recordable) <i>a) Incidents, and b) Incident Rate, and zero fatalities</i>				a) ≤54 b) ≤0.67				
2. Employee Empowerment Index <i>a) Employee Empowerment Index, and b) Employee Engagement Index</i>				a) ≥57 b) ≥76				
3. Customer Experience Index (CXi) <i>(Forester Index for Digital, Live Agent, and Interactive Voice Response)</i>				≥72				
4. ELeCtric Reliability - SAIDI <i>(System Average Interruption Duration Index - Customer Outage Minutes)</i>				≤180				
5. Generation Customer Value <i>(Fleet Availability at Least Cost Option and within Target Limits)</i>				≥72%				
6. Gas Flow Deliverability				≥92%				
7. Eliminate Vintage Services				≥9,250				
8. Demand Response <i>(Acquire Demand Response Resources)</i>				≥491 MW				
9. Trash to Landfill (Tons) <i>(Reduce permanent trash sent to landfill)</i>				≤4,864 tons				
Number of targets achieved		0-3	4	5	6	7	8	9
Award Percentage		0%	50%	75%	100%	125%	150%	200%

Financial		Target
<b>Earnings Per Share (EPS)</b> <i>70% of financial award</i>		\$2.64
<b>Incentive Operating Cash Flow (Billions)</b> <i>30% of financial award</i>		\$1,750
<b>Financial Award Percentage = %</b>		

<b>TOTAL EICP Award Payout Level = %</b>
--

<b>Standard Target Amount X Operational Award Payout Level X 50% Plus Standard Target Amount X</b>
--

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company

Target Pay Level Market Analysis  
Non-officer

Case No.: U-20953  
Exhibit No.: A-70 (AMC-2)  
Page: 1 of 1  
Witness: AMConrad  
Date: March 2021

Exempt Jobs:

2019 Market study

Job Family	# of Employees	Avg. Annual Salary	Market Data	Avg. Salary vs. Market
ACCOUNTING ANALYST	32	\$ 91,045	\$ 94,789	-3.9%
IT BUSINESS	16	\$ 122,472	\$ 114,865	6.6%
IT PROJECT MGR	4	\$ 166,494	\$ 151,207	10.1%
BUSINESS SUPPORT	203	\$ 88,470	\$ 84,133	5.0%
COMMUNICATIONS	13	\$ 93,198	\$ 91,434	1.9%
ELEC./GAS FIELD LEADER	243	\$ 129,589	\$ 130,356	-0.6%
LEARNING & DEVELOPMENT	25	\$ 105,103	\$ 108,265	-2.9%
ENGINEER	265	\$ 127,859	\$ 128,975	-0.9%
ENGINEER TECH	105	\$ 104,015	\$ 100,373	3.6%
ENVIRONMENTAL PLANNER	8	\$ 117,753	\$ 110,090	7.0%
FORESTERY	17	\$ 92,911	\$ 98,088	-5.3%
GENERAL TECHNICAL ANALYST	134	\$ 89,080	\$ 85,512	4.2%
HUMAN RESOURCES	33	\$ 111,116	\$ 104,355	6.5%
SAFETY	13	\$ 97,784	\$ 97,080	0.7%
LABORATORY TECH	5	\$ 90,326	\$ 85,315	5.9%
RATE ANALYST	7	\$ 113,491	\$ 110,755	2.5%
EXECUTIVE ASSISTANT	22	\$ 82,706	\$ 75,600	9.4%
MAINTENANCE/PRODUCTION SUPV	49	\$ 114,346	\$ 119,372	-4.2%
SYSTEM CONTROLLER	11	\$ 123,998	\$ 124,154	-0.1%
PLANNER/SCHEDULER	23	\$ 111,679	\$ 110,053	1.5%
CORPORATE ACCOUNT MANAGER	6	\$ 94,488	\$ 109,389	-13.6%
EPC PROJECT MANAGER	22	\$ 125,878	\$ 128,467	-2.0%
GENERATION ASSET MANAGER	5	\$ 104,610	\$ 117,456	-10.9%
FINANCIAL ANALYST	8	\$ 94,061	\$ 100,455	-6.4%
TAX	3	\$ 122,800	\$ 120,130	2.2%
IT TECHNICAL	145	\$ 109,885	\$ 106,592	3.1%
IT SECURITY	18	\$ 148,161	\$ 155,566	-4.8%
IT ARCHITECTURE	3	\$ 169,446	\$ 165,195	2.6%
Average				2.2%

Total exempt employees as a  
% of market survey matches

40%

% of total base salaries Exempt & Non-Exempt

48%

Non-Exempt:  
2019 Market study

Job Family	# of Employees	Avg. Annual Salary	Market Data	Avg. Salary vs. Market
Administrative Support Job Family	290	\$61,043	\$61,441	-0.6%
Customer Service Revenue Recovery Job Family	17	\$55,874	\$48,574	15.0%
Operations Support Job Family	14	\$83,276	\$57,442	10.2%
Technical Support Job Family	262	\$56,080	\$65,141	-13.9%
Distribution Project Delivery Job Family	77	\$78,560	\$78,170	0.5%
Technician Job Family	317	\$71,733	\$71,876	-0.2%
Paralegal Job Family	2	\$90,397	\$102,644	-11.9%
Dispatcher Job Family	12	\$78,884	\$81,939	-3.7%
Average				-1.3%

Total non-exempt employees as a  
% of market survey matches

67%

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual and Projected Annual Incentive O&M Expenses

(\$000)

Case No.: U-20963  
Exhibit No.: A-71 (AMC-3)  
Page: 1 of 3  
Witness: AMConrad  
Date: March 2021

Line No.	(a) Description	(b) Historical		(c) Test Year		(d) Source
		12 mos. ended 12/31/2019		12 mos. ended 12/31/2022		
1	Annual Incentive - Officer (1)	\$ 1,842,072	\$	1,918,500		
2	Annual Incentive - Non Officer (EICP)	4,302,279	\$	3,933,200		
3	<b>Total Expense</b>	<b>\$ 6,144,351</b>	<b>\$</b>	<b>5,851,700</b>		
		(2)				

**Footnotes**

- (1) Excludes named proxy officers
- (2) Amounts represent 2019 EICP assuming payout at 100%
- Amount of actual payout based on 2019 incentive program results were:

Officer	\$	2,071,728
Non-officer		4,673,684
Total	\$	6,745,412

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of O&M Expenses Projected Using Merit and Inflation  
Summary of Actual and Projected Annual Incentive O&M Expenses

Case No.: U-20963  
Exhibit No.: A-71 (AMC-3)  
Page: 2 of 3  
Witness: AMConrad  
Date: March 2021

		( a )	( b )	( c )
Line No.	Description	Actual	2019	12 Mos Ending Dec-31-2022 Projected
1	Line Item 1			
	Labor	\$	1,842,072	\$ 1,918,500
	Material	\$	1,842,072	\$ 1,918,500
	Contractor			
	Non-Labor Overheads			
	Non-Labor Other			
2	Line Item 2			
	Labor	\$	4,302,279	\$ 3,933,200
	Material	\$	4,302,279	\$ 3,933,200
	Contractor			
	Non-Labor Overheads			
	Non-Labor Other			
3	Total "Description of Area" O&M Expenses	\$	6,144,351	\$ 5,851,700
	Labor	\$	6,144,351	\$ 5,851,700
	Material	\$	-	\$ -
	Contractor	\$	-	\$ -
	Non-Labor Overheads	\$	-	\$ -
	Non-Labor Other	\$	-	\$ -

Line No.	Description	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)	
		2019 Actual		Base O&M for 12 Mos Ending Dec 31, 2019	Merit & Inflation 12 Mos Ending Dec 31, 2019	(c) * Inflation Rate		Base O&M for 12 Mos Ending Dec 31, 2020	Merit & Inflation 12 Mos Ending Dec 31, 2020	(e) * Inflation Rate		Base O&M for 12 Mos Ending Dec 31, 2021	Merit & Inflation 12 Mos Ending Dec 31, 2021	(g) * Inflation Rate		Base O&M for 12 Mos Ending Dec 31, 2022	Merit & Inflation 12 Mos Ending Dec 31, 2022	(h) * Inflation Rate	
1	Line Item 1																		
	Labor	1,842,072		0	0	0		1,843,500	52,272	52,272		1,859,100	59,491	59,491		1,918,500	173,237	173,237	
	Material	1,842,072		0	0	0		1,833,500	52,272	52,272		1,859,100	59,491	59,491		1,918,500	173,237	173,237	
	Contractor							0	0	0		0	0	0		0	0	0	
	Non-Labor Overheads							0	0	0		0	0	0		0	0	0	
	Non-Labor Other							0	0	0		0	0	0		0	0	0	
2	Line Item 2																		
	Labor	4,302,279		0	0	0		3,693,065	118,178	118,178		3,811,155	121,857	121,857		3,933,200	0	0	
	Material	4,302,279		0	0	0		3,693,065	118,178	118,178		3,811,155	121,857	121,857		3,933,200	0	0	
	Contractor							0	0	0		0	0	0		0	0	0	
	Non-Labor Overheads							0	0	0		0	0	0		0	0	0	
	Non-Labor Other							0	0	0		0	0	0		0	0	0	
3	Total "Description of Area" O&M Expenses	\$ 6,144,351		\$ -	\$ -	\$ -		\$ 5,536,565	\$ 170,450	\$ 170,450		\$ 5,670,255	\$ 181,448	\$ 181,448		\$ 5,851,700	\$ 173,237	\$ 173,237	
	Labor	6,144,351		0	0	0		5,326,565	170,450	170,450		5,670,255	181,448	181,448		5,851,700	173,237	173,237	
	Material							0	0	0		0	0	0		0	0	0	
	Contractor	0		0	0	0		0	0	0		0	0	0		0	0	0	
	Non-Labor Overheads	0		0	0	0		0	0	0		0	0	0		0	0	0	
	Non-Labor Other	0		0	0	0		0	0	0		0	0	0		0	0	0	

Notes

Line No.	Description	12-Mo Ending 2020		12-Mo Ending 2021		12-Mo Ending 2022	
4	Annual merit increase per Testimony of Amy M. Conrad						
	Annual Merit Increase	3.20%	3.20%	3.20%	3.20%		
	Number of Months in Period	12	12	12	12		
	Pro-rated Merit Increase	3.2%	3.2%	3.2%	3.2%		
5	Annual inflation rates per WPS-IRC-59						
	Annual Inflation Rates per WPS-IRC-59	1.20%	2.50%	2.50%	2.30%		
	Number of Months in Period	12	12	12	12		
	Pro-rated Inflation Rate	1.2%	2.5%	2.5%	2.3%		

A-72 (AMC-4)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

A-73 (AMC-5)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

A-74 (AMC-6)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

A-75 (AMC-7)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
**OF**  
**EMILY A. DAVIS**  
**ON BEHALF OF**  
**CONSUMERS ENERGY COMPANY**

March 2021

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Line No.	(a) Description	Summary RETURN (SUMMARY)							(i) Rate GSG	(j) Total Non Jurisdictional
		(b)	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered		
1	Rate Base		12,955,540	12,906,091	7,517,862	3,089,086	2,129,832	154,065	15,246	49,449
2	Revenue									
3	Total Rate Revenue		4,102,999	4,079,081	2,147,790	978,737	912,683	38,316	1,556	23,918
4	Total Revenue Credits		209,974	209,245	103,130	46,943	54,407	992	3,773	729
5	Total Revenue		4,312,973	4,288,326	2,250,919	1,025,680	967,090	39,308	5,328	24,647
6	Expenses:									
7	Fuel and P&I Expense		1,466,886	1,450,826	658,309	334,689	447,477	7,538	2,813	16,060
8	Transmission Expense		498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
9	Other O & M Expense		696,264	693,755	424,661	161,138	100,998	6,276	682	2,509
10	Depreciation & Amortization Expense		719,418	716,064	413,159	170,695	121,404	10,060	746	3,354
11	Other Taxes		278,670	277,723	156,648	67,693	49,412	3,669	301	947
12	Federal Income Taxes		68,078	68,417	37,516	19,105	10,787	1,005	5	(339)
13	Total Expenses		3,727,728	3,700,167	1,928,409	861,440	874,361	30,671	5,286	27,561
14	Net Operating Income		585,245	588,159	322,510	164,240	92,729	8,636	43	(2,914)
15	Other Income Adjustments		13,010	12,935	7,227	3,028	2,539	125	16	75
16	Adjusted Net Operating Income		598,255	601,094	329,737	167,269	95,268	8,762	59	(2,839)
17	Rate of Return on Rate Base		4.62%	4.66%	4.39%	5.41%	4.47%	5.69%	0.39%	-5.74%
18	Index of Return (Jurisdictional)			100	94	116	96	122	8	
19	Return on Rate Base @ 5.95%		770,574	767,632	447,150	183,734	126,679	9,164	907	2,941
20	Income Deficiency (Sufficiency)		172,319	166,539	117,413	16,465	31,411	402	848	5,780
21	Revenue Deficiency (Sufficiency)		230,747	223,007	157,224	22,048	42,062	538	1,136	7,740
22	Revenue Requirement/Total Cost of Service		4,543,720	4,511,333	2,408,143	1,047,728	1,009,152	39,846	6,464	32,387
23	Less: Revenue Credits		209,974	209,245	103,130	46,943	54,407	992	3,773	729
24	Proposed Rate Design Revenue		4,333,746	4,302,088	2,305,014	1,000,785	954,744	38,854	2,691	31,658
25	Production: Net Capacity Cost		1,399,007	1,386,288	749,475	303,789	328,715	2,791	1,518	12,719
26	Production: Capacity Related Cost Offset		105,788	102,673	11,291	28,926	59,871	1,882	703	3,115
27	Production: Non-Capacity Related Cost		1,323,503	1,307,187	572,125	301,990	426,176	7,683	(787)	16,316
28	Distribution: Demand Related Cost		1,287,967	1,288,499	809,099	321,679	131,220	25,291	1,210	(533)
29	Distribution: Customer Related Cost		217,481	217,441	163,024	44,401	8,762	1,207	47	41
30	Full Service MWH Sales		30,755,165	30,375,234	12,621,349	6,964,767	10,521,542	195,427	72,150	379,931
31	ROA MWH Sales		3,598,011	-	204,312	3,393,699	-	-	-	-
32	MWH Sales		34,353,176	33,973,245	12,621,349	7,169,079	13,915,241	195,427	72,150	379,931
33	Customers		1,849,211	1,849,209	1,627,664	216,607	4,088	835	15	2

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Residential/Secondary  
RETURN (SUMMARY)

Line No.	(a) Description									(h) Total Commercial Secondary
		(b) Rate RS	(c) Total Residential	(d) Rate GS	(e) Rate GSD	(f) Rate GS GEI	(g) Rate GSD GEI			
1	Rate Base	7,517,862	7,517,862	1,841,976	1,123,902	49,693	73,516			3,089,086
<b>Revenue</b>										
2	Total Rate Revenue	2,147,790	2,147,790	571,374	376,941	12,078	18,344			978,737
3	Total Revenue Credits	103,130	103,130	26,499	18,876	624	944			46,943
4	Total Revenue	2,250,919	2,250,919	597,874	395,817	12,701	19,288			1,025,680
<b>Expenses:</b>										
5	Fuel and P&I Expense	658,309	658,309	182,580	141,501	4,220	6,387			334,689
6	Transmission Expense	238,116	238,116	60,066	44,572	1,476	2,006			108,120
7	Other O & M Expense	424,661	424,661	99,691	55,442	2,456	3,549			161,138
8	Depreciation & Amortization Expense	413,159	413,159	102,357	62,043	2,561	3,734			170,695
9	Other Taxes	156,648	156,648	40,383	24,886	961	1,464			67,693
10	Federal Income Taxes	37,516	37,516	11,754	7,021	107	224			19,105
11	Total Expenses	1,928,409	1,928,409	496,831	335,463	11,782	17,364			861,440
12	Net Operating Income	322,510	322,510	101,043	60,354	919	1,924			164,240
13	Other Income Adjustments	7,227	7,227	1,774	1,146	44	64			3,028
14	Adjusted Net Operating Income	329,737	329,737	102,817	61,500	963	1,989			167,269
15	Rate of Return on Rate Base	4.39%	4.39%	5.58%	5.47%	1.94%	2.71%			5.41%
16	Index of Return (Jurisdictional)	94	94	120	117	42	58			116
17	Return on Rate Base @ 5.95%	447,150	447,150	109,558	66,848	2,956	4,373			183,734
18	Income Deficiency (Sufficiency)	117,413	117,413	6,741	5,348	1,992	2,384			16,465
19	Revenue Deficiency (Sufficiency)	157,224	157,224	9,027	7,161	2,668	3,192			22,048
20	Revenue Requirement/Total Cost of Service	2,408,143	2,408,143	606,900	402,978	15,369	22,481			1,047,728
21	Less: Revenue Credits	103,130	103,130	26,499	18,876	624	944			46,943
22	Proposed Rate Design Revenue	2,305,014	2,305,014	580,401	384,102	14,746	21,536			1,000,785
23	Production: Net Capacity Cost	749,475	749,475	170,934	124,308	3,541	5,006			303,789
24	Production: Capacity Related Cost Offset	11,291	11,291	13,605	13,901	574	846			28,926
25	Production: Non-Capacity Related Cost	572,125	572,125	164,273	127,773	4,009	5,934			301,990
26	Distribution: Demand Related Cost	809,099	809,099	193,810	112,179	6,248	9,442			321,679
27	Distribution: Customer Related Cost	163,024	163,024	37,779	5,940	374	308			44,401
28	Full Service MWH Sales	12,621,349	12,621,349	3,750,286	2,985,974	89,373	139,134			6,964,767
29	ROA MWH Sales	-	-	8,528	120,833	14,582	60,369			204,312
30	MWH Sales	12,621,349	12,621,349	3,758,814	3,106,807	103,955	199,503			7,169,079
31	Customers	1,627,664	1,627,664	194,916	19,364	1,564	763			216,607



Schedule F-1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate GML	Rate GUL	Rate GU-XL	Rate GU	Total Lighting & Unmetered
5,395	66,493	57,854	24,323	154,065
1,434	20,196	7,092	9,593	38,316
52	302	150	488	992
1,486	20,499	7,242	10,082	39,308
443	2,105	650	4,340	7,538
130	616	190	1,188	2,124
263	4,286	483	1,243	6,276
279	4,537	3,867	1,377	10,060
113	1,754	1,251	551	3,669
27	750	83	144	1,005
1,254	14,049	6,525	8,844	30,671
232	6,449	717	1,238	8,636
4	51	44	26	125
236	6,500	761	1,264	8,762
4.38%	9.78%	1.32%	5.20%	5.69%
94	210	28	112	122
321	3,955	3,441	1,447	9,164
85	(2,545)	2,680	182	402
113	(3,408)	3,589	244	538
1,599	17,090	10,831	10,326	39,846
52	302	150	488	992
1,548	16,788	10,681	9,837	38,854
-	-	-	2,791	2,791
170	765	201	746	1,882
502	2,387	737	4,057	7,683
830	12,710	9,565	2,187	25,291
46	926	177	57	1,207
13,118	62,386	19,268	100,655	195,427
-	-	-	-	-
13,118	62,386	19,268	100,655	195,427
359	-	-	476	835

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Summary RATE BASE (SUMMARY)											
Line No.	(a) Description	(b)		(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	<b>Net Plant</b>										
2	Production	3,875,337	3,840,104	1,970,740	859,245	992,560	12,190	5,370	35,233		
3	Transmission	-	-	-	-	-	-	-	-		
4	Distribution	6,910,698	6,905,307	4,246,856	1,729,782	794,753	125,975	7,941	5,390		
5	General/Common/Intangible	804,580	801,745	490,331	186,926	116,534	7,195	759	2,834		
6	Plant Purchased/Sold	0	0	0	0	0	0	0	0		
7	Total Net Plant	11,590,614	11,547,157	6,707,927	2,775,953	1,903,847	145,359	14,070	43,457		
8	<b>Working Capital</b>										
9	Total Current Assets	2,339,688	2,330,267	1,381,750	549,240	373,826	23,257	2,194	9,420		
10	Total Current Liabilities	923,000	919,607	539,944	222,771	142,616	13,307	969	3,394		
11	Total Working Capital	1,416,687	1,410,661	841,806	326,469	231,211	9,950	1,225	6,026		
	<b>Adjustments to Rate Base</b>										
12	Additions to Rate Base	0	0	0	0	0	0	0	0		
13	Deductions from Rate Base	51,761	51,727	31,871	13,335	5,226	1,245	49	34		
14	Total Adjustments to Rate Base	(51,761)	(51,727)	(31,871)	(13,335)	(5,226)	(1,245)	(49)	(34)		
15	<b>Total Rate Base</b>	12,955,540	12,906,091	7,517,862	3,089,086	2,129,832	154,065	15,246	49,449		

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Residential/Secondary RATE BASE (SUMMARY)								
(a)								
Line No.	Description	(b) Rate RS	(c) Total Residential	(d) Rate GS	(e) Rate GSD	(f) Rate GS GEI	(g) Rate GSD GEI	(h) Commercial Secondary
1	Net Plant							
2	Production	1,970,740	1,970,740	477,963	356,043	10,283	14,956	859,245
3	Transmission	-	-	-	-	-	-	-
4	Distribution	4,246,856	4,246,856	1,057,956	591,826	32,072	47,929	1,729,782
5	General/Common/Intangible	490,331	490,331	115,003	64,913	2,866	4,144	186,926
6	Plant Purchased/Sold	0	0	0	0	0	0	0
7	Total Net Plant	6,707,927	6,707,927	1,650,921	1,012,782	45,221	67,029	2,775,953
8	Working Capital							
9	Total Current Assets	1,381,750	1,381,750	333,532	195,370	8,268	12,069	549,240
10	Total Current Liabilities	539,944	539,944	134,225	79,772	3,553	5,221	222,771
11	Total Working Capital	841,806	841,806	199,307	115,598	4,716	6,849	326,469
Adjustments to Rate Base								
12	Additions to Rate Base	0	0	0	0	0	0	0
13	Deductions from Rate Base	31,871	31,871	8,252	4,478	244	362	13,335
14	Total Adjustments to Rate Base	(31,871)	(31,871)	(8,252)	(4,478)	(244)	(362)	(13,335)
15	Total Rate Base	7,517,862	7,517,862	1,841,976	1,123,902	49,693	73,516	3,089,086

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Line No.	Description	Primary & Lighting RATE BASE (SUMMARY)														(a)
		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
		Rate GP	Rate GPTU Vlt 1	Rate GPTU Vlt 2	Rate GPTU Vlt 3	Rate GPD Vlt 1	Rate GPD Vlt 2	Rate GPD Vlt 3	Rate GP GEI	Rate EIP Vlt 1	Rate EIP Vlt 2	Rate EIP Vlt 3	Rate GPD GEI Vlt 1	Rate GPD GEI Vlt 2	Rate GPD GEI Vlt 3	Total Primary
1	<b>Net Plant</b>															
2	Production	86,261	38,967	88,544	390,808	42,135	91,010	218,361	10,225	11,709	1,989	293	-	2,438	9,820	992,560
3	Transmission	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Distribution	86,176	15,618	35,403	286,847	21,845	79,703	210,990	17,242	5,978	4,478	1,704	73	5,304	23,393	794,753
5	General/Common/Intangible	10,849	3,698	8,386	45,376	3,852	10,688	28,080	1,680	1,033	351	114	1	425	2,002	116,534
6	Plant Purchased/Sold	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0
7	Total Net Plant	183,286	58,284	132,333	723,031	67,832	181,401	457,432	29,147	18,719	6,818	2,110	74	8,167	35,215	1,903,847
8	<b>Working Capital</b>															
9	Total Current Assets	33,986	12,363	27,910	143,782	15,082	34,843	87,002	5,090	4,860	1,322	365	5	1,303	5,913	373,826
10	Total Current Liabilities	13,477	4,429	10,049	54,858	5,126	13,185	34,233	2,116	1,425	471	150	4	557	2,536	142,616
11	Total Working Capital	20,509	7,934	17,861	88,924	9,955	21,659	52,769	2,974	3,435	851	215	1	746	3,377	231,211
<b>Adjustments to Rate Base</b>																
12	Additions to Rate Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Deductions from Rate Base	(560)	(96)	(217)	(1,927)	(139)	(490)	(1,414)	(115)	(38)	(28)	(11)	(0)	(33)	(157)	(5,226)
14	Total Adjustments to Rate Base															
15	<b>Total Rate Base</b>	203,235	66,122	149,976	810,027	77,648	202,570	508,787	32,006	22,117	7,641	2,313	75	8,880	38,435	2,129,832

Schedule F-1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate	Rate	Rate	Rate	Total
GML	GUL	GU-XL	GU	Lighting & Unmetered
429	2,039	630	9,092	12,190
-	-	-	-	-
4,253	58,011	52,484	11,227	125,975
285	2,949	2,553	1,409	7,195
0	0	0	0	0
4,967	62,999	55,666	21,727	145,359
870	9,988	8,003	4,397	23,257
406	5,908	5,276	1,717	13,307
464	4,080	2,727	2,680	9,950
0	0	0	0	0
35	586	539	85	1,245
(35)	(586)	(539)	(85)	(1,245)
5,395	66,493	57,854	24,323	154,065

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Summary O&M (SUMMARY)										
Line No.	(a) Description	(b)	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	<b>Production Expense</b>									
2	Fuel Expense	508,684	502,596	211,609	117,860	168,832	3,170	1,124	6,087	
3	Purchased & Interchange Power Expense	958,202	948,230	446,700	216,828	278,645	4,368	1,689	9,972	
4	Total Fuel and P&I Expense	1,466,886	1,450,826	658,309	334,689	447,477	7,538	2,813	16,060	
5	Fossil O&M Exp	99,042	98,028	47,079	22,478	27,850	448	173	1,014	
6	Nuclear O&M Exp	0	-	-	-	-	-	-	-	
7	Hydro O&M Exp	20,698	20,490	9,971	4,676	5,720	88	35	207	
8	Other Power Gen O&M Exp	67,608	66,993	34,381	14,990	17,316	213	94	615	
9	Other Power Supply O&M Exp	9,684	9,596	4,925	2,147	2,480	30	13	88	
10	Total Production O&M Expense	197,032	195,108	96,356	44,291	53,367	779	314	1,924	
11	Total Production (Inc. Fuel and P&I) O&M Expense	1,663,918	1,645,934	754,665	378,980	500,844	8,317	3,128	17,984	
12	<b>Transmission &amp; Distribution Expense</b>									
13	Trans O&M Exp	498,412	493,382	238,116	108,120	144,283	2,124	739	5,030	
14	Other O&M Adjustments	0	0	0	0	0	0	0	0	
15	Distr Oper Exp	104,580	104,559	68,263	25,799	7,315	3,126	55	22	
16	Distr Maint Exp	186,389	186,340	115,848	50,002	19,193	1,120	177	50	
17	Total Transmission & Distribution O&M Expense	789,381	784,280	422,227	183,921	170,791	6,370	971	5,101	
18	<b>Customer Related Expense</b>									
19	Customer Accounts Exp	48,498	48,498	42,711	5,684	91	11	0	0	
20	Customer Service Exp	4,478	4,438	2,081	857	1,471	21	8	40	
21	Other Customer Exp	20,767	20,767	17,422	3,253	77	16	0	0	
22	Total Customer O&M Expense	73,743	73,703	62,214	9,793	1,639	48	8	40	
23	<b>Admin &amp; General Expense</b>	134,520	134,046	81,980	31,253	19,484	1,203	127	474	
24	<b>Total O&amp;M Expense</b>	2,661,562	2,637,962	1,321,086	603,946	692,758	15,938	4,234	23,600	

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Residential/Secondary  
O&M (SUMMARY)

(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)
Line No.	Description	Rate RS	Total Residential	Rate GS	Rate GSD	Rate GS GEI	Rate GSD GEI	Commercial Secondary
<b>1 Production Expense</b>								
2	Fuel Expense	211,609	211,609	63,631	50,351	1,526	2,353	117,860
3	Purchased & Interchange Power Expense	446,700	446,700	118,949	91,151	2,694	4,034	216,828
4	Total Fuel and P&I Expense	658,309	658,309	182,580	141,501	4,220	6,387	334,689
<b>5 Fossil O&amp;M Exp</b>								
6	Nuclear O&M Exp	-	-	-	-	-	-	-
7	Hydro O&M Exp	9,971	9,971	2,573	1,960	57	85	4,676
8	Other Power Gen O&M Exp	34,381	34,381	8,338	6,211	179	261	14,990
9	Other Power Supply O&M Exp	4,925	4,925	1,194	890	26	37	2,147
10	Total Production O&M Expense	96,356	96,356	24,444	18,509	539	799	44,291
11	Total Production (Inc. Fuel and P&I) O&M Expense	754,665	754,665	207,024	160,010	4,760	7,186	378,980
<b>12 Transmission &amp; Distribution Expense</b>								
13	Trans O&M Exp	238,116	238,116	60,066	44,572	1,476	2,006	108,120
14	Other O&M Adjustments	0	0	0	0	0	0	0
15	Dist Oper Exp	68,263	68,263	16,426	8,256	455	662	25,799
16	Dist Maint Exp	115,848	115,848	31,136	16,619	907	1,340	50,002
17	Total Transmission & Distribution O&M Expense	422,227	422,227	107,628	69,447	2,838	4,008	183,921
<b>18 Customer Related Expense</b>								
19	Customer Accounts Exp	42,711	42,711	5,115	508	41	20	5,684
20	Customer Service Exp	2,081	2,081	487	337	12	21	857
21	Other Customer Exp	17,422	17,422	2,856	359	23	14	3,253
22	Total Customer O&M Expense	62,214	62,214	8,458	1,204	76	56	9,793
<b>23 Admin &amp; General Expense</b>								
23		81,980	81,980	19,228	10,853	479	693	31,253
24	Total O&M Expense	1,321,086	1,321,086	342,337	241,515	8,153	11,942	603,946

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Primary & Lighting  
O&M (SUMMARY)

Line No.	(a) Description	(b) Rate GP	(c) Rate GPTU Vlt 1	(d) Rate GPTU Vlt 2	(e) Rate GPTU Vlt 3	(f) Rate GPD Vlt 1	(g) Rate GPD Vlt 2	(h) Rate GPD Vlt 3	(i) Rate GP GEI	(j) Rate EIP Vlt 1	(k) Rate EIP Vlt 2	(l) Rate EIP Vlt 3	(n) Rate GPD GEI Vlt 1	(o) Rate GPD GEI Vlt 2	(p) Rate GPD GEI Vlt 3	(q) Total Primary
<b>1 Production Expense</b>																
2	Fuel Expense	12,077	6,762	14,733	58,662	16,057	17,398	32,789	1,489	6,098	1,015	153	-	286	1,313	188,832
3	Purchased & Interchange Power Expense	21,979	11,055	24,574	102,978	19,492	27,202	57,548	2,655	6,827	1,142	171	-	574	2,448	278,645
4	Total Fuel and P&I Expense	34,056	17,817	39,307	161,640	35,549	44,600	90,337	4,144	12,926	2,156	323	-	860	3,761	447,477
5	Fossil O&M Exp	2,266	1,133	2,520	10,603	1,343	2,686	5,928	272	658	112	16	-	60	254	27,850
6	Nuclear O&M Exp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Hydro O&M Exp	471	231	516	2,191	270	547	1,225	56	123	21	3	-	13	53	5,720
8	Other Power Gen O&M Exp	1,505	680	1,545	6,818	735	1,588	3,809	178	204	35	5	-	43	171	17,316
9	Other Power Supply O&M Exp	216	97	221	977	105	227	546	26	29	5	1	-	6	25	2,480
10	Total Production O&M Expense	4,457	2,141	4,803	20,588	2,453	5,048	11,508	532	1,014	172	25	-	121	503	53,367
11	Total Production (Inc. Fuel and P&I) O&M Expense	38,513	19,959	44,110	182,228	38,002	49,649	101,845	4,677	13,940	2,329	349	-	981	4,264	500,844
<b>12 Transmission &amp; Distribution Expense</b>																
13	Trans O&M Exp	11,168	5,436	12,248	52,169	12,030	13,951	28,286	1,450	5,206	720	88	-	293	1,239	144,283
14	Other O&M Adjustments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Distr Oper Exp	811	107	242	2,911	65	544	2,128	171	17	30	17	0	36	236	7,315
16	Distr Maint Exp	2,004	354	800	7,390	156	1,787	5,381	428	40	99	44	1	118	593	19,193
17	Total Transmission & Distribution O&M Expense	13,983	5,897	13,289	62,469	12,250	16,282	35,795	2,048	5,264	850	149	1	447	2,068	170,791
<b>18 Customer Related Expense</b>																
19	Customer Accounts Exp	33	0	2	25	1	2	22	3	0	0	0	0	0	2	91
20	Customer Service Exp	83	45	97	383	221	245	303	13	41	7	1	0	9	24	1,471
21	Other Customer Exp	28	0	1	22	1	2	19	3	0	0	0	0	0	2	77
22	Total Customer O&M Expense	143	46	100	430	222	248	344	19	41	7	1	0	9	28	1,639
23	Admin & General Expense	1,814	618	1,402	7,586	644	1,787	4,695	281	173	59	19	0	71	335	19,484
24	Total O&M Expense	54,453	28,520	58,901	252,713	51,118	67,966	142,679	7,025	19,417	3,244	517	1	1,509	6,894	692,758

Schedule F-1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate GML	Rate GUL	Rate GU-XL	Rate GU	Lighting & Unmetered
207	984	304	1,676	3,170
236	1,121	346	2,664	4,368
443	2,105	650	4,340	7,538
24	115	35	274	448
-	-	-	-	-
5	21	7	56	88
7	36	11	159	213
1	5	2	23	30
37	177	55	511	779
480	2,282	705	4,850	8,317
130	616	190	1,188	2,124
0	0	0	0	0
77	1,413	1,478	157	3,126
87	488	231	314	1,120
293	2,518	1,899	1,660	6,370
6	-	-	6	11
2	7	2	11	21
7	-	-	9	16
14	7	2	26	48
48	493	427	236	1,203
835	5,299	3,033	6,771	15,938

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Summary ALLOCATORS 1																		
Line No.	(a) Description	(b) Alloc	(c) Total Electric					(d) Total Jurisdictional Electric		(e) Total Residential		(f) Total Commercial Secondary		(g) Total Primary		(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
			Total Electric	Total Electric	Total Electric	Total Electric	Total Electric	Total Residential	Total Residential	Total Residential	Total Residential	Total Residential	Total Residential	Total Residential	Total Residential			
Input Allocation Schedules																		
1	Energy @ Generation	100	100,000	100,000	98,803	42,550	23,480	31,886	0.659	0.228	1,197							
2	Energy On-Peak @ Generation	101	100,000	100,000	98,803	39,654	24,132	34,379	0.443	0.196	1,197							
3	Energy Off-Peak @ Generation	102	100,000	100,000	98,803	44,227	21,862	31,580	0.879	0.256	1,197							
4	Energy On-Peak @ Generation Summer	103	100,000	100,000	98,803	40,846	24,238	33,197	0.351	0.172	1,197							
5	Energy Off-Peak @ Generation Summer	104	100,000	100,000	98,803	44,018	22,197	31,573	0.778	0.237	1,197							
6	Energy On-Peak @ Generation Non-Summer	105	100,000	100,000	98,803	38,967	24,070	35,061	0.496	0.210	1,197							
7	Energy Off-Peak @ Generation Non-Summer	106	100,000	100,000	98,803	44,343	21,675	31,584	0.935	0.267	1,197							
8	Energy Critical On-Peak @ Gen	107	100,000	100,000	98,803	44,384	23,206	30,805	0.254	0.154	1,197							
9	Energy Summer Mid-Peak @ Gen	108	100,000	100,000	98,803	39,533	24,621	34,085	0.386	0.179	1,197							
10	12CP Dmd @ Generation	120	100,000	100,000	98,991	47,775	21,693	28,948	0.426	0.148	1,009							
11	4CP Dmd @ Generation	121	100,000	100,000	99,091	53,572	21,715	23,496	0.199	0.109	0,909							
12	Classpeak @ Transmission	127	100,000	100,000	99,131	47,087	20,237	30,939	0.447	0.240	0,869							
13	Production Revenue	141	100,000	100,000	99,495	47,698	22,698	28,651	0.443	0.005	0,505							
14	Distribution Revenue	142	100,000	100,000	99,266	61,630	26,186	9,421	1.925	0.104	0,734							
15	Total Rate Revenue	143	100,000	100,000	99,419	52,302	23,851	22,296	0.933	0.038	0,581							
16	Billed Sales	150	100,000	100,000	98,894	36,740	20,869	40,506	0.569	0.210	1,106							
17	Number Of Customers	160	100,000	100,000	100,000	88,019	11,713	0.221	0.045	0.001	0,000							
18	Weighted Customer	170	100,000	100,000	99,998	77,549	16,130	6,274	0.023	0.002	0,000							
19	Voltage 1 (Trans HVD) Peak	236	100,000	100,000	99,204	48,900	19,577	30,421	0.171	0.134	0,796							
20	Voltage 2 (Subtrans HVD) Peak	237	100,000	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0,021							
21	Voltage 3 (Primary LVD) Peak	238	100,000	100,000	100,000	57,460	22,470	19,874	0.196	-	-							
22	Voltage 4 (Secondary LVD) Peak	239	100,000	100,000	100,000	73,554	26,203	-	0.243	-	-							
Calculated Allocation Schedules																		
23	4CP 75/0/25	220	100,000	100,000	99,091	50,853	22,172	25,612	0.315	0.139	0,909							
24	4CP 75/0/25 Exc WFR	222	100,000	100,000	99,968	51,298	22,369	25,843	0.318	0.140	0,032							
25	4CP Dmd @ Gen Jurisdictional	224	100,000	100,000	100,000	54,063	21,914	23,712	0.201	0.110	-							
26	12CP Demand @ Subtrans	226	100,000	100,000	100,000	50,639	22,993	25,862	0.452	0.053	-							
27	Class Peak @ Subtransmission	122	100,000	100,000	99,949	50,040	21,507	27,481	0.475	0.051	0,051							
28	Classpeak @ Primary	230	100,000	100,000	100,000	54,733	23,523	21,213	0.520	0.011	-							
29	Classpeak @ Secondary	231	100,000	100,000	100,000	69,479	29,861	-	0.660	-	-							
30	Classpeak for Streetlighting	233	100,000	100,000	99,188	-	-	-	99.188	-	0.812							
31	Classpeak @ Single Phase	235	100,000	100,000	100,000	69,479	29,861	-	0.660	-	-							
32	Billed Sales - Primary	253	100,000	100,000	100,000	45,712	25,965	27,610	0.708	0.006	-							
33	Customers - Residential	260	100,000	100,000	100,000	100,000	-	-	-	-	-							
34	Customers - Drops	261	100,000	100,000	100,000	-	100,000	-	-	-	-							
35	Customers - NonPID	263	100,000	100,000	100,000	88,238	11,743	-	0.019	-	0,001							
36	Customers - NonMunicipal	264	100,000	100,000	100,000	88,059	11,719	0.221	-	-	0,000							
37	Customer Count (CCC)	161	100,000	100,000	100,000	94,080	5,920	-	-	-	-							
38	Customer Count (BCC)	162	100,000	100,000	100,000	-	95,854	3,432	0.701	0.013	0,869							
37	PIS - HVD (345-138kV)	301	100,000	100,000	99,131	47,087	20,237	30,939	0.447	0.420	0,869							
38	PIS - HVD (46-23kV)	302	100,000	100,000	99,949	50,040	21,507	27,481	0.475	0.447	0,051							
39	PIS - HVD (345-138kV) Subs (FERC 361/362)	303	100,000	100,000	99,131	47,087	20,237	30,939	0.447	0.420	0,869							
40	PIS - HVD (46-23kV) Subs (FERC 361/362)	304	100,000	100,000	99,949	50,040	21,507	27,481	0.475	0.447	0,051							

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Residential/Secondary  
ALLOCATORS 1

Line No.	Description	Alloc	(a)		(c)	(d)	(e)	(f)	(g)	(h)
			Rate RS	Total Residential						
Input Allocation Schedules										
1	Energy @ Generation	100	42,550	42,550	12,643	10,067	0.301	0.469	23,480	
2	Energy On-Peak @ Generation	101	39,654	39,654	13,316	10,012	0.329	0.475	24,132	
3	Energy Off-Peak @ Generation	102	44,227	44,227	11,408	9,751	0.259	0.444	21,862	
4	Energy On-Peak @ Generation Summer	103	40,846	40,846	13,428	10,112	0.276	0.421	24,238	
5	Energy Off-Peak @ Generation Summer	104	44,018	44,018	11,545	10,023	0.214	0.416	22,197	
6	Energy On-Peak @ Generation Non-Summer	105	38,967	38,967	13,251	9,954	0.359	0.506	24,070	
7	Energy Off-Peak @ Generation Non-Summer	106	44,343	44,343	11,332	9,599	0.284	0.460	21,675	
8	Energy Critical On-Peak @ Gen	107	44,384	44,384	12,668	9,900	0.249	0.389	23,206	
9	Energy Summer Mid-Peak @ Gen	108	39,533	39,533	13,710	10,191	0.286	0.433	24,621	
10	12CP Dmd @ Generation	120	47,775	47,775	12,052	8,943	0.296	0.403	21,693	
11	4CP Dmd @ Generation	121	53,572	53,572	12,218	8,885	0.253	0.358	21,715	
12	Classpeak @ Transmission	127	47,087	47,087	11,473	7,712	0.413	0.639	20,237	
13	Production Revenue	141	47,698	47,698	12,583	9,463	0.249	0.404	22,698	
14	Distribution Revenue	142	61,630	61,630	16,628	8,637	0.386	0.535	26,186	
15	Total Rate Revenue	143	52,302	52,302	13,919	9,190	0.294	0.447	23,851	
16	Billed Sales	150	36,740	36,740	10,942	9,044	0.303	0.581	20,869	
17	Number Of Customers	160	88,019	88,019	10,540	1,047	0.085	0.041	11,713	
18	Weighted Customer	170	77,549	77,549	13,914	2,025	0.112	0.080	16,130	
19	Voltage 1 (Trans HVD) Peak	236	48,900	48,900	10,607	8,180	0.301	0.489	19,577	
20	Voltage 2 (Subtrans HVD) Peak	237	53,436	53,436	11,423	8,723	0.277	0.474	20,896	
21	Voltage 3 (Primary LVD) Peak	238	57,460	57,460	12,283	9,380	0.298	0.509	22,470	
22	Voltage 4 (Secondary LVD) Peak	239	73,554	73,554	14,199	11,105	0.337	0.561	26,203	
Calculated Allocation Schedules										
23	4CP 75/0/25	220	50,853	50,853	12,333	9,187	0.265	0.386	22,172	
24	4CP 75/0/25 Exc WFR	222	51,298	51,298	12,443	9,269	0.268	0.389	22,369	
25	4CP Dmd @ Gen Jurisdictional	224	54,063	54,063	12,330	8,967	0.255	0.361	21,914	
26	12CP Demand @ Subtrans	226	50,639	50,639	12,774	9,479	0.314	0.427	22,993	
27	Class Peak @ Subtransmission	122	50,040	50,040	12,193	8,195	0.439	0.679	21,507	
28	Classpeak @ Primary	230	54,733	54,733	13,336	8,964	0.480	0.743	23,523	
29	Classpeak @ Secondary	231	69,479	69,479	16,929	11,379	0.610	0.943	29,861	
30	Classpeak for Streetlighting	233	-	-	-	-	-	-	-	
31	Classpeak @ Single Phase	235	69,479	69,479	16,929	11,379	0.610	0.943	29,861	
32	Billed Sales - Primary	253	45,712	45,712	13,614	11,252	0.377	0.723	25,965	
33	Customers - Residential	260	100,000	100,000	-	-	-	-	-	
34	Customers - Drops	261	-	-	89,986	8,940	0.722	0.352	100,000	
35	Customers - NonPID	263	88,238	88,238	10,567	1,050	0.085	0.041	11,743	
36	Customers - NonMunicipal	264	88,059	88,059	10,545	1,048	0.085	0.041	11,719	
37	Customer Count (CCC)	161	94,080	94,080	5,826	0,046	0.047	0.002	5,920	
38	Customer Count (BCC)	162	-	-	79,013	15,593	0.634	0.614	95,854	
37	PIS - HVD (345-138kV)	301	47,087	47,087	11,473	7,712	0.413	0.639	20,237	
38	PIS - HVD (46-23kV)	302	50,040	50,040	12,193	8,195	0.439	0.679	21,507	
39	PIS - HVD (345-138kV) Subs (FERC 361/362)	303	47,087	47,087	11,473	7,712	0.413	0.639	20,237	
40	PIS - HVD (46-23kV) Subs (FERC 361/362)	304	50,040	50,040	12,193	8,195	0.439	0.679	21,507	

## Primary & Lighting ALLOCATORS 1

Line No.	(a) Description	Alloc	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q) Total Primary
			Rate GP	Rate GPTU Vit 1	Rate GPTU Vit 2	Rate GPTU Vit 3	Rate GPD Vit 1	Rate GPD Vit 2	Rate GPD Vit 3	Rate GP GEI	Rate EIP Vit 1	Rate EIP Vit 2	Rate EIP Vit 3	Rate GPD GEI Vit 1	Rate GPD GEI Vit 2	Rate GPD GEI Vit 3		
Input Allocation Schedules																		
1	Energy @ Generation	100	2,380	1,352	2,935	11,638	1,759	3,259	6,511	0,291	1,208	0,205	0,030	-	-	0,057	0,261	31,886
2	Energy On-Peak @ Generation	101	2,677	1,350	3,012	12,390	3,017	3,317	6,427	0,344	1,298	0,185	0,034	-	-	0,057	0,271	34,379
3	Energy Off-Peak @ Generation	102	1,955	1,303	2,739	10,349	3,363	3,570	6,482	0,221	1,060	0,220	0,025	-	-	0,055	0,239	31,560
4	Energy On-Peak @ Generation Summer	103	2,845	1,265	2,827	12,075	2,836	3,162	6,351	0,303	1,203	0,166	0,032	-	-	0,062	0,272	33,197
5	Energy Off-Peak @ Generation Summer	104	1,964	1,259	2,688	10,441	3,299	3,518	6,600	0,197	1,069	0,206	0,023	-	-	0,064	0,245	31,573
6	Energy On-Peak @ Generation Non-Summer	105	2,695	1,398	3,119	12,573	3,121	3,407	6,470	0,368	1,353	0,196	0,036	-	-	0,055	0,271	35,061
7	Energy Off-Peak @ Generation Non-Summer	106	1,950	1,328	2,767	10,298	3,399	3,599	6,416	0,233	1,055	0,228	0,025	-	-	0,049	0,236	31,584
8	Energy Critical On-Peak @ Gen	107	2,463	1,155	2,568	11,245	2,479	2,924	6,084	0,279	1,113	0,147	0,017	-	-	0,061	0,271	30,805
9	Energy Summer Mid-Peak @ Gen	108	2,713	1,306	2,923	12,383	2,968	3,250	6,450	0,311	1,236	0,173	0,037	-	-	0,062	0,272	34,085
10	12CP Dmd @ Generation	120	2,241	1,091	2,457	10,467	2,414	2,799	5,675	0,291	1,045	0,144	0,018	-	-	0,059	0,249	28,948
11	4CP Dmd @ Generation	121	2,172	0,889	2,066	9,557	0,862	2,043	5,337	0,255	-	-	-	-	-	0,065	0,251	23,496
12	Classpeak @ Transmission	127	2,219	0,846	1,904	8,563	3,977	4,328	6,233	0,493	1,092	0,242	0,051	0,011	0,011	0,288	0,691	30,939
13	Production Revenue	141	2,033	1,224	2,634	10,711	2,232	2,800	5,521	0,243	0,794	0,133	0,020	-	-	0,071	0,235	28,651
14	Distribution Revenue	142	1,515	0,058	0,363	3,414	0,195	0,869	2,361	0,217	0,050	0,064	0,019	0,001	0,001	0,053	0,242	9,421
15	Total Rate Revenue	143	1,862	0,839	1,884	8,300	1,559	2,162	4,476	0,234	0,548	0,110	0,020	0,000	0,000	0,065	0,237	22,296
16	Billed Sales	150	2,275	1,250	2,679	10,531	6,081	6,743	8,347	0,362	1,117	0,187	0,027	0,000	0,000	0,251	0,649	40,506
17	Number Of Customers	160	0,079	0,001	0,004	0,062	0,000	0,005	0,054	0,008	0,000	0,000	0,000	0,000	0,000	0,000	0,006	0,221
18	Weighted Customer	170	2,214	0,033	0,110	1,726	0,049	0,136	1,583	0,210	0,110	0,000	0,007	0,002	0,002	0,008	0,175	6,274
19	Voltage 1 (Trans HVD) Peak	236	1,992	0,804	1,790	8,507	3,947	4,526	6,694	0,350	0,811	0,107	0,009	0,006	0,006	0,276	0,602	30,421
20	Voltage 2 (Subtrans HVD) Peak	237	2,050	-	1,826	8,575	-	4,564	7,023	0,318	-	0,093	0,013	-	-	0,267	0,593	25,322
21	Voltage 3 (Primary LVD) Peak	238	2,108	-	-	9,221	-	-	-	-	-	-	0,013	-	-	-	0,638	19,874
22	Voltage 4 (Secondary LVD) Peak	239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculated Allocation Schedules																		
23	4CP 750/25	220	2,226	1,006	2,285	10,085	1,087	2,348	5,635	0,264	0,302	0,051	0,008	-	-	0,063	0,253	25,612
24	4CP 750/25 Exc WFR	222	2,246	1,015	2,305	10,175	1,097	2,370	5,685	0,266	0,305	0,052	0,008	-	-	0,063	0,256	25,843
25	4CP Dmd @ Gen Jurisdictional	224	2,192	0,897	2,085	9,645	0,870	2,061	5,386	0,257	-	-	-	-	-	0,065	0,253	23,712
26	12CP Demand @ Subtrans	226	2,375	-	2,605	11,094	-	2,967	6,016	0,308	-	0,153	0,019	-	-	0,062	0,263	25,862
27	Class Peak @ Subtransmission	122	2,358	0,899	2,024	9,100	-	4,600	6,624	0,523	-	0,257	0,055	-	-	0,307	0,735	27,481
28	Classpeak @ Primary	230	2,579	-	-	9,953	-	-	7,245	0,573	-	-	0,060	-	-	-	0,803	21,213
29	Classpeak @ Secondary	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Classpeak @ Streelighting	233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Classpeak @ Single Phase	235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Billed Sales - Primary	253	2,631	-	-	13,102	-	-	10,385	0,451	-	-	0,034	-	-	0,808	-	27,610
33	Customers - Residential	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Customers - Drops	261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Customers - NonPID	263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Customer Count - NonMunicipal	264	0,079	0,001	0,004	0,062	0,002	0,005	0,054	0,008	0,000	0,000	0,000	0,000	0,000	0,000	0,006	0,221
37	Customer Count (CCC)	161	-	-	-	0,959	0,026	-	0,835	0,117	0,006	0,006	0,004	-	-	-	-	-
38	Customer Count (BCC)	162	1,231	0,018	0,061	8,563	0,061	0,072	6,233	0,193	0,006	0,006	0,004	0,001	0,001	0,004	0,092	3,432
39	PIS - HVD (345-138kV)	301	2,219	0,846	1,904	9,100	3,977	4,328	6,233	0,493	1,092	0,242	0,051	0,011	0,011	0,288	0,691	30,939
38	PIS - HVD (46-23kV)	302	2,358	0,899	2,024	9,100	-	4,600	6,624	0,523	-	0,257	0,055	-	-	0,307	0,735	27,481
39	PIS - HVD (345-138kV) Subs (FERC 361/362)	303	2,219	0,846	1,904	8,563	3,977	4,328	6,233	0,493	1,092	0,242	0,051	0,011	0,011	0,288	0,691	30,939
40	PIS - HVD (46-23kV) Subs (FERC 361/362)	304	2,358	0,899	2,024	9,100	-	4,600	6,624	0,523	-	0,257	0,055	-	-	0,307	0,735	27,481

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

Case No.: U-20963  
Exhibit No.: A-16 (EAD-1)  
Schedule: F-1  
Page: 16 of 44  
Witness: EADavis  
Date: March 2021

(r)	Rate GML	(s)	Rate GUL	(t)	Rate GU-XL	(u)	Rate GU	(v)	Lighting & Unmetered
0.044		0.210	0.065			0.339		0.659	
0.020		0.094	0.029			0.300		0.443	
0.070		0.334	0.103			0.371		0.879	
0.010		0.060	0.015			0.275		0.351	
0.060		0.286	0.088			0.343		0.778	
0.025		0.120	0.037			0.314		0.496	
0.076		0.361	0.111			0.387		0.935	
-		-	-			0.254		0.254	
0.014		0.068	0.021			0.283		0.386	
0.026		0.124	0.038			0.238		0.426	
-		-	-			0.199		0.199	
0.041		0.194	0.060			0.153		0.447	
0.024		0.112	0.034			0.273		0.443	
0.058		1.259	0.453			0.156		1.925	
0.035		0.491	0.172			0.234		0.933	
0.038		0.182	0.056			0.293		0.569	
0.019		-	-			0.026		0.045	
0.023		-	-			-		0.023	
-		-	-			0.171		0.171	
-		-	-			0.182		0.182	
-		-	-			0.196		0.196	
-		-	-			0.243		0.243	
0.011		0.053	0.016			0.235		0.315	
0.011		0.053	0.016			0.237		0.318	
-		-	-			0.201		0.201	
0.028		0.131	0.040			0.253		0.452	
0.043		0.206	0.064			0.163		0.475	
0.047		0.225	0.070			0.178		0.520	
0.060		0.286	0.088			0.226		0.660	
13.729		65.292	20.167			-		99.188	
0.060		0.286	0.088			0.226		0.660	
0.048		0.226	0.070			0.365		0.708	
-		-	-			-		-	
-		-	-			-		-	
0.019		-	-			-		0.019	
-		-	-			-		-	
-		-	-			-		-	
0.301		-	-			0.400		0.701	
0.041		0.194	0.060			0.153		0.447	
0.043		0.206	0.064			0.163		0.475	
0.041		0.194	0.060			0.153		0.447	
0.043		0.206	0.064			0.163		0.475	

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Summary ALLOCATORS 2										
Line No.	(a) Description	(b) Alloc	(c)-(g)					(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
			(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary			
1	Calculated Allocation Schedules									
2	PIS - OH LVD System	305	100,000	100,000	65,299	28,064	6,014	0.620	0.003	-
3	PIS - LVD Distribution	306	100,000	99,998	64,839	26,984	5,259	2,912	0.005	0.002
4	PIS- OH (LVD & HVD) & Services	307	100,000	99,987	63,449	28,089	7,891	0.497	0.061	0.013
5	PIS- UG LVD Distribution	308	100,000	100,000	66,424	28,548	4,396	0.631	0.002	(0.000)
6	PIS- Total Distribution	309	100,000	99,933	61,574	25,763	10,097	2.405	0.095	0.067
7	PIS- Distribution Services	310	100,000	100,000	66,516	33,484	-	-	-	-
8	PIS- Streetlighting Equipment	311	100,000	99,927	-	-	-	99,927	-	0.073
9	PIS- Line Equipment	312	100,000	100,000	67,756	29,120	2,479	0.643	0.001	-
10	PIS- Meters	313	100,000	99,998	77,549	16,130	6,274	0.023	0.023	0.002
11	PIS - General	315	100,000	99,648	60,943	23,233	14,484	0.894	0.094	0.352
12	Total PIS	316	100,000	99,608	57,694	24,259	16,018	1.526	0.110	0.392
13	Distribution Depreciation	317	100,000	99,956	61,785	27,299	7,189	3.630	0.053	0.044
14	CWIP	330	100,000	99,424	55,549	23,278	19,512	0.962	0.123	0.576
15	Rate Base	390	100,000	99,618	58,028	23,844	16,440	1.189	0.118	0.382
16	Dist Op Expense (LVD) excl Sup & Eng	400	100,000	99,987	65,736	24,770	6,377	3.062	0.042	0.013
17	Dist Maint Expense (LVD) excl Sup & Eng	401	100,000	99,989	63,739	27,530	8,049	0.619	0.052	0.011
18	Dist Op Expense (HVD 345-138 kV) excl Sup & Eng	402	100,000	99,126	47,766	20,392	30,159	0.421	0.388	0.874
19	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	100,000	99,364	48,959	20,687	28,999	0.381	0.337	0.636
20	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	100,000	99,949	50,040	21,507	27,481	0.475	0.447	0.051
21	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	100,000	99,949	50,040	21,507	27,481	0.475	0.447	0.051
22	Total HVD Distribution O&M Expense	406	100,000	99,837	49,808	21,351	27,789	0.460	0.429	0.163
23	Total Distribution O&M Expense (excl. HVD)	407	100,000	99,989	64,527	26,485	7,387	1.542	0.048	0.011
24	Total Customer Accounts Expense (excl. Supv)	408	100,000	100,000	88,068	11,720	0.187	0.023	0.001	0.000
25	Total Customer Accounts & Service Expense	409	100,000	99,924	84,553	12,346	2,949	0.061	0.015	0.076
26	Jurisdictional Distribution O&M	414	100,000	100,000	63,291	26,057	9,113	1.459	0.080	-
27	Pre Tax NOI	439	100,000	100,498	55,107	28,064	15,845	1.476	0.007	(0.498)
28	Depreciation & Amortization Expense	442	100,000	99,534	57,430	23,727	16,875	1.398	0.104	0.466
29	Non PSQR O&M Expense	443	100,000	99,640	60,991	23,143	14,506	0.901	0.098	0.360
30	Distribution Depreciation Expense	444	100,000	99,954	63,049	25,501	8,644	2.689	0.071	0.046
31	Gen/Comm/Int Depreciation Expense	445	100,000	99,648	60,943	23,233	14,484	0.894	0.094	0.352
32	Production Labor	500	100,000	99,091	50,853	22,172	25,612	0.315	0.139	0.909
33	Total Labor	502	100,000	99,648	60,943	23,233	14,484	0.894	0.094	0.352
34	50% O&M, 50% Net Plant	600	100,000	99,530	56,335	23,715	18,219	1.132	0.128	0.470
35	50/50 PIS & Labor	601	100,000	99,628	59,318	23,746	15,251	1.210	0.102	0.372

Projected 12-Month Period Ending Dec 31, 2022  
Version 1  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Residential/Secondary  
ALLOCATORS 2

Line No.	(a) Description	(b) Rate RS	(c) Total Residential	(d) Rate GS	(e) Rate GSD	(f)		(g)		(h) Commercial Secondary
						Rate GS GEI	Rate GSD GEI	Rate GS GEI	Rate GSD GEI	
Calculated Allocation Schedules										
1	PIS - OH LVD System	305	65,299	15,910	10,694	0.573	0.886			28,064
2	PIS - LVD Distribution	306	64,839	16,983	8,811	0.482	0.708			26,984
3	PIS- OH (LVD & HVD) & Services	307	63,449	17,790	9,069	0.500	0.730			28,089
4	PIS- UG LVD Distribution	308	66,424	16,185	10,879	0.583	0.902			28,548
5	PIS- Total Distribution	309	61,574	15,942	8,651	0.471	0.699			25,763
6	PIS- Distribution Services	310	66,516	30,131	2,993	0.242	0.118			33,484
7	PIS- Strengthening Equipment	311	-	-	-	-	-			-
8	PIS- Line Equipment	312	67,756	16,509	11,097	0.595	0.920			29,120
9	PIS- Meters	313	77,549	13,914	2,025	0.112	0.080			16,130
10	PIS - General	315	60,943	14,294	8,068	0.356	0.515			23,233
11	Total PIS	316	57,694	14,509	8,791	0.388	0.571			24,259
12	Distribution Depreciation	317	61,785	17,269	8,833	0.486	0.711			27,299
13	CWIP	330	55,549	13,632	8,812	0.338	0.495			23,278
14	Rate Base	390	58,028	14,218	8,675	0.384	0.567			23,844
15	Dist Op Expense (LVD) excl Sup & Eng	400	65,736	15,814	7,889	0.435	0.632			24,770
16	Dist Maint Expense (LVD) excl Sup & Eng	401	63,739	17,297	9,013	0.494	0.726			27,530
17	Dist Op Expense (HVD 345-138 kV) excl Sup & Eng	402	47,766	11,551	7,835	0.397	0.610			20,392
18	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	48,959	11,703	8,049	0.371	0.565			20,687
19	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	50,040	12,193	8,195	0.439	0.679			21,507
20	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	50,040	12,193	8,195	0.439	0.679			21,507
21	Total HVD Distribution O&M Expense	406	49,808	12,100	8,162	0.428	0.660			21,351
22	Total Distribution O&M Expense (excl. HVD)	407	64,527	16,739	8,584	0.472	0.690			26,485
23	Total Customer Accounts Expense (excl. Supv)	408	88,068	10,546	1,048	0.085	0.041			11,720
24	Total Customer Accounts & Service Expense	409	84,553	10,573	1,595	0.100	0.078			12,346
25	Jurisdictional Distribution O&M	414	63,291	16,350	8,551	0.468	0.688			26,057
26	Pre Tax NOI	439	55,107	17,265	10,313	0.157	0.329			28,064
27	Depreciation & Amortization Expense	442	57,430	14,228	8,624	0.356	0.519			23,727
28	Non PSOR O&M Expense	443	60,991	14,318	7,963	0.353	0.510			23,143
29	Distribution Depreciation Expense	444	63,049	16,165	8,228	0.450	0.658			25,501
30	Gen/Comm/Int Depreciation Expense	445	60,943	14,294	8,068	0.356	0.515			23,233
31	Production Labor	500	50,853	12,333	9,187	0.265	0.386			22,172
32	Total Labor	502	60,943	14,294	8,068	0.356	0.515			23,233
33	50% O&M, 50% Net Plant	600	56,335	13,986	8,801	0.374	0.554			23,715
34	50/50 PIS & Labor	601	59,318	14,401	8,429	0.372	0.543			23,746

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Primary & Lighting  
ALLOCATORS 2

Line No.	(a) Description	(b) Rate GP	(c) Rate GPTU Vlt 1	(d) Rate GPTU Vlt 2	(e) Rate GPTU Vlt 3	(f) Rate GPD Vlt 1	(g) Rate GPD Vlt 2	(h) Rate GPD Vlt 3	(i) Rate GP GEI	(j) Rate EIP Vlt 1	(k) Rate EIP Vlt 2	(l) Rate EIP Vlt 3	(m) Rate GPD GEI Vlt 1	(n) Rate GPD GEI Vlt 2	(o) Rate GPD GEI Vlt 3	(p) Rate GPD GEI Vlt 3	(q) Total Primary
Calculated Allocation Schedules																	
1	PIS - OH LVD System	0.731	-	-	2.822	-	-	2.054	0.162	-	-	0.017	-	-	-	0.228	6.014
2	PIS - LVD Distribution	0.761	0.003	0.011	2.362	0.004	0.014	1.747	0.145	0.001	0.001	0.014	0.000	0.000	-	0.194	5.259
3	PIS- OH (LVD & HVD) & Services	0.824	0.119	0.268	3.181	0.031	0.610	2.315	0.183	0.009	0.034	0.019	0.000	0.041	0.041	0.257	7.891
4	PIS-UG LVD Distribution	0.534	-	-	2.082	-	-	1.501	0.119	-	0.012	0.012	-	-	-	0.166	4.396
5	PIS- Total Distribution	1.083	0.185	0.420	3.724	0.269	0.947	2.732	0.222	0.074	0.053	0.022	0.001	0.063	0.063	0.303	10.097
6	PIS- Distribution Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	PIS- Streetlighting Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	PIS- Line Equipment	0.301	-	-	1.163	-	-	0.847	0.067	-	-	0.007	-	-	-	0.094	2.479
9	PIS- Meters	2.214	0.033	0.110	1.726	0.049	0.136	1.583	0.210	0.011	0.011	0.007	0.002	0.008	0.008	0.175	6.274
10	PIS - General	1.348	0.460	1.042	5.640	0.479	1.328	3.490	0.209	0.128	0.044	0.014	0.000	0.053	0.053	0.249	14.484
11	Total PIS	1.514	0.502	1.140	6.162	0.579	1.481	3.834	0.236	0.160	0.052	0.016	0.001	0.062	0.062	0.281	16.018
12	Distribution Depreciation	0.739	0.102	0.230	2.836	0.173	0.522	2.065	0.163	0.048	0.029	0.017	0.001	0.035	0.035	0.229	7.189
13	CWIP	1.763	0.687	1.561	7.571	0.762	1.823	4.486	0.246	0.210	0.053	0.013	0.000	0.065	0.065	0.272	19.512
14	Rate Base	390	1.569	1.158	6.252	0.599	1.564	3.927	0.247	0.171	0.059	0.018	0.001	0.069	0.069	0.297	16.440
15	Dist Op Expense (LVD) excl Sup & Eng	400	0.730	0.079	2.603	0.035	0.405	1.905	0.153	0.009	0.023	0.016	0.000	0.027	0.027	0.211	6.377
16	Dist Maint Expense (LVD) excl Sup & Eng	401	0.913	0.099	0.225	3.308	0.508	2.418	0.194	0.007	0.028	0.020	0.000	0.034	0.034	0.268	8.049
17	Dist Op Expense (HVD 345-138kV) excl Sup & Eng	402	2.214	0.850	8.667	3.650	4.089	6.139	0.468	0.978	0.217	0.046	0.010	0.265	0.265	0.645	30.159
18	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	2.212	0.860	8.853	3.143	3.720	6.006	0.429	0.799	0.177	0.038	0.008	0.229	0.229	0.574	28.999
19	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	2.358	0.899	9.100	-	4.600	6.624	0.523	-	0.257	0.055	-	0.307	0.307	0.735	27.481
20	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	2.358	0.899	9.100	-	4.600	6.624	0.523	-	0.257	0.055	-	0.307	0.307	0.735	27.481
21	Total HVD Distribution O&M Expense	406	2.332	0.892	9.050	0.576	4.455	6.518	0.508	0.148	0.244	0.052	0.002	0.294	0.294	0.708	27.789
22	Total Distribution O&M Expense (excl. HVD)	407	0.841	0.091	3.033	0.028	0.484	2.218	0.178	0.008	0.026	0.018	0.000	0.031	0.031	0.246	7.387
23	Total Customer Accounts Expense (excl. Supv)	408	0.067	0.001	0.052	0.001	0.004	0.046	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.187
24	Total Customer Accounts & Service Expense	409	0.219	0.087	0.770	0.418	0.465	0.614	0.031	0.077	0.013	0.002	0.001	0.017	0.017	0.049	2.949
25	Jurisdictional Distribution O&M	414	0.968	0.159	3.541	0.076	0.801	2.581	0.206	0.020	0.044	0.021	0.000	0.053	0.053	0.285	9.113
26	Pre Tax NOI	439	1.534	0.623	6.217	1.678	1.540	1.905	0.127	0.321	0.139	0.029	0.001	0.108	0.108	0.150	15.845
27	Depreciation & Amortization Expense	442	1.607	0.562	6.566	0.621	1.507	3.965	0.229	0.171	0.045	0.013	0.000	0.054	0.054	0.258	16.875
28	Non PSCR O&M Expense	443	1.325	0.469	5.588	0.508	1.352	3.455	0.206	0.185	0.053	0.015	0.000	0.051	0.051	0.243	14.506
29	Distribution Depreciation Expense	444	1.054	0.137	3.239	0.187	2.397	2.000	0.200	0.051	0.039	0.019	0.001	0.046	0.046	0.266	8.644
30	Gen/Comm/Int Depreciation Expense	445	1.348	0.460	5.640	0.479	1.328	3.490	0.209	0.128	0.044	0.014	0.000	0.053	0.053	0.249	14.484
31	Production Labor	500	2.226	1.006	10.085	1.087	2.348	5.635	0.264	0.302	0.051	0.008	-	0.063	0.063	0.253	25.612
32	Total Labor	502	1.348	0.460	5.640	0.479	1.328	3.490	0.209	0.128	0.044	0.014	0.000	0.053	0.053	0.249	14.484
33	50% O&M, 50% Net Plant	600	1.668	0.595	6.846	0.835	1.750	4.211	0.254	0.268	0.071	0.018	0.001	0.068	0.068	0.294	18.219
34	50/50 PIS & Labor	601	1.431	0.481	5.901	0.529	1.404	3.662	0.222	0.144	0.048	0.015	0.000	0.057	0.057	0.265	15.251

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

Case No.: U-20963  
Exhibit No.: A-16 (EAD-1)  
Schedule: F-1  
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Witness: EADavis  
Date: March 2021

(r)	(s)	(t)	(u)	(v)
	Rate GML	Rate GU-XL	Rate GU	Lighting & Unmetered
0.056	0.269	0.083	0.212	0.620
0.074	1.374	1.298	0.165	2.912
0.045	0.215	0.066	0.170	0.497
0.057	0.273	0.084	0.216	0.631
0.068	1.131	1.042	0.163	2.405
-	-	-	-	-
1.228	45.510	53.189	-	99.927
0.059	0.279	0.086	0.220	0.643
0.023	-	-	-	0.023
0.035	0.367	0.317	0.175	0.894
0.045	0.679	0.612	0.190	1.526
0.080	1.747	1.638	0.166	3.630
0.031	0.391	0.337	0.204	0.962
0.042	0.513	0.447	0.188	1.189
0.074	1.385	1.453	0.150	3.062
0.047	0.271	0.132	0.169	0.619
0.036	0.173	0.054	0.158	0.421
0.030	0.142	0.044	0.166	0.381
0.043	0.206	0.064	0.163	0.475
0.043	0.206	0.064	0.163	0.475
0.041	0.195	0.060	0.163	0.460
0.058	0.691	0.631	0.162	1.542
0.012	-	-	0.012	0.023
0.014	0.012	0.004	0.031	0.061
0.056	0.654	0.587	0.162	1.459
0.040	1.102	1.123	0.212	1.476
0.039	0.631	0.538	0.191	1.398
0.038	0.370	0.315	0.179	0.901
0.069	1.317	1.151	0.152	2.689
0.035	0.367	0.317	0.175	0.894
0.011	0.053	0.016	0.235	0.315
0.035	0.367	0.317	0.175	0.894
0.041	0.479	0.412	0.200	1.132
0.040	0.523	0.465	0.182	1.210



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PLANT IN SERVICE (SUMMARY)										
Line No.	Description	(b)		(c)		(d)		(e)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	
1	<b>Production Plant in Service</b>									
2	Production Plant in Service		6,434,734	6,376,233	6,376,233	3,272,280	1,426,718	1,648,079	20,240	58,501
3	Generation Step Ups		0	0	0	0	0	0	0	0
4	Total Production		6,434,734	6,376,233	6,376,233	3,272,280	1,426,718	1,648,079	20,240	58,501
5	<b>Transmission Plant in Service</b>									
6	Bulk Power Transm		0	-	-	-	-	-	-	-
7	Transm: Subtrans		0	-	-	-	-	-	-	-
8	Subtransmission		0	-	-	-	-	-	-	-
9	Total Transmission		0	-	-	-	-	-	-	-
10	<b>Distribution Plant in Service</b>									
11	Stations and Equipment		2,809,836	2,804,034	2,804,034	1,598,628	687,375	496,998	15,140	5,802
12	Overhead System		4,517,602	4,516,888	4,516,888	2,838,518	1,219,950	428,130	26,954	714
13	Underground System		917,740	917,731	917,731	606,967	260,865	44,043	5,764	93
14	Meters and Svc Drops		1,584,524	1,584,514	1,584,514	1,121,826	411,731	41,903	8,900	11
15	St Lgts and OPL		184,175	184,041	184,041	-	-	-	184,041	134
16	Total Distribution		10,013,876	10,007,208	10,007,208	6,165,939	2,579,922	1,011,076	240,798	6,668
17	<b>General/Common/Intangible Plant in Service</b>									
18	Total Gen/Comm/Int Plant		1,589,450	1,583,851	1,583,851	968,651	369,273	230,214	14,213	5,599
19	<b>Plant Purchased/Sold</b>									
20	Total Plant in Service		18,038,060	17,967,292	17,967,292	10,406,870	4,375,913	2,889,368	275,251	70,768

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PLANT IN SERVICE (PRODUCTION & TRANSMISSION)											
Line No.	Description	(b)		(c)		(d)		(e)		(f)	
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Total Non Jurisdictional
1	<b>Production Plant in Service</b>										
2	Fossil (Production-Steam)	220	4,643,548	4,601,331	2,361,401	1,029,574	1,189,316	14,606	6,434	42,217	
3	Demand Response	220	24,643	24,419	12,532	5,464	6,312	78	34	224	
4	Total Hydro	220	782,337	775,224	397,845	173,461	200,374	2,461	1,084	7,113	
5	Other Production	220	858,770	850,962	436,713	190,408	219,950	2,701	1,190	7,807	
6	Solar	220	125,436	124,296	63,789	27,812	32,127	395	174	1,140	
7	Jackson Gas Plant	220	0	0	0	0	0	0	0	0	
6	Distribution GSUs	220	0	0	0	0	0	0	0	0	
7	Total Production Plant in Service		6,434,734	6,376,233	3,272,280	1,426,718	1,648,079	20,240	8,916	58,501	
8	<b>Transmission Plant in Service</b>										
9	Transmission Direct		0	-	-	-	-	-	-	-	
10	Transmission		0	-	-	-	-	-	-	-	
11	XYZ		0	-	-	-	-	-	-	-	
12	Total Transmission Plant in Service		0	-	-	-	-	-	-	-	

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PLANT IN SERVICE (DISTRIBUTION)										
Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Description	Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
<b>Distribution Plant in Service</b>										
1	Distribution Land & ROW (360)	127	80,378	79,679	37,848	16,266	24,868	359	338	699
2	METC HVD (345-138 kV)	127	27,494	27,255	12,946	5,564	8,506	123	116	239
3	HVD (345-138 kV)	124	58,308	58,279	29,178	12,540	16,023	277	260	30
4	HVD (46-23 kV)	230	8,418	8,418	4,607	1,980	1,786	44	1	-
5	Substation Land & ROW	DIR	0	-	-	-	-	-	-	-
6	Assignable HVD (345-138 kV)	DIR	0	-	-	-	-	-	-	-
7	Assignable HVD (46-23 kV)	DIR	0	-	-	-	-	-	-	-
8	OH Land & ROW	307	37,872	37,867	24,029	10,638	2,988	188	23	5
9	Total Distribution Land & ROW		212,470	211,497	108,608	46,988	54,172	991	738	972
10	Distribution Substations & Equipment (361/362)									
11	Assignable HVD (345-138 kV)	DIR	0	-	-	-	-	-	-	-
12	Assignable HVD (46-23 kV)	DIR	0	-	-	-	-	-	-	-
13	HVD (345-138 kV)	127	517,359	512,861	243,610	104,700	160,064	2,313	2,175	4,498
14	138kV HV Subtrans/Dist Substations-Proposed Trans Reclass	127	0	0	0	0	0	0	0	0
15	HVD (46-23 kV)	124	654,702	654,370	327,615	140,804	179,916	3,111	2,925	332
16	LVD (Distribution)	230	360,364	360,364	197,237	84,769	76,445	1,873	41	-
17	Total Distribution Substations & Equipment		1,532,425	1,527,596	768,461	330,272	416,425	7,297	5,140	4,830
18	Distribution Overhead System (364/365)									
19	HVD (345-138 kV)	127	42,474	42,105	20,000	8,596	13,141	190	179	369
20	138kV HV Subtrans/Dist Overhead Lines-Proposed Trans Reclass	121	0	0	0	0	0	0	0	0
21	HVD (46-23 kV)	122	679,456	679,112	340,002	146,127	186,719	3,229	3,035	344
22	Transformer Platforms	231	0	0	0	0	-	0	-	-
23	LVD Primary (Multi-Phase)	230	1,076,080	1,076,080	588,967	253,129	228,271	5,593	121	-
24	LVD Primary (Single Phase)	235	2,088,861	2,088,861	1,451,324	623,756	-	13,781	-	-
25	LVD Secondary	231	630,730	630,730	438,226	188,343	-	4,161	-	-
26	Total Distribution Overhead System		4,517,602	4,516,888	2,838,518	1,219,950	428,130	26,954	3,335	714
27	Distribution Underground System (366/367)									
28	LVD Primary (Multi-Phase)	230	186,841	186,841	102,263	43,951	39,635	971	21	-
29	LVD Primary (Single Phase)	235	591,663	591,663	411,083	176,677	-	3,903	-	-
30	LVD Secondary	231	123,193	123,193	85,594	36,787	-	813	-	-
31	HVD (46-23 kV)	122	16,042	16,034	8,027	3,450	4,408	76	72	8
32	Total Distribution Underground System		917,740	917,731	606,967	260,865	44,043	5,764	93	8
33	Distribution Line Equipment (368)									
34	LVD Primary	230	124,459	124,459	68,120	29,277	26,402	647	14	-
35	LVD Secondary	231	940,482	940,482	653,439	280,838	-	6,205	-	-
36	Total Distribution Line Equipment		1,064,941	1,064,941	721,559	310,115	26,402	6,852	14	-
37	Distribution Services (369)									
38	Residential	260	603,892	603,892	603,892	-	-	-	-	-
39	Commercial & Industrial	261	304,004	304,004	-	304,004	-	-	-	-
40	Total Distribution Services		907,895	907,895	603,892	304,004	-	-	-	-

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PLANT IN SERVICE (DISTRIBUTION & GENERAL)										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Distribution Metering Equipment (370)									
2	Metering Equipment	170	667,882	667,871	517,934	107,728	41,903	153	153	11
3	Total Distribution Metering Equipment		667,882	667,871	517,934	107,728	41,903	153	153	11
4	Distribution Installations on Customer Premises (371)									
5	Streetlighting Installations	DIR	8,747	8,747	-	-	-	8,747	-	-
6	Total Distribution Installations on Customer Premises		8,747	8,747	0	0	0	8,747	-	0
7	Distribution Streetlighting Equipment (373)									
8	Luminaires/Suspensions/Poles/Transformers	DIR	167,700	167,700	-	-	-	167,700	-	-
9	Underground Cable & Conduits	233	9,463	9,387	-	-	-	9,387	-	77
10	Photoelectric Switches	233	7,012	6,955	-	-	-	6,955	-	57
11	Total Distribution Streetlighting Equipment		184,175	184,041	-	-	-	184,041	-	134
12	Total Distribution Plant in Service		10,013,876	10,007,208	6,165,939	2,579,922	1,011,076	240,798	9,474	6,668
13	Total Distribution Plant in Service	309	10,013,876	10,007,208	6,165,939	2,579,922	1,011,076	240,798	9,474	6,668
14	Electric Plant Purchased & Sold	220	0	0	0	0	0	0	0	0
15	General, Common & Intangible Plant in Service									
16	General: Production Related	220	0	0	0	0	0	0	0	0
17	General: Merchant Control	226	0	0	0	0	0	0	0	-
18	General: Power Control Center 138kV	301	0	0	0	0	0	0	0	0
19	General: Power Control Center 46kV	302	0	0	0	0	0	0	0	0
20	General: Functionalized (E-GP)	502	413,341	411,885	251,900	96,031	59,868	3,696	390	1,456
21	General: Reallocated from/(to) Gas	DIR	0	-	-	-	-	-	-	-
22	Common: Functionalized (C-GP)	502	448,287	446,708	273,197	104,149	64,929	4,009	423	1,579
23	Franchises & Consents - Generation	220	0	0	0	0	0	0	0	0
24	Intangible PIS	502	727,822	725,259	443,553	169,093	105,417	6,508	687	2,564
25	Total General, Common & Intangible Plant in Service		1,589,450	1,583,851	968,651	369,273	230,214	14,213	1,500	5,599

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DEPRECIATION RESERVE (SUMMARY)										
Line No.	Description (a)	(b)		(c)		(d)		(e)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	
1	<b>Production Depreciation Reserve</b>									
2	Production Depreciation Reserve		2,866,809	2,840,745	0	1,457,869	635,633	734,254	9,017	26,064
3	Generation Step Ups		0	0	0	0	0	0	0	0
4	<b>Total Production Depreciation Reserve</b>		2,869,537	2,843,449	0	1,459,257	636,238	734,952	9,026	26,088
5	<b>Transmission Depreciation Reserve</b>									
6	Bulk Power Transm		-	-	-	-	-	-	-	-
7	Transm: Subtrans		0	-	-	-	-	-	-	-
8	Subtransmission		0	-	-	-	-	-	-	-
9	<b>Total Transmission Depreciation Reserve</b>		0	-	-	-	-	-	-	-
10	<b>Distribution Depreciation Reserve</b>									
11	Stations and Equipment		756,082	754,838	450,119	193,562	105,660	4,260	1,238	1,244
12	Overhead System		1,540,689	1,540,580	991,824	426,270	112,613	9,418	454	109
13	Underground System		336,516	336,514	222,808	95,760	15,803	2,116	27	2
14	Meters and Svc Drops		532,385	532,385	350,754	174,955	443	6,231	2	0
15	St Lgts and OPL		96,472	96,402	-	-	-	96,402	-	70
16	<b>Total Distribution Depreciation Reserve</b>		3,262,144	3,260,718	2,015,506	890,547	234,518	118,427	1,721	1,426
17										
18	<b>Total General, Common &amp; Intangible Depreciation Reserve</b>		900,427	897,255	548,743	209,194	130,417	8,052	850	3,172
19	<b>Total Depreciation Reserve</b>		7,032,107	7,001,421	4,023,505	1,735,978	1,099,887	135,504	6,547	30,686

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DEPRECIATION RESERVE (PRODUCTION & TRANSMISSION)											
Line No.	Description	(a)									
		(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional	
1	Production Depreciation Reserve										
2	Fossil (Production-Steam)	220	2,008,276	1,990,018	1,021,277	445,278	514,364	6,317	2,783	18,258	
3	Demand Response	220	958	949	487	212	245	3	1	9	
4	Hydro	220	450,116	446,023	228,899	99,800	115,285	1,416	624	4,092	
5	Other Production	220	407,459	403,754	207,207	90,342	104,359	1,282	565	3,704	
6	Solar	220	2,728	2,703	1,387	605	699	9	4	25	
7	Classics	220	0	0	0	0	0	0	0	0	
6	Distribution GSUs	220	0	0	0	0	0	0	0	0	
7	Total Production Depreciation Reserve		2,869,537	2,843,449	1,459,257	636,238	734,952	9,026	3,976	26,088	
8	Transmission Depreciation Reserve										
9	Total Transmission Direct		0	-	-	-	-	-	-	-	
10	Total Subtransmission		0	-	-	-	-	-	-	-	
11	XYZ		0	-	-	-	-	-	-	-	
12	Total Transmission Depreciation Reserve		0	-	-	-	-	-	-	-	

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DEPRECIATION RESERVE (DISTRIBUTION)										
Line No.	Description	(a)		(b)		(c)		(d)		(j) Total Non-Jurisdictional
		Alloc	Total Electric	Total Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	
1	<b>Distribution Depreciation Reserve</b>									
2	Distribution Land & Right of Way (360)									
3	METC HVD (345-138 kV)	127	9,192	9,112	4,328	1,860	2,844	41	-	80
4	HVD (345-138 kV)	127	2,452	2,431	1,155	496	11	11	10	21
5	HVD (46-23 kV)	124	10,691	10,686	5,350	2,299	2,938	51	48	5
6	Assignable HVD	DIR	0	-	-	-	-	-	-	-
7	OH Land & ROW	307	13,144	13,142	8,340	3,692	1,037	65	8	2
8	Total Distribution Land & ROW Depreciation Reserve		35,480	35,371	19,173	8,348	7,578	168	105	108
9	<b>Distribution Substations &amp; Equipment (361/362)</b>									
10	Assignable HVD	DIR	0	-	-	-	-	-	-	-
11	HVD (345-138 kV)	127	122,727	121,660	57,789	24,837	37,970	549	516	1,067
12	HVD (46-23 kV)	122	135,481	135,412	67,795	29,137	37,231	644	605	69
13	LVD (Distribution)	230	60,943	60,943	33,356	14,336	12,928	317	7	-
14	Total Distribution, Substations & Equipment Depreciation Reserve		319,151	318,015	158,939	68,310	88,129	1,509	1,128	1,136
15	<b>Distribution Overhead System (364/365)</b>									
16	HVD (345-138 kV)	127	7,566	7,599	3,610	1,551	2,372	34	32	67
17	HVD (46-23 kV)	122	84,063	84,020	42,065	18,079	23,101	399	376	43
18	LVD (Distribution)	305	1,448,960	1,448,960	946,149	406,640	87,140	8,984	46	-
19	Total Distribution Overhead System Depreciation Reserve		1,540,689	1,540,580	991,824	426,270	112,613	9,418	454	109
20	<b>Distribution Underground System (366/367)</b>									
21	LVD (Distribution)	308	332,137	332,137	220,617	94,818	14,599	2,095	8	-
22	HVD (46-23 kV)	122	4,379	4,377	2,191	942	1,203	21	20	2
23	Total Distribution Underground System Depreciation Reserve		336,516	336,514	222,808	95,760	15,803	2,116	27	2
24	<b>Distribution Line Equipment (368)</b>									
25	Capacitors/Regulators/Transformers	312	401,452	401,452	272,007	116,904	9,953	2,583	5	-
26	Total Distribution Line Equipment Depreciation Reserve		401,452	401,452	272,007	116,904	9,953	2,583	5	-
27	<b>Distribution Services (369)</b>									
28	C&I and Residential Services	310	519,096	519,096	345,280	173,816	-	-	-	-
29	Total Distribution Services Depreciation Reserve		519,096	519,096	345,280	173,816	-	-	-	-



CWIP										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Production CWIP									
2	Production	220	310,139	307,320	157,716	68,765	79,434	976	430	2,820
3	Production: Gas Plant	220	0	0	0	0	0	0	0	0
3	Production: 7 Classics	220	0	0	0	0	0	0	0	0
4	Total Production CWIP		310,139	307,320	157,716	68,765	79,434	976	430	2,820
5	Transmission CWIP									
6	Transmission	0	0	-	-	-	-	-	-	-
7	Subtransmission	0	0	-	-	-	-	-	-	-
8	Total Transmission CWIP		0	-	-	-	-	-	-	-
9	Distribution CWIP									
10	HVD (345-138 kV)	127	12,671	12,561	5,966	2,564	3,920	57	53	110
11	HVD (46-23kV)	122	26,728	26,715	13,375	5,748	7,345	127	119	14
12	LVD Distribution	306	117,063	117,063	75,904	31,588	6,156	3,409	6	2
13	Total Distribution CWIP		156,464	156,338	95,245	39,901	17,422	3,592	178	126
14	General/Common/Intangible CWIP									
15	General	502	31,939	31,827	19,465	7,420	4,626	286	30	113
16	Intangible	502	37,824	37,691	23,051	8,788	5,478	338	36	133
17	Common	502	45,793	45,631	27,907	10,639	6,633	409	43	161
18	Plant Held for Future Use	502	0	0	0	0	0	0	0	0
19	Other	502	0	0	0	0	0	0	0	0
20	Total General, Common & Intangible CWIP		115,556	115,149	70,423	26,847	16,737	1,033	109	407

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WORKING CAPITAL											
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1	Current Assets										
2	Cash & Cash Equivalents	316	47,915	47,739	27,803	11,672	7,453	759	52	176	
3	Accts Receivable	143	261,608	260,088	136,877	62,408	58,259	2,445	99	1,519	
4	Material and Supplies	316	104,585	104,201	60,686	25,477	16,267	1,657	114	384	
5	Fuel Stock	100	62,627	61,878	26,648	14,705	19,969	413	143	749	
6	Real & Personal Property Taxes	316	191,729	191,025	111,251	46,706	29,821	3,038	209	704	
7	Other Cur Assets	502	555,136	553,180	338,314	128,973	80,405	4,964	524	1,955	
8	Deferred Debits	502	1,116,087	1,112,156	680,172	259,298	161,653	9,980	1,053	3,931	
9	Total Current Assets		2,339,688	2,330,267	1,381,750	549,240	373,826	23,257	2,194	9,420	
10	Current Liabilities										
11	Accounts Payable	316	416,019	414,491	241,396	101,344	64,706	6,592	453	1,528	
12	Customer Deposits	143	14,241	14,158	7,451	3,397	3,171	133	5	83	
13	Dividends Declared	316	34,391	34,265	19,955	8,378	5,349	545	37	126	
14	Accrued Interest	316	47,858	47,682	27,770	11,658	7,444	758	52	176	
15	Accrued Taxes - Federal	502	(4,237)	(4,222)	(2,582)	(984)	(614)	(38)	(4)	(15)	
16	Accrued Taxes - State	601	(3,147)	(3,135)	(1,872)	(749)	(473)	(39)	(3)	(11)	
17	Accrued Taxes - R&PP & Other	316	234,372	233,511	135,995	57,094	36,453	3,714	255	861	
18	Other Current Liabilities	502	47,835	47,666	29,152	11,113	6,928	428	45	168	
19	Deferred CR	502	135,670	135,192	82,681	31,520	19,650	1,213	128	478	
20	Total Current Liabilities		923,000	919,607	539,944	222,771	142,616	13,307	969	3,394	
21	Total Working Capital		1,416,687	1,410,661	841,806	326,469	231,211	9,950	1,225	6,026	

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ADJUSTMENTS TO RATE BASE											
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional	
1	<b>Additions to Rate Base</b>										
2	Sales and Use Tax Adjustment	309	0	0	0	0	0	0	0	0	
3		0	0	-	-	-	-	-	-	-	
4		0	0	-	-	-	-	-	-	-	
5		0	0	-	-	-	-	-	-	-	
6	Total Additions		0	0	0	0	0	0	0	0	
	<b>Deductions to Rate Base</b>										
7	Construction Funds Retained from Contractors	330	0	0	0	0	0	0	0	0	
8	Customer Advances	309	51,761	51,727	31,871	13,335	5,226	1,245	49	34	
9		0	0	-	-	-	-	-	-	-	
10		0	0	-	-	-	-	-	-	-	
11		0	0	-	-	-	-	-	-	-	
12	Total Deductions		51,761	51,727	31,871	13,335	5,226	1,245	49	34	
13	<b>Total Adjustments to Rate Base</b>		(51,761)	(51,727)	(31,871)	(13,335)	(5,226)	(1,245)	(49)	(34)	

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REVENUE										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
Rate Revenue										
1	Non PSQR Rate Revenue									
2	Revenue From Electric Sales	DIR	2,245,148	2,235,151	1,379,786	554,934	272,452	26,424	1,556	9,996
3	Provision for Rate Refund	DIR	0	-	-	-	-	-	-	-
4	Unbilled Revenue	DIR	0	-	-	-	-	-	-	-
5	Total Non PSQR Rate Revenue		2,245,148	2,235,151	1,379,786	554,934	272,452	26,424	1,556	9,996
6	PSQR Base Revenue	DIR	1,857,851	1,843,929	768,004	423,803	640,231	11,892	-	13,922
7	Unbilled PSQR Base Revenue	DIR	0	-	-	-	-	-	-	-
8	0	DIR	0	-	-	-	-	-	-	-
9	Total PSQR Rate Revenue		1,857,851	1,843,929	768,004	423,803	640,231	11,892	-	13,922
10	Total Rate Revenue		4,102,999	4,079,081	2,147,790	978,737	912,683	38,316	1,556	23,918
Non-PSQR Rate Revenue Credits										
11	450 Late Payment Charge Revenue	DIR	8,899	8,899	5,559	2,236	1,098	-	6	-
12	451 Miscellaneous Service & Reconnect Fees	253	1,013	1,013	463	263	280	7	0	-
13	454 Pole Rental Rev	307	12,063	12,062	7,654	3,388	952	60	7	2
14	454 Other Rents	316	0	0	0	0	0	0	0	0
15	458 Purchased Power Administrative Fees	100	610	603	260	143	195	4	1	7
16	Other Revenues	150	17,466	17,273	6,417	3,645	7,075	99	37	193
17	Job Work Revenue	414	13,627	13,627	8,625	3,551	1,242	199	11	-
18	LTILRR: Production	DIR	49,479	48,979	23,780	10,943	13,941	232	84	500
19	LTILRR: Delivery	390	929	929	580	231	102	16	1	1
20	0		0	-	-	-	-	-	-	-
21	0		0	-	-	-	-	-	-	-
22	0		0	-	-	-	-	-	-	-
23	0		0	-	-	-	-	-	-	-
24	0		0	-	-	-	-	-	-	-
25	0		0	-	-	-	-	-	-	-
26	Non PSQR Revenue Credits		104,087	103,385	53,337	24,400	24,883	617	148	703
27	PSQR Factor Revenue	DIR	17,229	17,229	7,176	3,960	5,982	111	-	-
28	Unbilled PSQR Factor Revenue	DIR	0	-	-	-	-	-	-	-
29	Intersystem Sales	222	83,076	83,049	42,617	18,583	21,469	264	116	27
30	GSG and GI Market Price Revenue	DIR	5,582	5,582	-	-	2,073	-	3,509	-
31	PSQR Revenue Credits		105,887	105,860	49,793	22,543	29,524	375	3,625	27
32	Total Revenue Credits		209,974	209,245	103,130	46,943	54,407	992	3,773	729
33	Total Revenue		4,312,973	4,288,326	2,250,919	1,025,680	967,090	39,308	5,328	24,647

## PRODUCTION O&M (1)

Line No.	(a) Description	(b) Alloc	(c)		(d)		(e)		(f)		(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
			Total Electric		Total Electric	Total Residential	Total Commercial Secondary							
1	Fuel and Purchased Power													
2	Mid-Peak Summer Fuel for Gen	108	70,146		69,306	27,731	17,270	23,909	271	125	839			
3	On-Peak Winter Fuel for Gen	105	192,537		190,233	75,025	46,344	67,505	954	404	2,304			
4	Off-Peak Summer Fuel for Gen	104	75,524		74,820	33,244	16,764	23,845	587	179	904			
5	Off-Peak Winter Fuel for Gen	106	135,765		134,140	60,203	29,426	42,880	1,270	362	1,625			
6	Critical Summer Peak Energy	107	34,713		34,297	15,407	8,056	10,693	88	53	415			
7	Total Fuel Expense		508,684		502,596	211,609	117,860	168,832	3,170	1,124	6,087			
8	Mid-Peak Summer Purchased Power	108	60,467		59,744	23,904	14,887	20,610	234	108	724			
9	On-Peak Winter Purchased Power	105	165,971		163,985	64,673	39,950	58,191	823	348	1,986			
10	Off-Peak Summer Purchased Power	104	65,103		64,324	28,657	14,451	20,555	506	154	779			
11	Off-Peak Winter Purchased Power	106	117,032		115,632	51,896	25,366	36,963	1,094	312	1,401			
12	Critical Peak Summer Purchased Power	107	29,923		29,565	13,281	6,944	9,218	76	46	358			
13	Purchased Power Capacity	220	519,706		514,981	264,288	115,230	133,108	1,635	720	4,725			
14	Total Purchased & Interchange Power Expense		958,202		948,230	446,700	216,828	278,645	4,368	1,689	9,972			
15	Total Fuel and Purchased & Interchange Power Expense		1,466,886		1,450,826	658,309	334,689	447,477	7,538	2,813	16,060			

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PRODUCTION O&M (2)											
Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
			Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	Fossil Plant O&M Expense										
2	Capacity Related Operations		220	49,400	48,951	25,122	10,953	12,652	155	68	449
3	Capacity Related Maintenance		220	10,054	9,963	5,113	2,229	2,575	32	14	91
4	Energy Related Operations		100	3,399	3,358	1,446	798	1,084	22	8	41
5	Energy Related Maintenance		100	31,285	30,910	13,312	7,346	9,975	206	71	374
6	Capacity Related Fuel Handling		220	0	0	0	0	0	0	0	0
7	Energy Related Fuel Handling		100	4,905	4,846	2,087	1,152	1,564	32	11	59
8	Total Fossil O&M Expense			99,042	98,028	47,079	22,478	27,850	448	173	1,014
9	Nuclear Plant O&M Expense										
10	Capacity Related Operations			0	-	-	-	-	-	-	-
11	Capacity Related Maintenance			0	-	-	-	-	-	-	-
12	Energy Related Maintenance			0	-	-	-	-	-	-	-
13	XYZ			0	-	-	-	-	-	-	-
14	XYZ			0	-	-	-	-	-	-	-
15	Total Nuclear Plant O&M Expense			0	-	-	-	-	-	-	-
16	Hydro Plant O&M Expense										
17	Capacity Related Operations		220	8,464	8,387	4,304	1,877	2,168	27	12	77
18	Capacity Related Maintenance		220	5,557	5,506	2,826	1,232	1,423	17	8	51
19	Energy Related Operations		100	796	787	339	187	254	5	2	10
20	Energy Related Maintenance		100	5,880	5,810	2,502	1,381	1,875	39	13	70
21	XYZ		220	0	0	0	0	0	0	0	0
22	Total Hydro O&M Total			20,698	20,490	9,971	4,676	5,720	88	35	207
23	Other Power Generation O&M Expense										
24	Capacity Related Operations & Maintenance		220	67,608	66,993	34,381	14,990	17,316	213	94	615
25	Energy Related Operations & Maintenance		100	0	0	0	0	0	0	0	0
26	XYZ			0	-	-	-	-	-	-	-
27	Total Other Power Gen O&M Expense			67,608	66,993	34,381	14,990	17,316	213	94	615
28	Other Power Supply Expense										
29	Capacity Related Sys Cntl Load Disp		220	9,684	9,596	4,925	2,147	2,480	30	13	88
30	Energy Related Sys Cntl Load Disp		100	0	0	0	0	0	0	0	0
31	Total Other Power Supply O&M Expense			9,684	9,596	4,925	2,147	2,480	30	13	88
32	Disposition of Allowances		220	0	0	0	0	0	0	0	0
33	Total Production O&M (excluding Fuel and P&I)			197,032	195,108	96,356	44,291	53,367	779	314	1,924
34	Total Production O&M Expense			1,663,918	1,645,934	754,665	378,980	500,844	8,317	3,128	17,984

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TRANSMISSION O&M										
Line No.	Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Transmission O&M Expense									
2	Transmission	120	498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
3	Reclassified Transmission	127	0	0	0	0	0	0	0	0
4	Other	120	0	0	0	0	0	0	0	0
5	Total Transmission O&M Expense		498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
6	Other O&M Adjustments									
7	Tax Benefit of Proforma Interest & Interest Synchronization Adjustment	150	0	0	0	0	0	0	0	0
8	Other Advertising Programs - Disallowance	412	0	0	0	0	0	0	0	0
9	Income Tax Effect of Interest	390	0	0	0	0	0	0	0	0
10	Charitable, Civic, Dues & Donations	412	0	0	0	0	0	0	0	0
11	Transmission reclass (indirect costs)	DIR	0	-	-	-	-	-	-	-
12	Streelighting O&M	DIR	0	-	-	-	-	-	-	-
13	Customer O&M	411	0	0	0	0	0	0	0	0
14	Administrative and General O&M	412	0	0	0	0	0	0	0	0
15	Other O&M Inflation	443	0	0	0	0	0	0	0	0
16	Other O&M Adjmts	438	0	0	0	0	0	0	0	0
17	Total Other O&M Adjustments		0	0	0	0	0	0	0	0

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DISTRIBUTION O&M										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
Distribution Operation Expense										
1	580 Supv & Engineering - Distribution (LVD)	400	35,154	35,149	23,108	8,708	2,242	1,077	15	5
2	580 Supv & Engineering - HVD (345-138kV)	402	201	199	96	41	61	1	1	2
3	580 Supv & Engineering - HVD (345-138kV)	404	479	478	240	103	132	2	2	0
4	580 Supv & Engineering - HVD (46-23kV)	301	0	0	0	0	0	0	0	0
5	581 Load Dispatch - Distribution	230	729	729	399	171	155	4	0	-
6	582 Station Expense - Distribution (LVD)	303	537	532	253	109	166	2	2	5
7	582 Station Expense - HVD (345-138kV)	304	679	679	340	146	187	3	3	0
8	582 Station Expense - HVD (46-23kV)	307	23,875	23,872	15,148	6,706	1,884	119	15	3
9	583 Overhead Expense - Distribution (LVD)	121	63	62	34	14	15	0	0	1
10	583 Overhead Expense - HVD (345-138kV)	122	1,004	1,003	502	216	276	5	4	1
11	583 Overhead Expense - HVD (46-23kV)	308	7,303	7,303	4,851	2,085	321	46	0	-
12	584 Underground	311	1,058	1,057	-	-	-	1,057	-	1
13	585 Street Lighting & Signal System	313	967	967	750	156	61	0	0	0
14	585 Metering Expense	160	5,651	5,651	4,974	662	12	3	0	0
15	587 Customer Installations	400	24,425	24,422	16,056	6,050	1,558	748	10	3
16	588 Miscellaneous	309	2,457	2,455	1,513	633	248	59	2	2
17	589 Rents									
18	Total Distribution Operation Expense		104,580	104,559	68,263	25,799	7,315	3,126	55	22
Distribution Maintenance Expense										
19	590 Supv & Engineering - Distribution (LVD)	401	5,636	5,635	3,592	1,552	454	35	3	1
20	590 Supv & Engineering - HVD (345-138kV)	403	207	206	101	43	60	1	1	1
21	590 Supv & Engineering - HVD (345-138kV)	405	493	493	247	106	136	2	2	0
22	590 Supv & Engineering - HVD (46-23kV)	230	480	480	263	113	102	2	0	-
23	591 Structures - Distribution (LVD)	303	55	55	26	11	17	0	0	0
24	591 Structures - HVD (345-138kV)	304	70	70	35	15	19	0	0	0
25	591 Structures - HVD (46-23kV)	304	70	70	35	15	19	0	0	0
26	592 Station Equipment - Distribution (LVD)	230	7,623	7,623	4,172	1,793	1,617	40	1	-
27	592 Station Equipment - HVD (345-138kV)	303	2,368	2,347	1,115	479	733	11	10	21
28	592 Station Equipment - HVD (46-23kV)	304	2,996	2,995	1,499	644	823	14	13	2
29	593 Overhead Lines - Distribution (LVD)	307	131,639	131,622	83,523	36,976	10,388	654	81	17
30	593 Overhead Lines - HVD (345-138kV)	224	889	889	480	195	211	2	1	-
31	593 Overhead Lines - HVD (46-23kV)	122	14,216	14,209	7,114	3,057	3,907	68	64	7
32	594 Underground Lines- Distribution (LVD)	308	2,915	2,915	1,936	832	128	18	0	-
33	595 Underground Lines- HVD (345-138kV)	121	0	0	0	0	0	0	0	0
34	596 Underground Lines- HVD (46-23kV)	122	0	0	0	0	0	0	0	0
35	595 Line Transformers	312	11,637	11,637	7,885	3,389	289	75	0	-
36	596 Street Lighting & Signal System	311	197	197	-	-	-	197	-	0
37	597 Meters	313	5,010	5,010	3,885	808	314	1	1	0
38	598 Miscellaneous	401	(42)	(42)	(27)	(12)	(3)	(0)	(0)	(0)
39	Total Distribution Maintenance Expense		186,389	186,340	115,848	50,002	19,193	1,120	177	50
40	Total Distribution O&M Expense		290,969	290,898	184,111	75,801	26,509	4,245	233	71



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DEPRECIATION EXPENSE (SUMMARY)											
Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
			Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	Production Depreciation Expense										
2	Production Depreciation Expense			308,389	305,585	156,826	68,376	78,985	970	427	2,804
3	GSU Depreciation Expense			5,456	5,407	2,775	1,210	1,398	17	8	50
4	Test Year Production Change		220		0	0	0	0	0	0	0
5	Total Production			313,845	310,992	159,601	69,586	80,383	987	435	2,853
6	Transmission										
7	Bulk Power Transm			0	-	-	-	-	-	-	-
8	Transm; Subtrans			0	-	-	-	-	-	-	-
9	Subtransmission			0	-	-	-	-	-	-	-
10	Total Transmission			0	-	-	-	-	-	-	-
11	Distribution										
12	Stations and Equipment			67,347	67,228	39,108	16,812	10,812	371	126	119
13	Overhead System			140,692	140,675	89,248	38,357	12,143	847	80	17
14	Underground System			20,545	20,545	13,647	5,865	903	130	0	-
15	Meters and Svc Drops			67,922	67,921	48,856	16,160	2,310	587	8	1
16	St Lgts and OPL			6,210	6,205	-	-	-	6,205	-	5
17	PowerMIDrive Amortization		444	763	762	481	195	66	21	1	0
18	Total Distribution			303,479	303,338	191,339	77,389	26,234	8,160	215	141
19	General/Common/Intangible										
20	Total Gen/Common/Int			102,095	101,735	62,219	23,719	14,787	913	96	360
21	Test Year Gen/Common/Int Change		445	0	0	0	0	0	0	0	0
22	Total General/Common/Intangible Dep Expense			102,095	101,735	62,219	23,719	14,787	913	96	360
23	Other Amortization Expense			0	0	0	0	0	0	0	0
24	Total Depreciation & Amortization Expense			719,418	716,064	413,159	170,695	121,404	10,060	746	3,354

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DEPRECIATION EXPENSE (PRODUCTION & TRANSMISSION)										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Production Depreciation Expense									
2	0									
3	Fossil (Production-Steam)	220	224,235	222,196	114,031	49,718	57,431	705	311	2,039
4	Demand Response	220	497	493	253	110	127	2	1	5
5	Hydro	220	53,777	53,288	27,348	11,924	13,774	169	75	489
6	Other Production	220	29,880	29,608	15,195	6,825	7,653	94	41	272
7	Solar	220	5,456	5,407	2,775	1,210	1,398	17	8	50
8	Jackson Gas Plant	220	0	0	0	0	0	0	0	0
9	7 Classics	220	0	-	-	-	-	-	-	-
10	Total Production Depreciation Expense		313,845	310,992	159,601	69,586	80,383	987	435	2,853
11	Transmission Depreciation Expense									
12	Direct		0	-	-	-	-	-	-	-
13	Transmission		0	-	-	-	-	-	-	-
14	Subtransmission		0	-	-	-	-	-	-	-
15	Total Transmission Depreciation Expense		0	-	-	-	-	-	-	-

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DEPRECIATION EXPENSE (DISTRIBUTION & GENERAL)														
Line No.	Description	(b) Alloc	(c)		(d)		(e)		(f)		(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
			Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Residential	Total Commercial Secondary						
1	Distribution Depreciation Expense													
2	Distribution Land & Right of Way (360)													
3	METC HVD (345-138 kV)	127	313	311	148	-	63	97	1	1	3			
4	HVD (345-138 kV)	127	187	185	88	310	133	170	3	3	0			
5	HVD (46-23 kV)	124	619	619	310	-	-	-	-	-	-			
6	Substations/Overheads (Assignable)	DIR	0											
7	OH Land & ROW	307	541	541	343	152	386	368	8	5	0			
8	Total Distribution Land & ROW Depreciation Expense		1,660	1,656	889									
9	Distribution Substations & Equipment (361/362)													
10	Customer Substations (Assignable)	DIR	0	-	-	-	-	-	-	-	-			
11	HVD (345-138 kV)	127	12,257	12,150	5,771	2,480	1,938	3,792	55	52	107			
12	Distribution Substations	230	8,239	8,239	4,509	1,748	7,673	9,699	43	1	-			
13	Total Distribution Substations & Equipment Depreciation Expense		35,630	35,515	17,854				170	120	114			
14	Distribution Overhead System (364/365)													
15	HVD (345-138 kV)	127	987	979	465	200	305	4	4	9				
16	HVD (46-23 kV)	122	16,007	15,999	8,010	3,443	76	72	8	8				
17	LVD (Distribution)	305	123,698	123,698	80,773	34,715	7439	847	17					
19	Total Distribution Overhead Depreciation Expense		140,692	140,675	89,248	38,357	12,143							
20	Distribution Underground System (366/367)													
21	Underground System	308	20,545	20,545	13,647	5,865	903	0	0	-				
22	Total Distribution Underground Depreciation Expense		20,545	20,545	13,647	5,865	903							
23	Distribution Line Equipment (368)													
24	Line Equipment	312	30,057	30,057	20,366	8,753	745	193	0	-				
25	Total Distribution Line Equipment Depreciation Expense		30,057	30,057	20,366	8,753	745							
26	Distribution Services (369)													
27	Overhead & Underground Services	310	30,526	30,526	20,305	10,222	-	-	-	-	-			
28	Total Distribution Services Depreciation Expense		30,526	30,526	20,305	10,222	-	-	-	-	-			

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DEPRECIATION EXPENSE (DISTRIBUTION & GENERAL)																					
Line No.	Description	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j)	
				Alloc		Total Electric		Jurisdictional Electric		Total Residential		Commercial Secondary		Total Primary		Lighting & Unmetered		Rate GSG		Total Non Jurisdictional	
1	Distribution (cont.)																				
2	Distribution Metering Equipment (370)			-		36,817	36,817	-		28,551	-	5,939	2,310	-	8	-	-	-	-	-	
3	Metering Equipment	170		36,817		36,817				28,551		5,939	2,310		8					1	
4	Total Distribution Metering Equipment Depreciation Expense			36,817		36,817				28,551		5,939	2,310		8					1	
5	Distribution Installations on Customer Premises (371)			-		578	578	-		-	-	-	-	-	-	-	-	-	-	-	
6	Streetlighting Installations	DIR		578		578				-	-	-	-	-	578	-	-	-	-	-	
7	Total Distribution Installations on Customer Premises			578		578				0	0	0	0		578	0				0	
8	Distribution Streetlighting Equipment Depreciation Expense (373)	311		6,210		6,205				-	-	-	-	-	6,205	-				5	
9	Total Distribution Depreciation Expense			302,716		302,575				190,858		77,195	26,168		8,140					141	
10	General/Common/Intangible																				
11	General (E-GP)	502		8,874		8,842				5,408		2,062	1,285		79					31	
12	Common (C-GP)	502		23,288		23,206				14,192		5,410	3,373		208					82	
13	Intangible	502		69,933		69,687				42,619		16,247	10,129		625					246	
14	Total Gen/Comm/Int Depreciation Expense			102,095		101,735				62,219		23,719	14,787		913					360	
15	Other Amortization																				
16	Amort of 7 Classics Inventory	220		0		0				0		0	0		0					0	
17	AFUDC in Excess of FERC Rate	330		0		0				0		0	0		0					0	
18	Securitized Regulatory Assets	150		0		0				0		0	0		0					0	
19	ARO Accretion/Transition Expense	220		0		0				0		0	0		0					0	
20	Total Other Amortization Expense			0		0				0		0	0		0					0	
21	Total Depreciation & Amortization Expense			718,656		715,302				412,678		170,500	121,338		10,040					3,354	

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TAX											
Line No.	(a) Description	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
		Alloc	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional	
1	City Income Tax	150	1,193	1,180	438	249	483	7	3	13	
2	Single Business Tax	601	0	0	0	0	0	0	0	0	
4	State Income Tax	439	34,719	34,892	19,132	9,743	5,501	512	3	(173)	
5	RP&P Tax										
6	R&PP Taxes - Prod	220	82,733	81,981	42,073	18,344	21,190	260	115	752	
7	XYZ	220	0	0	0	0	0	0	0	0	
8	XYZ	220	0	0	0	0	0	0	0	0	
9	R&PP Taxes - HVD (345-138kV)	303	8,346	8,273	3,930	1,689	2,582	37	35	73	
10	R&PP Taxes - HVD (46-23kV)	302	17,605	17,596	8,809	3,786	4,838	84	79	9	
11	R&PP Taxes - LVD	306	79,470	79,470	51,529	21,444	4,179	2,314	4	1	
12	R&PP Taxes - General	315	5,462	5,443	3,333	1,269	786	49	5	19	
13	R&PP Taxes - Common/Intangible	502	15,452	15,398	9,417	3,590	2,238	138	15	54	
14	R&PP Taxes - PHFFU	226	31	31	16	7	8	0	0	-	
15	Total R&PP Taxes	330	209,100	208,191	119,107	50,130	35,821	2,883	252	909	
16	Payroll and Miscellaneous Tax										
17	Payroll Related Taxes	502	23,159	23,078	14,114	5,380	3,354	207	22	82	
18	Miscellaneous General Taxes	150	0	0	0	0	0	0	0	0	
19	Total Payroll/Miscellaneous Taxes		23,159	23,078	14,114	5,380	3,354	207	22	82	
20	Other Taxes	150	10,499	10,383	3,857	2,191	4,253	60	22	116	
21	Total Other Taxes		278,670	277,723	156,648	67,693	49,412	3,669	301	947	
22	Federal Income Tax Provision	439	68,078	68,417	37,516	19,105	10,787	1,005	5	(339)	
23	Total Taxes Other Than Income		243,951	242,832	137,516	57,950	43,911	3,156	298	1,119	
24	Total Income Taxes		102,797	103,309	56,648	28,848	16,288	1,517	8	(512)	
25	Total Taxes		346,748	346,141	194,164	86,799	60,199	4,673	306	608	

## INCOME STATEMENT ADJUSTMENTS

[illegible]

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Line No.	(a) Description	Summary RETURN (SUMMARY)							(i) Rate GSG	(j) Total Non Jurisdictional
		(b)	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered		
1	Rate Base		12,955,540	12,906,887	7,741,640	2,945,640	2,079,386	130,790	9,431	48,653
2	Revenue									
3	Total Rate Revenue		4,102,999	4,079,081	2,147,790	978,737	912,683	38,316	1,556	23,918
4	Total Revenue Credits		209,974	209,246	103,908	46,411	54,255	912	3,760	729
5	Total Revenue		4,312,973	4,288,327	2,251,698	1,025,148	966,938	39,227	5,315	24,647
6	Expenses:									
7	Fuel and P&I Expense		1,466,886	1,450,826	658,309	334,689	447,477	7,538	2,813	16,060
8	Transmission Expense		498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
9	Other O & M Expense		696,264	693,776	435,009	154,242	98,830	5,210	485	2,488
10	Depreciation & Amortization Expense		719,418	716,087	422,825	164,003	119,632	9,052	574	3,331
11	Other Taxes		278,670	277,733	159,187	66,068	48,843	3,404	231	937
12	Federal Income Taxes		68,078	68,412	35,247	20,635	11,241	1,240	49	(333)
13	Total Expenses		3,727,728	3,700,216	1,948,693	847,757	870,305	28,569	4,892	27,513
14	Net Operating Income		585,245	588,111	303,005	177,392	96,632	10,658	423	(2,866)
15	Other Income Adjustments		13,010	12,936	7,367	2,938	2,508	111	13	74
16	Adjusted Net Operating Income		598,255	601,047	310,372	180,329	99,140	10,769	436	(2,792)
17	Rate of Return on Rate Base		4.62%	4.66%	4.01%	6.12%	4.77%	8.23%	4.62%	-5.74%
18	Index of Return (Jurisdictional)			100	86	131	102	177	99	
19	Return on Rate Base @ 5.95%		770,574	767,680	460,460	175,202	123,678	7,779	561	2,894
20	Income Deficiency (Sufficiency)		172,319	166,633	150,088	(5,128)	24,538	(2,990)	125	5,686
21	Revenue Deficiency (Sufficiency)		230,747	223,133	200,978	(6,866)	32,858	(4,004)	167	7,613
22	Revenue Requirement/Total Cost of Service		4,543,720	4,511,480	2,452,676	1,018,282	999,796	35,224	5,483	32,260
23	Less: Revenue Credits		209,974	209,246	103,908	46,411	54,255	912	3,760	729
24	Proposed Rate Design Revenue		4,333,746	4,302,214	2,348,768	971,871	945,541	34,312	1,723	31,531
25	Production: Net Capacity Cost		1,399,007	1,386,288	749,475	303,789	328,715	2,791	1,518	12,719
26	Production: Capacity Related Cost Offset		105,788	102,672	11,104	29,047	59,912	1,902	708	3,116
27	Production: Non-Capacity Related Cost		1,323,503	1,307,187	572,125	301,990	426,176	7,683	(787)	16,316
28	Distribution: Demand Related Cost		1,287,967	1,288,626	852,515	292,986	122,090	20,785	250	(660)
29	Distribution: Customer Related Cost		217,482	217,441	163,549	44,059	8,648	1,152	33	41
30	Full Service MWH Sales		30,755,165	30,375,234	12,621,349	6,964,767	10,521,542	195,427	72,150	379,931
31	ROA MWH Sales		3,598,011	3,598,011	-	204,312	3,393,699	-	-	-
32	MWH Sales Customers		34,353,176	33,973,245	12,621,349	7,169,079	13,915,241	195,427	72,150	379,931
			1,849,211	1,849,209	1,627,664	216,607	4,088	835	15	2

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Residential/Secondary  
RETURN (SUMMARY)

Line No.	(a) Description	(b)		(c)		(d)		(e)		(f)		(g)		(h)	
		Rate RS	Total Residential	Rate GS	Rate GSD	Rate GS GEI	Rate GSD GEI	Total Commercial	Secondary						
1	Rate Base	7,741,640	7,741,640	1,724,982	1,130,521	35,648	54,490	2,945,640							
Revenue															
2	Total Rate Revenue	2,147,790	2,147,790	571,374	376,941	12,078	18,344	978,737							
3	Total Revenue Credits	103,908	103,908	26,075	18,885	574	877	46,411							
4	Total Revenue	2,251,698	2,251,698	597,450	395,826	12,651	19,221	1,025,148							
Expenses:															
5	Fuel and P&I Expense	658,309	658,309	182,580	141,501	4,220	6,387	334,689							
6	Transmission Expense	238,116	238,116	60,066	44,572	1,476	2,006	108,120							
7	Other O & M Expense	435,009	435,009	94,161	55,621	1,801	2,659	154,242							
8	Depreciation & Amortization Expense	422,825	422,825	97,018	62,153	1,942	2,891	164,003							
9	Other Taxes	159,187	159,187	39,055	24,963	802	1,248	66,068							
10	Federal Income Taxes	35,247	35,247	12,981	6,983	251	420	20,635							
11	Total Expenses	1,948,693	1,948,693	485,860	335,793	10,493	15,612	847,757							
12	Net Operating Income	303,005	303,005	111,590	60,034	2,159	3,609	177,392							
13	Other Income Adjustments	7,367	7,367	1,700	1,150	35	53	2,938							
14	Adjusted Net Operating Income	310,372	310,372	113,290	61,184	2,194	3,662	180,329							
15	Rate of Return on Rate Base	4.01%	4.01%	6.57%	5.41%	6.15%	6.72%	6.12%							
16	Index of Return (Jurisdictional)	86	86	141	116	132	144	131							
17	Return on Rate Base @ 5.95%	460,460	460,460	102,599	67,241	2,120	3,241	175,202							
18	Income Deficiency (Sufficiency)	150,088	150,088	(10,691)	6,058	(74)	(421)	(5,128)							
19	Revenue Deficiency (Sufficiency)	200,978	200,978	(14,316)	8,112	(99)	(564)	(6,866)							
20	Revenue Requirement/Total Cost of Service	2,452,676	2,452,676	583,134	403,938	12,553	18,657	1,018,282							
21	Less: Revenue Credits	103,908	103,908	26,075	18,885	574	877	46,411							
22	Proposed Rate Design Revenue	2,348,768	2,348,768	557,059	385,053	11,979	17,781	971,871							
23	Production: Net Capacity Cost	749,475	749,475	170,934	124,308	3,541	5,006	303,789							
24	Production: Capacity Related Cost Offset	11,104	11,104	13,703	13,897	585	862	29,047							
25	Production: Non-Capacity Related Cost	572,125	572,125	164,273	127,773	4,009	5,934	301,990							
26	Distribution: Demand Related Cost	852,515	852,515	170,647	113,121	3,502	5,716	292,986							
27	Distribution: Customer Related Cost	163,549	163,549	37,501	5,954	341	263	44,059							
28	Full Service MWH Sales	12,621,349	12,621,349	3,750,286	2,985,974	89,373	139,134	6,964,767							
29	ROA MWH Sales	-	-	8,528	120,833	14,582	60,369	204,312							
30	MWH Sales	12,621,349	12,621,349	3,758,814	3,106,807	103,955	199,503	7,169,079							
31	Customers	1,627,664	1,627,664	194,916	19,364	1,564	763	216,607							

## Primary & Lighting RETURN (SUMMARY)

RETURN (SUMMARY)																						
Line No.	Description	(b) Rate GP	(c) Rate GPTU Vit 1	(d) Rate GPTU Vit 2	(e) Rate GPTU Vit 3	(f) Rate GPD Vit 1	(g) Rate GPD Vit 2	(h) Rate GPD Vit 3	(i) Rate GP GEI	(j) Rate EIP Vit 1	(k) Rate EIP Vit 2	(l) Rate EIP Vit 3	(n) Rate GPD GEI Vit 1	(o) Rate GPD GEI Vit 2	(p) Rate GPD GEI Vit 3	(q) Total Primary						
1	Rate Base	191,335	53,756	146,684	792,531	77,488	203,154	520,915	25,283	20,593	4,679	876	44	8,285	33,764	2,079,386						
Revenue																						
2	Total Rate Revenue	76,290	34,327	77,092	339,909	63,644	88,464	183,274	9,601	22,375	4,488	820	9	2,672	9,717	912,683						
3	Total Revenue Credits	4,148	1,900	4,308	19,013	5,646	5,440	11,319	523	1,016	178	27	1	154	583	54,255						
4	Total Revenue	80,438	36,227	81,400	358,922	69,290	93,903	194,593	10,124	23,390	4,665	846	10	2,827	10,301	966,938						
Expenses:																						
5	Fuel and P&I Expense	34,056	17,817	39,307	161,640	35,549	44,600	90,337	4,144	12,926	2,156	323	-	860	3,761	447,477						
6	Transmission Expense	11,168	5,436	12,248	52,169	12,030	13,951	28,286	1,450	5,206	720	88	-	293	1,239	144,283						
7	Other O & M Expense	8,716	2,760	7,229	38,102	3,537	4,920	24,520	1,148	1,267	266	48	1	330	1,496	98,830						
8	Depreciation & Amortization Expense	11,113	3,672	9,087	46,564	4,463	10,856	28,940	1,402	1,192	239	44	2	374	1,684	119,632						
9	Other Taxes	4,306	1,486	3,659	18,221	2,737	5,043	11,053	569	620	163	34	2	214	736	48,843						
10	Federal Income Taxes	1,154	527	1,029	4,400	1,144	1,047	1,194	147	227	117	32	1	78	144	11,241						
11	Total Expenses	70,514	31,698	72,558	321,096	59,460	84,904	184,331	8,860	21,439	3,661	570	5	2,153	9,059	870,305						
12	Net Operating Income	9,924	4,529	8,842	37,826	9,831	8,989	10,263	1,265	1,952	1,004	276	6	674	1,242	96,632						
13	Other Income Adjustments	222	82	201	974	99	237	591	28	27	5	1	0	8	33	2,508						
14	Adjusted Net Operating Income	10,146	4,611	9,043	38,800	9,930	9,237	10,853	1,293	1,978	1,010	277	6	682	1,274	99,140						
15	Rate of Return on Rate Base	5.30%	8.58%	6.17%	4.90%	12.81%	4.55%	2.08%	5.11%	9.61%	21.58%	31.67%	12.70%	8.23%	3.77%	4.77%						
16	Index of Return (Jurisdictional)	114	184	132	105	275	98	45	110	206	463	680	273	177	81	102						
17	Return on Rate Base @ 5.95%	11,380	3,197	8,725	47,138	4,609	12,083	30,983	1,504	1,225	278	52	3	493	2,008	123,678						
18	Income Deficiency (Sufficiency)	1,235	(1,414)	(319)	8,338	(5,321)	2,846	20,130	211	(754)	(731)	(225)	(3)	(189)	734	24,538						
19	Revenue Deficiency (Sufficiency)	1,653	(1,894)	(427)	11,165	(7,125)	3,811	26,955	283	(1,009)	(979)	(302)	(4)	(253)	983	32,858						
20	Revenue Requirement/Total Cost of Service	82,091	34,334	80,973	370,087	62,165	97,715	221,548	10,407	22,381	3,686	545	6	2,574	11,283	999,796						
21	Less: Revenue Credits	4,148	1,900	4,308	19,013	5,646	5,440	11,319	523	1,016	178	27	1	154	583	54,255						
22	Proposed Rate Design Revenue	77,943	32,434	76,665	351,074	56,519	92,275	210,230	9,884	21,366	3,508	518	5	2,419	10,700	945,541						
23	Production: Net Capacity Cost	30,392	12,440	28,900	133,704	12,063	28,577	74,666	3,561	-	-	-	-	906	3,506	328,715						
24	Production: Capacity Related Cost Offset	4,155	2,483	5,342	18,612	3,697	7,175	12,076	562	4,549	752	106	0	6	398	59,912						
25	Production: Non-Capacity Related Cost	31,122	16,897	37,113	149,945	37,794	43,373	82,767	3,915	16,233	2,562	364	(0)	739	3,363	426,176						
26	Distribution: Demand Related Cost	10,142	528	5,039	46,288	2,649	12,587	38,524	1,629	524	184	40	4	741	3,214	122,090						
27	Distribution: Customer Related Cost	2,132	85	272	2,525	317	563	2,197	218	61	20	8	2	28	219	8,648						
28	Full Service MWH Sales	740,549	429,373	920,475	3,617,577	1,028,117	1,096,753	2,041,798	90,489	383,669	64,327	9,389	-	17,941	81,110	10,521,542						
29	ROA MWH Sales	41,008	-	-	1,060,843	1,219,527	825,562	33,925	-	-	-	-	2,504	68,388	141,942	3,393,699						
30	MWH Sales	781,557	429,373	920,475	3,617,577	2,088,960	2,316,280	2,867,360	124,414	383,669	64,327	9,389	2,504	86,329	223,052	13,915,241						
31	Customers	1,466	22	73	1,143	31	86	995	139	7	7	5	1	5	110	4,088						

Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate GML	Rate GUL	Rate GU-XL	Rate GU	Total Lighting & Unmetered
2,013	50,410	52,886	25,481	130,790
1,434	20,196	7,092	9,593	38,316
40	247	133	492	912
1,474	20,443	7,225	10,085	39,227
443	2,105	650	4,340	7,538
130	616	190	1,188	2,124
108	3,369	439	1,295	5,210
133	3,842	3,652	1,426	9,052
75	1,580	1,185	564	3,404
61	931	116	133	1,240
949	12,443	6,232	8,945	28,569
526	8,000	993	1,140	10,658
2	41	41	27	111
528	8,041	1,034	1,167	10,769
26.20%	15.95%	1.95%	4.58%	8.23%
563	343	42	98	177
120	2,998	3,146	1,516	7,779
(408)	(5,042)	2,112	348	(2,990)
(546)	(6,752)	2,828	467	(4,004)
928	13,691	10,053	10,552	35,224
40	247	133	492	912
888	13,444	9,920	10,060	34,312
-	-	-	2,791	2,791
172	778	205	745	1,902
502	2,387	737	4,057	7,683
176	9,390	8,811	2,407	20,785
38	888	166	60	1,152
13,118	62,386	19,268	100,655	195,427
-	-	-	-	-
13,118	62,386	19,268	100,655	195,427
359	-	-	476	835

Projected 12-Month Period Ending Dec 31, 2022  
Version 2  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Summary RATE BASE (SUMMARY)											
Line No.	(a) Description	(b)		(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Net Plant										
2	Production	3,875,337	3,840,104		1,970,740	859,245		992,560	12,190	5,370	35,233
3	Transmission	-	-		-	-		-	-	-	-
4	Distribution	6,910,698	6,906,058	4,444,203	1,603,940	749,908		105,408	2,599	4,639	4,639
5	General/Common/Intangible	804,580	801,770	502,556	178,774	113,976		5,936	528	2,809	2,809
6	Plant Purchased/Sold	0	0	0	0	0		0	0	0	0
7	Total Net Plant	11,590,614	11,547,933	6,917,499	2,641,959	1,856,444		123,534	8,497	42,681	
8	Working Capital										
9	Total Current Assets	2,339,688	2,330,338	1,413,373	528,136	367,260		19,993	1,576	9,349	9,349
10	Total Current Liabilities	923,000	919,653	555,876	212,113	139,389		11,648	626	3,348	3,348
11	Total Working Capital	1,416,687	1,410,686	857,497	316,023	227,870		8,346	950	6,002	6,002
	Adjustments to Rate Base										
12	Additions to Rate Base	0	0	0	0	0		0	0	0	0
13	Deductions from Rate Base	51,761	51,731	33,356	12,341	4,929		1,089	16	30	30
14	Total Adjustments to Rate Base	(51,761)	(51,731)	(33,356)	(12,341)	(4,929)		(1,089)	(16)	(30)	(30)
15	Total Rate Base	12,955,540	12,906,887	7,741,640	2,945,640	2,079,386		130,790	9,431	48,653	48,653

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Residential/Secondary RATE BASE (SUMMARY)								
(a)		(h)						
Line No.	Description	(b) Rate RS	(c) Total Residential	(d) Rate GS	(e) Rate GSD	(f) Rate GS GEI	(g) Rate GSD GEI	Commercial Secondary
1	Net Plant							
2	Production	1,970,740	1,970,740	477,963	356,043	10,283	14,956	859,245
3	Transmission	-	-	-	-	-	-	-
4	Distribution	4,444,203	4,444,203	955,050	598,017	19,699	31,173	1,603,940
5	General/Common/Intangible	502,556	502,556	108,467	65,122	2,092	3,093	178,774
6	Plant Purchased/Sold	0	0	0	0	0	0	0
7	Total Net Plant	6,917,499	6,917,499	1,541,479	1,019,183	32,074	49,222	2,641,959
8	Working Capital							
9	Total Current Assets	1,413,373	1,413,373	316,592	195,931	6,265	9,348	528,136
10	Total Current Liabilities	555,876	555,876	125,640	80,085	2,542	3,847	212,113
11	Total Working Capital	857,497	857,497	190,953	115,846	3,723	5,502	316,023
Adjustments to Rate Base								
12	Additions to Rate Base	0	0	0	0	0	0	0
13	Deductions from Rate Base	33,356	33,356	7,450	4,508	150	234	12,341
14	Total Adjustments to Rate Base	(33,356)	(33,356)	(7,450)	(4,508)	(150)	(234)	(12,341)
15	Total Rate Base	7,741,640	7,741,640	1,724,982	1,130,521	35,648	54,490	2,945,640

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(thousands of dollars)

Primary & Lighting  
RATE BASE (SUMMARY)

Line No.	Description	(a)														(q)	
		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
		Rate GP	Rate GPTU Vlt 1	Rate GPTU Vlt 2	Rate GPTU Vlt 3	Rate GPD Vlt 1	Rate GPD Vlt 2	Rate GPD Vlt 3	Rate GP GEI	Rate EIP Vlt 1	Rate EIP Vlt 2	Rate EIP Vlt 3	Rate GPD GEI Vlt 1	Rate GPD GEI Vlt 2	Rate GPD GEI Vlt 3	Rate GPD GEI Vlt 3	Total Primary
1	Net Plant																
2	Production	86,261	38,967	88,544	390,808	42,135	91,010	218,361	10,225	11,709	1,989	293	-	-	2,438	9,820	992,560
3	Transmission	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Distribution	75,586	4,573	32,404	271,445	21,686	80,335	221,968	11,239	4,461	1,761	413	42	4,767	19,230	749,908	
5	General/Common/Intangible	10,243	3,101	8,247	44,427	3,849	10,679	28,629	1,345	1,012	232	45	1	398	1,768	113,976	
6	Plant Purchased/Sold	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Total Net Plant	172,091	46,641	129,194	706,681	67,670	182,024	468,958	22,810	17,182	3,982	750	43	7,603	30,817	1,856,444	
8	Working Capital																
9	Total Current Assets	32,421	10,839	27,544	141,360	15,073	34,840	88,446	4,224	4,779	1,006	185	4	1,233	5,306	367,260	
10	Total Current Liabilities	12,690	3,695	9,856	53,689	5,117	13,216	35,001	1,678	1,339	297	57	2	522	2,231	139,389	
11	Total Working Capital	19,732	7,144	17,689	87,670	9,956	21,624	53,445	2,546	3,440	708	128	1	712	3,075	227,870	
Adjustments to Rate Base																	
12	Additions to Rate Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Deductions from Rate Base	487	29	199	1,820	138	494	1,487	74	28	11	3	0	29	128	4,929	
14	Total Adjustments to Rate Base	(487)	(29)	(199)	(1,820)	(138)	(494)	(1,487)	(74)	(28)	(11)	(3)	(0)	(29)	(128)	(4,929)	
15	Total Rate Base	191,335	53,756	146,684	792,531	77,488	203,154	520,915	25,283	20,593	4,679	876	44	8,285	33,764	2,079,386	

Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate	Rate	Rate	Rate	Total
GML	GUL	GU-XL	GU	Lighting & Unmetered
429	2,039	630	9,092	12,190
-	-	-	-	-
1,264	43,796	48,093	12,254	105,408
102	2,080	2,284	1,470	5,936
0	0	0	0	0
1,795	47,916	51,008	22,816	123,534
396	7,735	7,307	4,555	19,993
165	4,763	4,922	1,798	11,648
231	2,972	2,385	2,758	8,346
0	0	0	0	0
12	478	506	92	1,089
(12)	(478)	(506)	(92)	(1,089)
2,013	50,410	52,886	25,481	130,790

Projected 12-Month Period Ending Dec 31, 2022  
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Line No.	Description	Summary O&M (SUMMARY)									
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional		
1	<b>Production Expense</b>										
2	Fuel Expense	508,684	502,596	211,609	117,860	168,832	3,170	1,124	6,087		
3	Purchased & Interchange Power Expense	958,202	948,230	446,700	216,828	278,645	4,368	1,689	9,972		
4	Total Fuel and P&I Expense	1,466,886	1,450,826	658,309	334,689	447,477	7,538	2,813	16,060		
5	Fossil O&M Exp	99,042	98,028	47,079	22,478	27,850	448	173	1,014		
6	Nuclear O&M Exp	0	-	-	-	-	-	-	-		
7	Hydro O&M Exp	20,698	20,490	9,971	4,676	5,720	88	35	207		
8	Other Power Gen O&M Exp	67,608	66,993	34,361	14,990	17,316	213	94	615		
9	Other Power Supply O&M Exp	9,684	9,596	4,925	2,147	2,480	30	13	88		
10	Total Production O&M Expense	197,032	195,108	96,356	44,291	53,367	779	314	1,924		
11	Total Production (Inc. Fuel and P&I) O&M Expense	1,663,918	1,645,934	754,665	378,980	500,844	8,317	3,128	17,984		
12	<b>Transmission &amp; Distribution Expense</b>										
13	Trans O&M Exp	498,412	493,382	238,116	108,120	144,283	2,124	739	5,030		
14	Other O&M Adjustments	0	0	0	0	0	0	0	0		
15	Distr Oper Exp	104,580	104,563	70,983	23,872	6,847	2,843	18	17		
16	Distr Maint Exp	186,389	186,353	121,432	46,395	17,921	547	57	37		
17	Total Transmission & Distribution O&M Expense	789,381	784,297	430,531	178,387	169,050	5,515	813	5,084		
18	<b>Customer Related Expense</b>										
19	Customer Accounts Exp	48,498	48,498	42,711	5,684	91	11	0	0		
20	Customer Service Exp	4,478	4,438	2,081	857	1,471	21	8	40		
21	Other Customer Exp	20,767	20,767	17,422	3,253	77	16	0	(0)		
22	Total Customer O&M Expense	73,743	73,703	62,214	9,793	1,639	48	8	40		
23	<b>Admin &amp; General Expense</b>	134,520	134,050	84,023	29,890	19,056	993	88	470		
24	<b>Total O&amp;M Expense</b>	2,661,562	2,637,984	1,331,434	597,050	690,590	14,873	4,037	23,578		

Projected 12-Month Period Ending Dec 31, 2022  
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Residential/Secondary  
O&M (SUMMARY)

(a)								
Line No.	Description	(b) Rate RS	(c) Total Residential	(d) Rate GS	(e) Rate GSD	(f) Rate GS GEI	(g) Rate GSD GEI	(h) Commercial Secondary
1	Production Expense							
2	Fuel Expense	211,609	211,609	63,631	50,351	1,526	2,353	117,860
3	Purchased & Interchange Power Expense	446,700	446,700	118,949	91,151	2,694	4,034	216,828
4	Total Fuel and P&I Expense	658,309	658,309	182,580	141,501	4,220	6,387	334,689
5	Fossil O&M Exp	47,079	47,079	12,338	9,447	277	415	22,478
6	Nuclear O&M Exp	-	-	-	-	-	-	-
7	Hydro O&M Exp	9,971	9,971	2,573	1,960	57	85	4,676
8	Other Power Gen O&M Exp	34,381	34,381	8,338	6,211	179	261	14,990
9	Other Power Supply O&M Exp	4,925	4,925	1,194	890	26	37	2,147
10	Total Production O&M Expense	96,356	96,356	24,444	18,509	539	799	44,291
11	Total Production (Inc. Fuel and P&I) O&M Expense	754,665	754,665	207,024	160,010	4,760	7,186	378,980
12	Transmission & Distribution Expense							
13	Trans O&M Exp	238,116	238,116	60,066	44,572	1,476	2,006	108,120
14	Other O&M Adjustments	0	0	0	0	0	0	0
15	Dist Oper Exp	70,983	70,983	14,903	8,267	279	423	23,872
16	Dist Maint Exp	121,432	121,432	28,222	16,752	557	865	46,395
17	Total Transmission & Distribution O&M Expense	430,531	430,531	103,190	69,591	2,312	3,294	178,387
18	Customer Related Expense							
19	Customer Accounts Exp	42,711	42,711	5,115	508	41	20	5,684
20	Customer Service Exp	2,081	2,081	487	337	12	21	857
21	Other Customer Exp	17,422	17,422	2,856	359	23	14	3,253
22	Total Customer O&M Expense	62,214	62,214	8,458	1,204	76	56	9,793
23	Admin & General Expense	84,023	84,023	18,135	10,888	350	517	29,890
24	Total O&M Expense	1,331,434	1,331,434	336,807	241,694	7,497	11,053	597,050

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(thousands of dollars)

Primary & Lighting  
O&M (SUMMARY)

Line No.	(a) Description	(b) Rate GP	(c) Rate GPTU Vlt 1	(d) Rate GPTU Vlt 2	(e) Rate GPTU Vlt 3	(f) Rate GPD Vlt 1	(g) Rate GPD Vlt 2	(h) Rate GPD Vlt 3	(i) Rate GP GEI	(j) Rate EIP Vlt 1	(k) Rate EIP Vlt 2	(l) Rate EIP Vlt 3	(n) Rate GPD GEI Vlt 1	(o) Rate GPD GEI Vlt 2	(p) Rate GPD GEI Vlt 3	(q) Total Primary
<b>1 Production Expense</b>																
2	Fuel Expense	12,077	6,762	14,733	58,662	16,057	17,398	32,789	1,489	6,098	1,015	153	-	286	1,313	168,832
3	Purchased & Interchange Power Expense	21,979	11,055	24,574	102,978	19,492	27,202	57,548	2,655	6,827	1,142	171	-	574	2,448	278,645
4	Total Fuel and P&I Expense	34,056	17,817	39,307	161,640	35,549	44,600	90,337	4,144	12,926	2,156	323	-	860	3,761	447,477
5	Fossil O&M Exp	2,266	1,133	2,520	10,603	1,343	2,686	5,928	272	658	112	16	-	60	254	27,850
6	Nuclear O&M Exp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Hydro O&M Exp	471	231	516	2,191	270	547	1,225	56	123	21	3	-	13	53	5,720
8	Other Power Gen O&M Exp	1,505	680	1,545	6,818	735	1,588	3,809	178	204	35	5	-	43	171	17,316
9	Other Power Supply O&M Exp	216	97	221	977	105	227	546	26	29	5	1	-	6	25	2,480
10	Total Production O&M Expense	4,457	2,141	4,803	20,588	2,453	5,048	11,508	532	1,014	172	25	-	121	503	53,367
11	Total Production (Inc. Fuel and P&I) O&M Expense	38,513	19,959	44,110	182,228	38,002	49,649	101,845	4,677	13,940	2,329	349	-	981	4,264	500,844
<b>12 Transmission &amp; Distribution Expense</b>																
13	Trans O&M Exp	11,168	5,436	12,248	52,169	12,030	13,951	28,286	1,450	5,206	720	88	-	293	1,239	144,283
14	Other O&M Adjustments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Distr Oper Exp	692	14	220	2,725	64	544	2,231	106	13	11	4	0	32	190	6,847
16	Distr Maint Exp	1,711	39	727	6,931	155	1,781	5,651	265	30	37	10	0	104	479	17,921
17	Total Transmission & Distribution O&M Expense	13,571	5,490	13,194	61,825	12,248	16,276	36,168	1,821	5,249	768	102	0	429	1,908	169,050
<b>18 Customer Related Expense</b>																
19	Customer Accounts Exp	33	0	2	25	1	2	22	3	0	0	0	0	0	2	91
20	Customer Service Exp	83	45	97	383	221	245	303	13	41	7	1	0	9	24	1,471
21	Other Customer Exp	28	0	1	22	1	2	19	3	0	0	0	0	0	2	77
22	Total Customer O&M Expense	143	46	100	430	222	248	344	19	41	7	1	0	9	28	1,639
23	Admin & General Expense	1,713	518	1,379	7,428	644	1,785	4,786	225	169	39	7	0	67	296	19,056
24	Total O&M Expense	53,941	26,013	58,783	251,910	51,116	67,958	143,144	6,741	19,399	3,143	459	1	1,486	6,495	690,590

Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	(s)	(t)	(u)	(v)
Rate GML	Rate GUL	Rate GU-XL	Rate GU	Lighting & Unmetered
207	984	304	1,676	3,170
236	1,121	346	2,664	4,368
443	2,105	650	4,340	7,538
24	115	35	274	448
-	-	-	-	-
5	21	7	56	88
7	36	11	159	213
1	5	2	23	30
37	177	55	511	779
480	2,282	705	4,850	8,317
130	616	190	1,188	2,124
0	0	0	0	0
36	1,219	1,418	171	2,843
4	93	108	342	547
169	1,928	1,717	1,701	5,515
6	-	-	6	11
2	7	2	11	21
7	-	-	9	16
14	7	2	26	48
17	348	382	246	993
680	4,564	2,806	6,823	14,873

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Summary ALLOCATORS 1												
Line No.	(a) Description	(b) Alloc	(c) Total Electric		(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional	
Input Allocation Schedules												
1	Energy @ Generation	100	100,000	100,000	98,803	42,550	23,480	31,886	0.659	0.228	1,197	
2	Energy On-Peak @ Generation	101	100,000	100,000	98,803	39,654	24,132	34,379	0.443	0.196	1,197	
3	Energy Off-Peak @ Generation	102	100,000	100,000	98,803	44,227	21,862	31,580	0.879	0.256	1,197	
4	Energy On-Peak @ Generation Summer	103	100,000	100,000	98,803	40,846	24,238	33,197	0.351	0.172	1,197	
5	Energy Off-Peak @ Generation Summer	104	100,000	100,000	98,803	44,018	22,197	31,573	0.778	0.237	1,197	
6	Energy On-Peak @ Generation Non-Summer	105	100,000	100,000	98,803	38,967	24,070	35,061	0.496	0.210	1,197	
7	Energy Off-Peak @ Generation Non-Summer	106	100,000	100,000	98,803	44,343	21,675	31,584	0.935	0.267	1,197	
8	Energy Critical On-Peak @ Gen	107	100,000	100,000	98,803	44,384	23,206	30,805	0.254	0.154	1,197	
9	Energy Summer Mid-Peak @ Gen	108	100,000	100,000	98,803	39,533	24,621	34,085	0.386	0.179	1,197	
10	12CP Dmd @ Generation	120	100,000	100,000	98,991	47,775	21,693	28,948	0.426	0.148	1,009	
11	4CP Dmd @ Generation	121	100,000	100,000	99,091	53,572	21,715	23,496	0.199	0.109	0,909	
12	Classpeak @ Transmission	127	100,000	100,000	99,131	47,087	20,237	30,939	0.447	0.240	0,869	
13	Production Revenue	141	100,000	100,000	99,495	47,698	22,698	28,651	0.443	0.005	0,505	
14	Distribution Revenue	142	100,000	100,000	99,266	61,630	26,186	9,421	1,925	0.104	0,734	
15	Total Rate Revenue	143	100,000	100,000	99,419	52,302	23,851	22,296	0.933	0.038	0,581	
16	Billed Sales	150	100,000	100,000	98,894	36,740	20,869	40,506	0.569	0.210	1,106	
17	Number Of Customers	160	100,000	100,000	100,000	88,019	11,713	0,221	0.045	0.001	0,000	
18	Weighted Customer	170	100,000	100,000	99,998	77,549	16,130	6,274	0.023	0.002	0,000	
19	Voltage 1 (Trans HVD) Peak	236	100,000	100,000	99,204	48,900	19,577	30,421	0.171	0.134	0,796	
20	Voltage 2 (Subtrans HVD) Peak	237	100,000	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0,021	
21	Voltage 3 (Primary LVD) Peak	238	100,000	100,000	100,000	57,460	22,470	19,874	0.196	-	-	
22	Voltage 4 (Secondary LVD) Peak	239	100,000	100,000	100,000	73,554	26,203	-	0.243	-	-	
Calculated Allocation Schedules												
23	4CP 75/0/25	220	100,000	100,000	99,091	50,853	22,172	25,612	0.315	0.139	0,909	
24	4CP 75/0/25 Exc WFR	222	100,000	100,000	99,968	51,298	22,369	25,843	0.318	0.140	0,032	
25	4CP Dmd @ Gen Jurisdictional	224	100,000	100,000	100,000	54,063	21,914	23,712	0.201	0.110	-	
26	12CP Demand @ Subtrans	226	100,000	100,000	100,000	50,639	22,993	25,862	0.452	0.053	-	
27	Class Peak @ Subtransmission	122	100,000	100,000	99,949	50,040	21,507	27,481	0.475	0.051	0,051	
28	Classpeak @ Primary	230	100,000	100,000	100,000	54,733	23,523	21,213	0.520	0.011	-	
29	Classpeak @ Secondary	231	100,000	100,000	100,000	69,479	29,861	-	0.660	-	-	
30	Classpeak for Streetlighting	233	100,000	100,000	99,188	-	-	-	99,188	-	0,812	
31	Classpeak @ Single Phase	235	100,000	100,000	100,000	69,479	29,861	-	0.660	-	-	
32	Billed Sales - Primary	253	100,000	100,000	100,000	45,712	25,965	27,610	0.708	0.006	-	
33	Customers - Residential	260	100,000	100,000	100,000	100,000	-	-	-	-	-	
34	Customers - Drops	261	100,000	100,000	100,000	-	100,000	-	-	-	-	
35	Customers - NonPID	263	100,000	100,000	100,000	88,238	11,743	-	0.019	-	0,000	
36	Customers - NonMunicipal	264	100,000	100,000	100,000	88,059	11,719	0,221	-	0.001	0,000	
37	Customer Count (CCC)	161	100,000	100,000	100,000	94,080	5,920	-	-	-	-	
38	Customer Count (BCC)	162	100,000	100,000	100,000	-	95,854	3,432	0.701	0.013	0,796	
37	PIS - HVD (345-138kV)	301	100,000	100,000	99,204	48,900	19,577	30,421	0.171	0.134	0,796	
38	PIS - HVD (46-23kV)	302	100,000	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0,021	
39	PIS - HVD (345-138kV) Subs (FERC 361/362)	303	100,000	100,000	99,204	48,900	19,577	30,421	0.171	0.134	0,796	
40	PIS - HVD (46-23kV) Subs (FERC 361/362)	304	100,000	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0,021	

Projected 12-Month Period Ending Dec 31, 2022  
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		(a)							
		Residential/Secondary ALLOCATORS 1							
Line No.	Description	Alloc	Rate RS	Total Residential	Rate GS	Rate GSD	Rate GS GEI	Rate GSD GEI	Commercial Secondary
<u>Input Allocation Schedules</u>									
1	Energy @ Generation	100	42.550	42.550	12.643	10.067	0.301	0.469	23.480
2	Energy On-Peak @ Generation	101	39.654	39.654	13.316	10.012	0.329	0.475	24.132
3	Energy Off-Peak @ Generation	102	44.227	44.227	11.408	9.751	0.259	0.444	21.862
4	Energy On-Peak @ Generation Summer	103	40.846	40.846	13.428	10.112	0.276	0.421	24.238
5	Energy Off-Peak @ Generation Summer	104	44.018	44.018	11.545	10.023	0.214	0.416	22.197
6	Energy On-Peak @ Generation Non-Summer	105	38.967	38.967	13.251	9.954	0.359	0.506	24.070
7	Energy Off-Peak @ Generation Non-Summer	106	44.343	44.343	11.332	9.599	0.284	0.460	21.675
8	Energy Critical On-Peak @ Gen	107	44.384	44.384	12.668	9.900	0.249	0.389	23.206
9	Energy Summer Mid-Peak @ Gen	108	39.533	39.533	13.710	10.191	0.286	0.433	24.621
10	12CP Dmd @ Generation	120	47.775	47.775	12.052	8.943	0.296	0.403	21.693
11	4CP Dmd @ Generation	121	53.572	53.572	12.218	8.885	0.253	0.358	21.715
12	Classpeak @ Transmission	127	47.087	47.087	11.473	7.712	0.413	0.639	20.237
13	Production Revenue	141	47.698	47.698	12.583	9.463	0.249	0.404	22.698
14	Distribution Revenue	142	61.630	61.630	16.628	8.637	0.386	0.535	26.186
15	Total Rate Revenue	143	52.302	52.302	13.919	9.190	0.294	0.447	23.851
16	Billed Sales	150	36.740	36.740	10.942	9.044	0.303	0.581	20.869
17	Number Of Customers	160	88.019	88.019	10.540	1.047	0.085	0.041	11.713
18	Weighted Customer	170	77.549	77.549	13.914	2.025	0.112	0.080	16.130
19	Voltage 1 (Trans HVD) Peak	236	48.900	48.900	10.607	8.180	0.301	0.489	19.577
20	Voltage 2 (Subtrans HVD) Peak	237	53.436	53.436	11.423	8.723	0.277	0.474	20.896
21	Voltage 3 (Primary LVD) Peak	238	57.460	57.460	12.283	9.380	0.298	0.509	22.470
22	Voltage 4 (Secondary LVD) Peak	239	73.554	73.554	14.199	11.105	0.337	0.561	26.203
<u>Calculated Allocation Schedules</u>									
23	4CP 75/0/25	220	50.853	50.853	12.333	9.187	0.265	0.386	22.172
24	4CP 75/0/25 Exc WFR	222	51.298	51.298	12.443	9.269	0.268	0.389	22.369
25	4CP Dmd @ Gen Jurisdictional	224	54.063	54.063	12.330	8.967	0.255	0.361	21.914
26	12CP Demand @ Subtrans	226	50.639	50.639	12.774	9.479	0.314	0.427	22.993
27	Class Peak @ Subtransmission	122	50.040	50.040	12.193	8.195	0.439	0.679	21.507
28	Classpeak @ Primary	230	54.733	54.733	13.336	8.964	0.480	0.743	23.523
29	Classpeak @ Secondary	231	69.479	69.479	16.929	11.379	0.610	0.943	29.861
30	Classpeak for Streetlighting	233	-	-	-	-	-	-	-
31	Classpeak @ Single Phase	235	69.479	69.479	16.929	11.379	0.610	0.943	29.861
32	Billed Sales - Primary	253	45.712	45.712	13.614	11.252	0.377	0.723	25.965
33	Customers - Residential	260	100.000	100.000	-	-	-	-	-
34	Customers - Drops	261	-	-	89.986	8.940	0.722	0.352	100.000
35	Customers - NonPID	263	88.238	88.238	10.567	1.050	0.085	0.041	11.743
36	Customers - NonMunicipal	284	88.059	88.059	10.545	1.048	0.085	0.041	11.719
37	Customer Count (CCC)	161	94.080	94.080	5.826	0.046	0.047	0.002	5.920
38	Customer Count (BCC)	162	-	-	79.013	15.593	0.634	0.614	95.854
37	PIS - HVD (345-138kV)	301	48.900	48.900	10.607	8.180	0.301	0.489	19.577
38	PIS - HVD (46-23kV)	302	53.436	53.436	11.423	8.723	0.277	0.474	20.896
39	PIS - HVD (345-138kV) Subs (FERC 361/362)	303	48.900	48.900	10.607	8.180	0.301	0.489	19.577
40	PIS - HVD (46-23kV) Subs (FERC 361/362)	304	53.436	53.436	11.423	8.723	0.277	0.474	20.896

### Calculated Allocation Schedules

4CP 75/0/254CP 75/0/25 Exc WFR4CP Dmd @ Gen Jurisdictional12CP Demand @ SubtransClass Peak @ SubtransmissionClasspeak @ PrimaryClasspeak @ Secondary

Classpeak for Streetlighting

Classpeak @ Single Phase  
Billed Sales Primary

Billed Sales - Primary  
Customers - Residential

Customers - Residual  
Customers - Drops

Customers - Drops  
Customers - NonPID

Customers - NonMunicipalCustomer Count (CCC)Customer Count (BCC)PIS - HVD (345-138kV)PIS - HVD (46-23kV)PIS - HVD (345-138kV) Subs (FE)PIS - HVD (46-23kV) Subs (FER

Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r)	Rate GML	(s)	Rate GUL	(t)	Rate GU-XL	(u)	Rate GU	(v)	Lighting & Unmetered
0.044		0.210	0.065			0.339		0.659	
0.020		0.094	0.029			0.300		0.443	
0.070		0.334	0.103			0.371		0.879	
0.010		0.060	0.015			0.275		0.351	
0.060		0.286	0.088			0.343		0.778	
0.025		0.120	0.037			0.314		0.496	
0.076		0.361	0.111			0.387		0.935	
		-	-			0.254		0.254	
0.014		0.068	0.021			0.283		0.386	
0.026		0.124	0.038			0.238		0.426	
-		-	-			0.199		0.199	
0.041		0.194	0.060			0.153		0.447	
0.024		0.112	0.034			0.273		0.443	
0.058		1.259	0.453			0.156		1.925	
0.035		0.491	0.172			0.234		0.933	
0.038		0.182	0.056			0.293		0.569	
0.019		-	-			0.026		0.045	
0.023		-	-			-		0.023	
-		-	-			0.171		0.171	
-		-	-			0.182		0.182	
-		-	-			0.196		0.196	
-		-	-			0.243		0.243	
0.011		0.053	0.016			0.235		0.315	
0.011		0.053	0.016			0.237		0.318	
-		-	-			0.201		0.201	
0.028		0.131	0.040			0.253		0.452	
0.043		0.206	0.064			0.163		0.475	
0.047		0.225	0.070			0.178		0.520	
0.060		0.286	0.088			0.226		0.660	
13.729		65.292	20.167			-		99.188	
0.060		0.286	0.088			0.226		0.660	
0.048		0.226	0.070			0.365		0.708	
-		-	-			-		-	
-		-	-			-		-	
0.019		-	-			-		0.019	
-		-	-			-		-	
-		-	-			-		-	
0.301		-	-			0.400		0.701	
-		-	-			0.171		0.171	
-		-	-			0.182		0.182	
-		-	-			0.171		0.171	
-		-	-			0.182		0.182	

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Summary ALLOCATORS 2										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Calculated Allocation Schedules									
2	PIS - OH LVD System	305	100,000	100,000	68,992	25,145	5,634	0.229	-	-
3	PIS - LVD Distribution	306	100,000	99,998	67,703	24,724	4,960	2,609	0.002	0.002
4	PIS- OH (LVD & HVD) & Services	307	100,000	99,991	66,472	25,964	7,351	0.185	0.019	0.009
5	PIS- UG LVD Distribution	308	100,000	100,000	70,219	25,429	4,118	0.233	-	(0.000)
6	PIS- Total Distribution	309	100,000	99,942	64,443	23,843	9,522	2.105	0.031	0.058
7	PIS- Distribution Services	310	100,000	100,000	66,516	33,484	-	-	-	-
8	PIS- Streetlighting Equipment	311	100,000	99,927	-	-	-	99,927	-	0.073
9	PIS- Line Equipment	312	100,000	100,000	71,673	25,767	2,323	0.237	-	-
10	PIS- Meters	313	100,000	99,998	77,549	16,130	6,274	0.023	0.023	0.002
11	PIS - General	315	100,000	99,651	62,462	22,220	14,166	0.738	0.066	0.349
12	Total PIS	316	100,000	99,613	59,420	23,104	15,671	1.346	0.072	0.387
13	Distribution Depreciation	317	100,000	99,962	64,680	25,171	6,768	3.326	0.016	0.038
14	CWIP	330	100,000	99,428	56,622	22,580	19,279	0.851	0.097	0.572
15	Rate Base	390	100,000	99,624	59,755	22,737	16,050	1.010	0.073	0.376
16	Dist Op Expense (LVD) excl Sup & Eng	400	100,000	99,990	68,327	22,892	5,965	2.793	0.013	0.010
17	Dist Maint Expense (LVD) excl Sup & Eng	401	100,000	99,993	66,728	25,422	7,519	0.308	0.016	0.007
18	Dist Op Expense (HVD 345-138 kV) excl Sup & Eng	402	100,000	99,192	49,389	19,801	29,696	0.174	0.132	0.808
19	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	100,000	99,417	50,286	20,204	28,621	0.179	0.128	0.583
20	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0.021
21	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	100,000	99,979	53,436	20,896	25,322	0.182	0.143	0.021
22	Total HVD Distribution O&M Expense	406	100,000	99,871	52,845	20,760	25,945	0.181	0.140	0.129
23	Total Distribution O&M Expense (excl. HVD)	407	100,000	99,992	67,364	24,463	6,903	1.247	0.015	0.008
24	Total Customer Accounts Expense (excl. Supv)	408	100,000	100,000	88,068	11,720	0.187	0.023	0.001	0.000
25	Total Customer Accounts & Service Expense	409	100,000	99,924	84,553	12,346	2,949	0.061	0.015	0.076
26	Jurisdictional Distribution O&M	414	100,000	100,000	66,141	24,154	8,514	1.166	0.026	-
27	Pre Tax NOI	439	100,000	100,490	51,774	30,311	16,511	1.821	0.072	(0.490)
28	Depreciation & Amortization Expense	442	100,000	99,537	58,773	22,797	16,629	1.258	0.080	0.463
29	Non PSQR O&M Expense	443	100,000	99,643	62,478	22,153	14,194	0.748	0.070	0.357
30	Distribution Depreciation Expense	444	100,000	99,960	65,723	23,637	8,168	2.409	0.024	0.040
31	Gen/Comm/Int Depreciation Expense	445	100,000	99,651	62,462	22,220	14,166	0.738	0.066	0.349
32	Production Labor	500	100,000	99,091	50,853	22,172	25,612	0.315	0.139	0.909
33	Total Labor	502	100,000	99,651	62,462	22,220	14,166	0.738	0.066	0.349
34	50% O&M, 50% Net Plant	600	100,000	99,535	57,878	22,726	17,871	0.971	0.088	0.465
35	50/50 PIS & Labor	601	100,000	99,632	60,941	22,662	14,918	1.042	0.069	0.368

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Residential/Secondary  
ALLOCATORS 2

Line No.	Description	Alloc	(b)	(c)	(d)	(e)	(f)	(g)	(h)
			Rate RS	Total Residential	Rate GS	Rate GSD	Rate GS GEI	Rate GSD GEI	Commercial Secondary
Calculated Allocation Schedules									
1	PIS - OH LVD System	305	68.992	68.992	13.656	10.616	0.326	0.547	25.145
2	PIS - LVD Distribution	306	67.703	67.703	15.238	8.752	0.290	0.445	24.724
3	PIS- OH (LVD & HVD) & Services	307	66.472	66.472	16.109	9.084	0.306	0.465	25.964
4	PIS- UG LVD Distribution	308	70.219	70.219	13.802	10.747	0.329	0.551	25.429
5	PIS- Total Distribution	309	64.443	64.443	14.392	8.709	0.289	0.452	23.843
6	PIS- Distribution Services	310	66.516	66.516	30.131	2.993	0.242	0.118	33.484
7	PIS- Strengthening Equipment	311	-	-	-	-	-	-	-
8	PIS- Line Equipment	312	71.673	71.673	13.975	10.903	0.333	0.555	25.767
9	PIS- Meters	313	77.549	77.549	13.914	2.025	0.112	0.080	16.130
10	PIS- General	315	62.462	62.462	13.481	8.094	0.260	0.384	22.220
11	Total PIS	316	59.420	59.420	13.578	8.826	0.278	0.422	23.104
12	Distribution Depreciation	317	64.680	64.680	15.593	8.827	0.298	0.453	25.171
13	CWIP	330	56.622	56.622	13.066	8.839	0.271	0.404	22.580
14	Rate Base	390	59.755	59.755	13.315	8.726	0.275	0.421	22.737
15	Dist Op Expense (LVD) excl Sup & Eng	400	68.327	68.327	14.337	7.885	0.267	0.403	22.892
16	Dist Maint Expense (LVD) excl Sup & Eng	401	66.728	66.728	15.628	9.029	0.301	0.463	25.422
17	Dist Op Expense (HVD 345-138 kV) excl Sup & Eng	402	49.389	49.389	10.776	8.254	0.296	0.476	19.801
18	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	50.286	50.286	11.070	8.391	0.289	0.455	20.204
19	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	53.436	53.436	11.423	8.723	0.277	0.474	20.896
20	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	53.436	53.436	11.423	8.723	0.277	0.474	20.896
21	Total HVD Distribution O&M Expense	406	52.845	52.845	11.350	8.659	0.279	0.471	20.760
22	Total Distribution O&M Expense (excl. HVD)	407	67.364	67.364	15.143	8.592	0.288	0.440	24.463
23	Total Customer Accounts Expense (excl. Supv)	408	88.068	88.068	10.546	1.048	0.085	0.041	11.720
24	Total Customer Accounts & Service Expense	409	84.553	84.553	10.573	1.595	0.100	0.078	12.346
25	Jurisdictional Distribution O&M	414	66.141	66.141	14.824	8.600	0.287	0.443	24.154
26	Pre Tax NOI	439	51.774	51.774	19.067	10.258	0.369	0.617	30.311
27	Depreciation & Amortization Expense	442	58.773	58.773	13.486	8.639	0.270	0.402	22.797
28	Non PSOR O&M Expense	443	62.478	62.478	13.524	7.988	0.259	0.382	22.153
29	Distribution Depreciation Expense	444	65.723	65.723	14.679	8.256	0.278	0.424	23.637
30	Gen/Comm/Int Depreciation Expense	445	62.462	62.462	13.481	8.094	0.260	0.384	22.220
31	Production Labor	500	50.853	50.853	12.333	9.187	0.265	0.386	22.172
32	Total Labor	502	62.462	62.462	13.481	8.094	0.260	0.384	22.220
33	50% O&M, 50% Net Plant	600	57.878	57.878	13.179	8.847	0.278	0.423	22.726
34	50/50 PIS & Labor	601	60.941	60.941	13.529	8.460	0.269	0.403	22.662

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Primary & Lighting  
ALLOCATORS 2

Line No.	(a) Description	(b) Rate GP	(c) Rate GPTU Vlt 1	(d) Rate GPTU Vlt 2	(e) Rate GPTU Vlt 3	(f) Rate GPD Vlt 1	(g) Rate GPD Vlt 2	(h) Rate GPD Vlt 3	(i) Rate GP GEI	(j) Rate EIP Vlt 1	(k) Rate EIP Vlt 2	(l) Rate EIP Vlt 3	(m) Rate GPD GEI Vlt 1	(n) Rate GPD GEI Vlt 2	(o) Rate GPD GEI Vlt 3	(p) Rate GPD GEI Vlt 3	(q) Total Primary
Calculated Allocation Schedules																	
1	PIS - OH LVD System	305	0.598	-	2.614	-	0.014	2.141	0.097	-	-	0.004	-	-	-	-	5.634
2	PIS - LVD Distribution	306	0.656	-	2.199	-	0.014	1.816	0.094	-	-	0.004	-	-	-	-	4.960
3	PIS- OH (LVD & HVD) & Services	307	0.690	0.006	2.969	0.031	0.607	2.430	0.110	0.006	0.012	0.004	0.000	0.000	0.036	0.206	7.351
4	PIS-UG LVD Distribution	308	0.437	-	1.911	-	-	1.565	0.071	-	-	0.003	-	-	-	-	4.118
5	PIS- Total Distribution	309	0.941	0.056	3.517	0.267	0.955	2.873	0.143	0.055	0.021	0.005	0.000	0.000	0.057	0.248	9.522
6	PIS- Distribution Services	310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	PIS- Streetlighting Equipment	311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	PIS- Line Equipment	312	0.246	-	1.078	-	-	0.883	0.040	-	-	0.002	-	-	-	-	2.323
9	PIS- Meters	313	2.214	0.033	1.726	0.049	0.136	1.583	0.210	0.011	0.011	0.007	0.002	0.008	0.008	0.175	6.274
10	PIS - General	315	1.273	0.385	5.522	0.478	1.327	3.558	0.167	0.126	0.029	0.006	0.000	0.000	0.050	0.220	14.166
11	Total PIS	316	1.429	0.424	6.036	0.578	1.485	3.919	0.188	0.149	0.032	0.006	0.000	0.000	0.058	0.247	15.671
12	Distribution Depreciation	317	0.621	0.035	2.663	0.172	0.528	2.170	0.101	0.035	0.011	0.004	0.000	0.000	0.031	0.185	6.768
13	CWIP	330	1.708	0.630	7.490	0.761	1.825	4.541	0.215	0.204	0.040	0.007	0.000	0.000	0.062	0.250	19.279
14	Rate Base	390	1.477	0.415	6.117	0.598	1.568	4.021	0.195	0.159	0.036	0.007	0.000	0.000	0.064	0.261	16.050
15	Dist Op Expense (LVD) excl Sup & Eng	400	0.621	0.008	2.432	0.034	0.404	1.994	0.095	0.007	0.009	0.004	0.000	0.000	0.024	0.170	5.965
16	Dist Maint Expense (LVD) excl Sup & Eng	401	0.772	0.006	3.087	0.027	0.505	2.532	0.119	0.006	0.011	0.005	0.000	0.000	0.030	0.215	7.519
17	Dist Op Expense (HVD 345-138kV) excl Sup & Eng	402	2.011	0.813	8.617	3.624	4.266	6.552	0.340	0.726	0.095	0.008	0.005	0.000	0.254	0.565	29.696
18	Dist Maint Expense (HVD 345-138kV) excl Sup & Eng	403	2.046	0.829	8.812	3.121	3.865	6.343	0.325	0.594	0.078	0.007	0.004	0.000	0.220	0.508	28.621
19	Dist Op Expense (HVD 46-23kV) excl Sup & Eng	404	2.050	-	8.575	-	4.564	7.023	0.318	-	0.093	0.013	-	-	0.267	0.593	25.322
20	Dist Maint Expense (HVD 46-23kV) excl Sup & Eng	405	2.050	-	8.575	-	4.564	7.023	0.318	-	0.093	0.013	-	-	0.267	0.593	25.322
21	Total HVD Distribution O&M Expense	406	2.048	0.147	8.611	0.572	4.452	6.909	0.320	0.110	0.090	0.012	0.001	0.000	0.260	0.580	25.945
22	Total Distribution O&M Expense (excl. HVD)	407	0.713	0.006	2.831	0.028	0.482	2.322	0.110	0.006	0.010	0.004	0.000	0.000	0.027	0.198	6.903
23	Total Customer Accounts Expense (excl. Supv)	408	0.067	0.001	0.052	0.001	0.004	0.046	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.187
24	Total Customer Accounts & Service Expense	409	0.219	0.087	0.770	0.418	0.465	0.614	0.031	0.077	0.013	0.002	0.001	0.017	0.017	0.049	2.949
25	Jurisdictional Distribution O&M	414	0.826	0.019	3.319	0.075	0.799	2.709	0.128	0.015	0.017	0.005	0.000	0.000	0.047	0.230	8.514
26	Pre Tax NOI	439	1.696	0.774	6.463	1.680	1.538	1.754	0.216	0.334	0.172	0.047	0.001	0.001	0.115	0.212	16.511
27	Depreciation & Amortization Expense	442	1.545	0.510	6.473	0.620	1.509	4.023	0.195	0.166	0.033	0.006	0.000	0.000	0.052	0.234	16.629
28	Non PSCR O&M Expense	443	1.252	0.396	5.472	0.508	1.351	3.522	0.165	0.182	0.038	0.007	0.000	0.000	0.048	0.215	14.194
29	Distribution Depreciation Expense	444	0.932	0.041	3.057	0.185	0.702	2.512	0.133	0.038	0.016	0.005	0.000	0.000	0.042	0.219	8.168
30	Gen/Comm/Int Depreciation Expense	445	1.273	0.385	5.522	0.478	1.327	3.558	0.167	0.126	0.029	0.006	0.000	0.000	0.050	0.220	14.166
31	Production Labor	500	2.226	1.006	10.085	1.087	2.348	5.635	0.264	0.302	0.051	0.008	-	-	0.063	0.253	25.612
32	Total Labor	502	1.273	0.385	5.522	0.478	1.327	3.558	0.167	0.126	0.029	0.006	0.000	0.000	0.050	0.220	14.166
33	50% O&M, 50% Net Plant	600	1.586	0.510	6.726	0.833	1.754	4.295	0.207	0.257	0.050	0.008	0.000	0.000	0.064	0.262	17.871
34	50/50 PIS & Labor	601	1.351	0.405	5.779	0.528	1.406	3.738	0.178	0.138	0.031	0.006	0.000	0.000	0.054	0.234	14.918

Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Electric Cost-of-Service Study

(r) Rate GML	(s) Rate GUL	(t) Rate GU-XL	(u) Rate GU	(v) Lighting & Unmetered
-	-	-	0.229	0.229
0.030	1.166	1.234	0.178	2.609
-	-	-	0.185	0.185
-	-	-	0.233	0.233
0.024	0.924	0.978	0.178	2.105
-	-	-	-	-
1.228	45.510	53.189	-	99.927
-	-	-	0.237	0.237
0.023	-	-	-	0.023
0.013	0.259	0.284	0.183	0.738
0.018	0.555	0.574	0.199	1.346
0.036	1.537	1.573	0.180	3.326
0.015	0.314	0.313	0.209	0.851
0.016	0.389	0.408	0.197	1.010
0.035	1.199	1.396	0.163	2.793
0.002	0.056	0.066	0.184	0.308
-	-	-	0.174	0.174
-	-	-	0.179	0.179
-	-	-	0.182	0.182
-	-	-	0.182	0.182
-	-	-	0.181	0.181
0.015	0.488	0.569	0.176	1.247
0.012	-	-	0.012	0.023
0.014	0.012	0.004	0.031	0.061
0.014	0.451	0.525	0.176	1.166
0.090	1.367	0.170	0.195	1.821
0.018	0.534	0.508	0.196	1.258
0.016	0.265	0.282	0.186	0.748
0.028	1.125	1.091	0.166	2.409
0.013	0.259	0.284	0.183	0.738
0.011	0.053	0.016	0.235	0.315
0.013	0.259	0.284	0.183	0.738
0.017	0.368	0.378	0.208	0.971
0.016	0.407	0.429	0.191	1.042

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NET PLANT (SUMMARY)										
Line No.	(a) Description	(b)		(c)		(d)		(e)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	
1	<b>Plant in Service</b>									
2	Production		6,434,734	6,376,233		3,272,280	1,426,718	1,648,079	20,240	58,501
3	Transmission		0	-		-	-	-	-	-
4	Distribution		10,013,876	10,008,114		6,453,197	2,387,569	953,501	210,778	5,763
5	General/Common/Intangible		1,589,450	1,583,900		992,801	353,169	225,160	11,728	5,550
6	Plant Purchased/Sold		0	0		0	0	0	0	0
7	Total Plant in Service		18,038,060	17,968,247		10,718,278	4,167,456	2,826,740	242,745	69,813
8	<b>Depreciation Reserve</b>									
9	Production		2,869,537	2,843,449		1,459,257	636,238	734,952	9,026	26,088
10	Transmission		0	-		-	-	-	-	-
11	Distribution		3,262,144	3,260,892		2,109,952	821,129	220,783	108,498	1,252
12	General/Common/Intangible		900,427	897,263		562,424	200,071	127,554	6,644	3,144
13	Total Depreciation Reserve		7,032,107	7,001,623		4,131,632	1,657,437	1,083,289	124,168	30,484
14	<b>Construction Work in Progress (CWIP)</b>									
15	Production		310,139	307,320		157,716	68,765	79,434	976	2,820
16	Transmission		-	-		-	-	-	-	-
17	Distribution		156,464	156,355		99,735	37,009	16,429	3,124	58
18	General/Common/Intangible		115,556	115,153		72,179	25,676	16,370	853	76
19	Total CWIP		582,160	578,828		329,630	131,450	112,233	4,952	3,332
20	<b>Future Use</b>									
21	Production	220	0	0		0	0	0	0	0
22	Distribution	236	2,501	2,481		1,223	490	761	4	3
23	Common/General	239	0	0		0	0	-	0	-
24	PHFFU Depreciation Reserve	236	0	0		0	0	0	0	0
25	Total Future Use		2,501	2,481		1,223	490	761	4	3
26	Total Net Plant		11,590,614	11,547,933		6,917,499	2,641,959	1,856,444	123,534	42,681

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PLANT IN SERVICE (SUMMARY)										
Line No.	Description	(b)		(c)		(d)		(e)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	
1	<b>Production Plant in Service</b>									
2	Production Plant in Service		6,434,734	6,376,233	0	3,272,280	1,426,718	1,648,079	20,240	58,501
3	Generation Step Ups		0	0	0	0	0	0	0	0
4	<b>Total Production</b>		6,434,734	6,376,233	0	3,272,280	1,426,718	1,648,079	20,240	58,501
5	<b>Transmission Plant in Service</b>									
6	Bulk Power Transm		0	-	-	-	-	-	-	-
7	Transm; Subtrans		0	-	-	-	-	-	-	-
8	Subtransmission		0	-	-	-	-	-	-	-
9	<b>Total Transmission</b>		0	-	-	-	-	-	-	-
10	<b>Distribution Plant in Service</b>									
11	Stations and Equipment		2,809,836	2,804,703	1,687,097	638,491	471,564	5,685	1,865	5,133
12	Overhead System		4,517,602	4,517,120	3,002,535	1,104,699	398,838	10,021	1,027	482
13	Underground System		917,740	917,736	641,739	232,648	41,196	2,131	23	3
14	Meters and Svc Drops		1,584,524	1,584,514	1,121,826	411,731	41,903	8,900	153	11
15	St Lgts and OPL		184,175	184,041	-	-	-	-	184,041	134
16	<b>Total Distribution</b>		10,013,876	10,008,114	6,453,197	2,387,569	953,501	210,778	3,068	5,763
17	<b>General/Common/Intangible Plant in Service</b>									
18	Total Gen/Comm/Int Plant		1,589,450	1,583,900	992,801	353,169	225,160	11,728	1,043	5,550
19	<b>Plant Purchased/Sold</b>		0	0	0	0	0	0	0	0
20	<b>Total Plant in Service</b>		18,038,060	17,968,247	10,718,278	4,167,456	2,826,740	242,745	13,027	69,813

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PLANT IN SERVICE (PRODUCTION & TRANSMISSION)										
Line No.	Description	(a)								
		(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Production Plant in Service									
2	Fossil (Production-Steam)	220	4,643,548	4,601,331	2,361,401	1,029,574	1,189,316	14,606	6,434	42,217
3	Demand Response	220	24,643	24,419	12,532	5,464	6,312	78	34	224
4	Total Hydro	220	782,337	775,224	397,845	173,461	200,374	2,461	1,084	7,113
5	Other Production	220	858,770	850,962	436,713	190,408	219,950	2,701	1,190	7,807
6	Solar	220	125,436	124,296	63,789	27,812	32,127	395	174	1,140
7	Jackson Gas Plant	220	0	0	0	0	0	0	0	0
6	Distribution GSUs	220	0	0	0	0	0	0	0	0
7	Total Production Plant in Service		6,434,734	6,376,233	3,272,280	1,426,718	1,648,079	20,240	8,916	58,501
8	Transmission Plant in Service									
9	Transmission Direct		0	-	-	-	-	-	-	-
10	Transmission		0	-	-	-	-	-	-	-
11	XYZ		0	-	-	-	-	-	-	-
12	Total Transmission Plant in Service		0	-	-	-	-	-	-	-

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PLANT IN SERVICE (DISTRIBUTION)										
Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Description	Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
<b>Distribution Plant in Service</b>										
1	Distribution Land & ROW (360)	236	80,378	79,738	39,305	15,736	24,452	137	108	640
2	METC HVD (345-138 kV)	236	27,494	27,275	13,444	5,382	8,364	47	37	219
3	HVD (345-138 kV)	236	58,308	58,296	31,157	12,184	14,765	106	83	12
4	HVD (46-23 kV)	238	8,418	8,418	4,837	1,891	1,673	16	-	-
5	Substation Land & ROW	DIR	0	-	-	-	-	-	-	-
6	Assignables HVD (345-138 kV)	DIR	0	-	-	-	-	-	-	-
7	Assignables HVD (46-23 kV)	DIR	0	-	-	-	-	-	-	-
8	OH Land & ROW	307	37,872	37,868	25,174	9,833	2,784	70	7	3
9	Total Distribution Land & ROW		212,470	211,595	113,918	45,027	52,036	377	235	875
10	Distribution Substations & Equipment (361/362)									
11	Assignables HVD (345-138 kV)	DIR	0	-	-	-	-	-	-	-
12	Assignables HVD (46-23 kV)	DIR	0	-	-	-	-	-	-	-
13	HVD (345-138 kV)	236	517,359	513,239	252,989	101,285	157,387	883	695	4,120
14	138kV HV Subtrans/Dist Substations-Proposed Trans Reclass	236	0	0	0	0	0	0	0	0
15	HVD (46-23 kV)	237	654,702	654,564	349,846	136,808	165,784	1,192	934	138
16	LVD (Distribution)	238	360,364	360,364	207,065	80,973	71,620	706	-	-
17	Total Distribution Substations & Equipment		1,532,425	1,528,167	809,900	319,065	394,791	2,781	1,630	4,258
18	Distribution Overhead System (364/365)									
19	HVD (345-138 kV)	236	42,474	42,136	20,770	8,315	12,921	73	57	338
20	138kV HV Subtrans/Dist Overhead Lines-Proposed Trans Reclass	121	0	0	0	0	0	0	0	0
21	HVD (46-23 kV)	237	679,456	679,313	363,073	141,980	172,052	1,237	970	143
22	Transformer Platforms	239	0	0	0	0	0	0	-	-
23	LVD Primary (Multi-Phase)	238	1,076,080	1,076,080	618,315	241,793	213,865	2,107	-	-
24	LVD Primary (Single Phase)	239	2,088,861	2,088,861	1,536,448	547,341	-	5,072	-	-
25	LVD Secondary	239	630,730	630,730	463,929	165,269	-	1,532	-	-
26	Total Distribution Overhead System		4,517,602	4,517,120	3,002,535	1,104,699	398,838	10,021	1,027	482
27	Distribution Underground System (366/367)									
28	LVD Primary (Multi-Phase)	238	186,841	186,841	107,359	41,983	37,134	366	-	-
29	LVD Primary (Single Phase)	239	591,663	591,663	435,194	155,033	-	1,437	-	-
30	LVD Secondary	239	123,193	123,193	90,614	32,280	-	299	-	-
31	HVD (46-23 kV)	237	16,042	16,038	8,572	3,352	4,062	29	23	3
32	Total Distribution Underground System		917,740	917,736	641,739	232,648	41,196	2,131	23	3
33	Distribution Line Equipment (368)									
34	LVD Primary	238	124,459	124,459	71,514	27,966	24,736	244	-	-
35	LVD Secondary	239	940,482	940,482	691,765	246,433	-	2,284	-	-
36	Total Distribution Line Equipment		1,064,941	1,064,941	763,279	274,399	24,736	2,527	-	-
37	Distribution Services (369)									
38	Residential	260	603,892	603,892	603,892	-	-	-	-	-
39	Commercial & Industrial	261	304,004	304,004	-	304,004	-	-	-	-
40	Total Distribution Services		907,895	907,895	603,892	304,004	-	-	-	-

PLANT IN SERVICE (DISTRIBUTION & GENERAL)										
Line No.	Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Distribution Metering Equipment (370)	170	667,882	667,871	517,934	107,728	41,903	153	153	11
2	Metering Equipment		667,882	667,871	517,934	107,728	41,903	153	153	1
3	Total Distribution Metering Equipment									
4	Distribution Installations on Customer Premises (371)	DIR	8,747	8,747	-	-	-	8,747	-	-
5	Streetlighting Installations on Customer Premises		8,747	8,747	0	0	0	8,747	0	0
6	Total Distribution Installations on Customer Premises									
7	Distribution Streetlighting Equipment (373)	DIR	167,700	167,700	-	-	-	167,700	-	-
8	Luminaires/Suspensions/Poles/Transformers									
9	Underground Cable & Conduits	233	9,463	9,387	-	-	-	9,387	-	77
10	Photoelectric Switches		7,012	6,955	-	-	-	6,955	-	57
11	Total Distribution Streetlighting Equipment		184,175	184,041	-	-	-	184,041	-	134
12	Total Distribution Plant in Service		10,013,876	10,008,114	6,453,197	2,387,569	953,501	210,778	3,068	5,763
13	Total Distribution Plant in Service	309	10,013,876	10,008,114	6,453,197	2,387,569	953,501	210,778	3,068	5,763
14	Electric Plant Purchased & Sold	220	0	0	0	0	0	0	0	0
15	General, Common & Intangible Plant in Service									
16	General: Production Related	220	0	0	0	0	0	0	0	0
17	General: Merchant Control	226	0	0	0	0	0	0	0	-
18	General: Power Control Center 138kV	301	0	0	0	0	0	0	0	0
19	General: Power Control Center 46kV	302	0	0	0	0	0	0	0	0
20	General: Functionalized (E-GP)	502	413,341	411,898	258,181	91,843	58,554	3,050	271	1,443
21	General: Reallocated from/(to) Gas	DIR	0	-	-	-	-	-	-	-
22	Common: Functionalized (C-GP)	502	448,287	446,722	280,008	99,607	63,504	3,308	294	1,565
23	Franchises & Consents - Generation	220	0	0	0	0	0	0	0	0
24	Intangible PIS	502	727,822	725,281	454,612	161,719	103,103	5,370	478	2,541
25	Total General, Common & Intangible Plant in Service		1,589,450	1,583,900	992,801	353,169	225,160	11,728	1,043	5,550

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DEPRECIATION RESERVE (SUMMARY)										
Line No.	Description (a)	(b)		(c)		(d)		(e)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	
1	<b>Production Depreciation Reserve</b>									
2	Production Depreciation Reserve		2,866,809	2,840,745	0	1,457,869	635,633	734,254	9,017	26,064
3	Generation Step Ups		0	0	0	0	0	0	0	0
4	Total Production Depreciation Reserve		2,866,809	2,840,745	0	1,457,869	635,633	734,254	9,017	26,064
5	<b>Transmission Depreciation Reserve</b>									
6	Bulk Power Transm		-	-	-	-	-	-	-	-
7	Transm: Subtrans		0	-	-	-	-	-	-	-
8	Subtransmission		0	-	-	-	-	-	-	-
9	Total Transmission Depreciation Reserve		0	-	-	-	-	-	-	-
10	<b>Distribution Depreciation Reserve</b>									
11	Stations and Equipment		756,082	754,980	475,305	177,398	100,294	1,592	392	1,102
12	Overhead System		1,540,689	1,540,610	1,048,328	383,401	105,259	3,491	130	79
13	Underground System		336,516	336,515	235,565	85,375	14,787	782	6	1
14	Meters and Svc Drops		532,385	532,385	350,754	174,855	443	6,231	2	0
15	St Lgts and OPL		96,472	96,402	-	-	-	96,402	-	70
16	Total Distribution Depreciation Reserve		3,262,144	3,260,892	2,109,952	821,129	220,783	108,498	530	1,252
17										
18	<b>Total General, Common &amp; Intangible Depreciation Reserve</b>		900,427	897,283	562,424	200,071	127,554	6,644	591	3,144
19	<b>Total Depreciation Reserve</b>		7,032,107	7,001,623	4,131,632	1,657,437	1,083,289	124,168	5,097	30,484

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DEPRECIATION RESERVE (PRODUCTION & TRANSMISSION)										
Line No.	Description	(a)								
		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		Alloc	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	<b>Production Depreciation Reserve</b>									
2	Fossil (Production-Steam)	220	2,008,276	1,990,018	1,021,277	445,278	514,364	6,317	2,783	18,258
3	Demand Response	220	958	949	487	212	245	3	1	9
4	Hydro	220	450,116	446,023	228,899	99,800	115,285	1,416	624	4,092
5	Other Production	220	407,459	403,754	207,207	90,342	104,359	1,282	565	3,704
6	Solar	220	2,728	2,703	1,387	605	699	9	4	25
7	7 Classics	220	0	0	0	0	0	0	0	0
6	Distribution GSUs	220	0	0	0	0	0	0	0	0
7	Total Production Depreciation Reserve		2,869,537	2,843,449	1,459,257	636,238	734,952	9,026	3,976	26,088
8	<b>Transmission Depreciation Reserve</b>									
9	Total Transmission Direct		0	-	-	-	-	-	-	-
10	Total Subtransmission		0	-	-	-	-	-	-	-
11	XYZ		0	-	-	-	-	-	-	-
12	Total Transmission Depreciation Reserve		0	-	-	-	-	-	-	-

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DEPRECIATION RESERVE (DISTRIBUTION)										
Line No.	Description	(a)		(b)		(c)		(d)		(j) Total Non-Jurisdictional
		Alloc	Total Electric	Total Electric	Total Residential	Total Commercial Secondary	Total Primary	Lighting & Unmetered	Rate GSG	
1	<b>Distribution Depreciation Reserve</b>									
2	Distribution Land & Right of Way (360)									
3	METC HVD (345-138 kV)	236	9,192	9,119	4,495	1,800	2,796	16	12	73
4	HVD (345-138 kV)	236	2,452	2,433	1,199	480	746	4	3	20
5	HVD (46-23 kV)	237	10,691	10,689	5,713	2,234	2,707	19	15	2
6	Assignable HVD	DIR	0	-	-	-	-	-	-	-
7	OH Land & ROW	307	13,144	13,143	8,737	3,413	966	24	2	1
8	Total Distribution Land & ROW Depreciation Reserve		35,480	35,384	20,144	7,927	7,216	64	33	96
9	<b>Distribution Substations &amp; Equipment (361/362)</b>									
10	Assignable HVD	DIR	0	-	-	-	-	-	-	-
11	HVD (345-138 kV)	236	122,727	121,750	60,014	24,027	37,335	210	165	977
12	HVD (46-23 kV)	237	135,481	135,452	72,395	28,310	34,306	247	193	29
13	LVD (Distribution)	238	60,943	60,943	35,018	13,694	12,112	119	-	-
14	Total Distribution, Substations & Equipment Depreciation Reserve		319,151	318,145	167,427	66,031	83,753	576	358	1,006
15	<b>Distribution Overhead System (364/365)</b>									
16	HVD (345-138 kV)	236	7,666	7,605	3,749	1,501	2,332	13	10	61
17	HVD (46-23 kV)	237	84,063	84,045	44,920	17,566	21,286	153	120	18
18	LVD (Distribution)	305	1,448,960	1,448,960	999,660	384,334	81,641	3,325	-	-
19	Total Distribution Overhead System Depreciation Reserve		1,540,689	1,540,610	1,048,328	383,401	105,259	3,491	130	79
20	<b>Distribution Underground System (366/367)</b>									
21	LVD (Distribution)	308	332,137	332,137	233,225	84,460	13,678	774	-	-
22	HVD (46-23 kV)	237	4,379	4,378	2,340	915	1,109	8	6	1
23	Total Distribution Underground System Depreciation Reserve		336,516	336,515	235,565	85,375	14,787	782	6	1
24	<b>Distribution Line Equipment (368)</b>									
25	Capacitors/Regulators/Transformers	312	401,452	401,452	287,734	103,440	9,325	953	-	-
26	Total Distribution Line Equipment Depreciation Reserve		401,452	401,452	287,734	103,440	9,325	953	-	-
27	<b>Distribution Services (369)</b>									
28	C&I and Residential Services	310	519,096	519,096	345,280	173,816	-	-	-	-
29	Total Distribution Services Depreciation Reserve		519,096	519,096	345,280	173,816	-	-	-	-

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DEPRECIATION RESERVE (DISTRIBUTION & GENERAL)																		
Line No.	Description	(a)	(b)	(c)		(d)	(e)		(f)	(g)	(h)	(i)	(j)					
				Total Electric	Total Jurisdictional Electric		Total Residential	Total Commercial Secondary						Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional	
1	Distribution Metering Equipment (370)																	
2	Metering Equipment (Mass)		170	7,059	7,059	7,059	5,474	1,139	443	2	2	2	0					
3	Total Distribution Metering Equipment Depreciation Reserve			7,059	7,059	7,059	5,474	1,139	443	2	2	2	0					
4	Distribution Installations on Customer Premises (371)																	
5	Streetlighting Installations		DIR	6,230	6,230	6,230	-	-	0	-	6,230	-	-					
6	Total Distribution Installations on Customer Premises Depreciation Reserve			6,230	6,230	6,230	0	0	0	0	6,230	0	0					
7	Distribution Streetlighting Equipment (373)																	
8	Streetlighting Equipment		311	96,472	96,402	96,402	-	-	-	-	96,402	-	70					
9	Total Distribution Streetlighting Depreciation Reserve			96,472	96,402	96,402	-	-	-	-	96,402	-	70					
10	Total Distribution Depreciation Reserve			3,262,144	3,260,892	3,260,892	2,109,952	821,129	220,783	108,498	530	1,252						
11	Total Distribution Depreciation Reserve		317	3,262,144	3,260,892	3,260,892	2,109,952	821,129	220,783	108,498	530	1,252						
12	General, Common & Intangible Depreciation Reserve																	
13	General: Power Control Center		314	0	0	0	0	0	0	0	0	0	0					
14	General: Functionalized (E-GP)		502	133,294	132,829	132,829	83,258	29,617	18,882	983	87	465						
15	General: Reallocated to Gas		DIR	0	-	-	-	-	-	-	-	-	-					
16	Common: Functionalized (C-GP)		502	214,315	213,566	213,566	133,865	47,620	30,360	1,581	141	748						
17	Intangible Amortization Reserve		502	552,818	550,888	550,888	345,301	122,834	78,312	4,079	363	1,930						
18	Total General, Common & Intangible Depreciation Reserve			900,427	897,283	897,283	562,424	200,071	127,554	6,644	591	3,144						

CWIP

Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
Production CWIP										
1	Production	220	310,139	307,320	157,716	68,765	79,434	976	430	2,820
2	Production: Gas Plant	0	0	0	0	0	0	0	0	0
3	Production: 7 Classics	220	0	0	0	0	0	0	0	0
4	Total Production CWIP		310,139	307,320	157,716	68,765	79,434	976	430	2,820
Transmission CWIP										
5	Transmission	0	-	-	-	-	-	-	-	-
6	Subtransmission	0	0	-	-	-	-	-	-	-
7										
8	Total Transmission CWIP		0	-	-	-	-	-	-	-
Distribution CWIP										
9	HVD (345-138 kV)	236	12,671	12,570	6,196	2,481	3,855	22	17	101
10	HVD (46-23kV)	237	26,728	26,723	14,283	5,585	6,768	49	38	6
11	LVD Distribution	306	117,065	117,063	79,257	28,943	5,807	3,054	2	2
12										
13	Total Distribution CWIP		156,464	156,355	99,735	37,009	16,429	3,124	58	109
General/Common/Intangible CWIP										
14	General	502	31,939	31,828	19,950	7,097	4,524	236	21	112
15	Intangible	502	37,824	37,692	23,626	8,404	5,358	279	25	132
16	Common	502	45,793	45,633	28,603	10,175	6,487	338	30	160
17										
18	Plant Held for Future Use	502	0	0	0	0	0	0	0	0
19	Other	502	0	0	0	0	0	0	0	0
20	Total General, Common & Intangible CWIP		115,556	115,153	72,179	25,676	16,370	853	76	403

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WORKING CAPITAL																		
Line No.	(a) Description	(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j) Total Non Jurisdictional
		Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial	Total Primary	Total Lighting & Unmetered	Rate GSG									
1	Current Assets																	
2	Cash & Cash Equivalents	316	47,915	47,742	28,670	11,092	7,278	669	33									173
3	Accts Receivable	143	261,608	260,088	136,877	62,408	58,259	2,445	99									1,519
4	Material and Supplies	316	104,585	104,207	62,579	24,210	15,886	1,460	72									378
5	Fuel Stock	100	62,627	61,878	26,648	14,705	19,969	413	143									749
6	Real & Personal Property Taxes	316	191,729	191,036	114,721	44,383	29,123	2,676	132									694
7	Other Cur Assets	502	555,136	553,197	346,748	123,349	78,640	4,096	364									1,938
8	Deferred Debits	502	1,116,087	1,112,190	697,129	247,990	158,104	8,235	732									3,897
9	Total Current Assets		2,339,688	2,330,338	1,413,373	528,136	367,260	19,993	1,576									9,349
10	Current Liabilities																	
11	Accounts Payable	316	416,019	414,514	248,926	96,303	63,192	5,806	287									1,505
12	Customer Deposits	143	14,241	14,158	7,451	3,397	3,171	133	5									83
13	Dividends Declared	316	34,391	34,266	20,578	7,961	5,224	480	24									124
14	Accrued Interest	316	47,858	47,685	28,636	11,079	7,269	668	33									173
15	Accrued Taxes - Federal	502	(4,237)	(4,222)	(2,647)	(941)	(600)	(31)	(3)									(15)
16	Accrued Taxes - State	601	(3,147)	(3,135)	(1,924)	(714)	(462)	(34)	(2)									(11)
17	Accrued Taxes - R&PP & Other	316	234,372	233,524	140,237	54,254	35,600	3,271	162									848
18	Other Current Liabilities	502	47,835	47,668	29,878	10,629	6,776	353	31									167
19	Deferred CR	502	135,670	135,196	84,742	30,145	19,219	1,001	89									474
20	Total Current Liabilities		923,000	919,653	555,876	212,113	139,389	11,648	626									3,348
21	Total Working Capital		1,416,687	1,410,686	857,497	316,023	227,870	8,346	950									6,002

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ADJUSTMENTS TO RATE BASE												
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)			
Line No.	Description	Total Electric		Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional		
		Alloc										
1	Additions to Rate Base											
2	Sales and Use Tax Adjustment	309	0	0	0	0	0	0	0	0		
3		0	0	-	-	-	-	-	-	-		
4		0	0	-	-	-	-	-	-	-		
5		0	0	-	-	-	-	-	-	-		
6	Total Additions		0	0	0	0	0	0	0	0		
Deductions to Rate Base												
7	Construction Funds Retained from Contractors	330	0	0	0	0	0	0	0	0		
8	Customer Advances	309	51,761	51,731	33,356	12,341	4,929	1,089	16	30		
9		0	0	-	-	-	-	-	-	-		
10		0	0	-	-	-	-	-	-	-		
11		0	0	-	-	-	-	-	-	-		
12	Total Deductions		51,761	51,731	33,356	12,341	4,929	1,089	16	30		
13	Total Adjustments to Rate Base											
			(51,761)	(51,731)	(33,356)	(12,341)	(4,929)	(1,089)	(16)	(30)		

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REVENUE										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
Rate Revenue										
1	Non PSQR Rate Revenue									
2	Revenue From Electric Sales	DIR	2,245,148	2,235,151	1,379,786	554,934	272,452	26,424	1,556	9,996
3	Provision for Rate Refund	DIR	0	-	-	-	-	-	-	-
4	Unbilled Revenue	DIR	0	-	-	-	-	-	-	-
5	Total Non PSQR Rate Revenue		2,245,148	2,235,151	1,379,786	554,934	272,452	26,424	1,556	9,996
6	PSQR Base Revenue	DIR	1,857,851	1,843,929	768,004	423,803	640,231	11,892	-	13,922
7	Unbilled PSQR Base Revenue	DIR	0	-	-	-	-	-	-	-
8		DIR	0	-	-	-	-	-	-	-
9	Total PSQR Rate Revenue		1,857,851	1,843,929	768,004	423,803	640,231	11,892	-	13,922
10	Total Rate Revenue		4,102,999	4,079,081	2,147,790	978,737	912,683	38,316	1,556	23,918
Non-PSQR Rate Revenue Credits										
11	450 Late Payment Charge Revenue	DIR	8,899	8,899	5,559	2,236	1,098	-	6	-
12	451 Miscellaneous Service & Reconnect Fees	253	1,013	1,013	463	263	280	7	0	-
13	454 Pole Rental Rev	307	12,063	12,062	8,019	3,132	887	22	2	1
14	454 Other Rents	316	0	0	0	0	0	0	0	0
15	458 Purchased Power Administrative Fees	100	610	603	260	143	195	4	1	7
16	Other Revenues	150	17,466	17,273	6,417	3,645	7,075	99	37	193
17	Job Work Revenue	414	13,627	13,627	9,013	3,291	1,160	159	3	-
18	LTILRR: Production	DIR	49,479	48,979	23,780	10,943	13,941	232	84	500
19	LTILRR: Delivery	390	929	929	605	214	96	13	0	1
20			0	-	-	-	-	-	-	-
21			0	-	-	-	-	-	-	-
22			0	-	-	-	-	-	-	-
23			0	-	-	-	-	-	-	-
24			0	-	-	-	-	-	-	-
25			0	-	-	-	-	-	-	-
26	Non PSQR Revenue Credits		104,087	103,385	54,116	23,868	24,730	537	134	702
27	PSQR Factor Revenue	DIR	17,229	17,229	7,176	3,960	5,982	111	-	-
28	Unbilled PSQR Factor Revenue	DIR	0	-	-	-	-	-	-	-
29	Intersystem Sales	222	83,076	83,049	42,617	18,583	21,469	264	116	27
30	GSG and GI Market Price Revenue	DIR	5,582	5,582	-	-	2,073	-	3,509	-
31	PSQR Revenue Credits		105,887	105,860	49,793	22,543	29,524	375	3,625	27
32	Total Revenue Credits		209,974	209,246	103,908	46,411	54,255	912	3,760	729
33	Total Revenue		4,312,973	4,288,327	2,251,698	1,025,148	966,938	39,227	5,315	24,647

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PRODUCTION O&M (1)																		
Line No.	Description	(a)	(b)	(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j)
				Total Electric	Alloc	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Lighting & Unmetered	Rate GSG	Total Non Jurisdictional						
1	Fuel and Purchased Power																	
2	Mid-Peak Summer Fuel for Gen		108	70,146		69,306	27,731	17,270		23,909		271	125			839		
3	On-Peak Winter Fuel for Gen		105	192,537		190,233	75,025	46,344		67,505		954	404			2,304		
4	Off-Peak Summer Fuel for Gen		104	75,524		74,620	33,244	16,764		23,845		587	179			904		
5	Off-Peak Winter Fuel for Gen		106	135,765		134,140	60,203	29,426		42,880		1,270	362			1,625		
6	Critical Summer Peak Energy		107	34,713		34,297	15,407	8,056		10,693		88	53			415		
7	Total Fuel Expense			508,684		502,596	211,609	117,860		168,832		3,170	1,124			6,087		
8	Mid-Peak Summer Purchased Power		108	60,467		59,744	23,904	14,887		20,610		234	108			724		
9	On-Peak Winter Purchased Power		105	165,971		163,985	64,673	39,950		58,191		823	348			1,986		
10	Off-Peak Summer Purchased Power		104	65,103		64,324	28,657	14,451		20,555		506	154			779		
11	Off-Peak Winter Purchased Power		106	117,032		115,632	51,896	25,366		36,963		1,094	312			1,401		
12	Critical Peak Summer Purchased Power		107	29,923		29,565	13,281	6,944		9,218		76	46			358		
13	Purchased Power Capacity		220	519,706		514,981	264,288	115,230		133,108		1,635	720			4,725		
14	Total Purchased & Interchange Power Expense			958,202		948,230	446,700	216,828		278,645		4,368	1,689			9,972		
15	Total Fuel and Purchased & Interchange Power Expense			1,466,886		1,450,826	658,309	334,689		447,477		7,538	2,813			16,060		

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PRODUCTION O&M (2)											
Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
			Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	Fossil Plant O&M Expense										
2	Capacity Related Operations		220	49,400	48,951	25,122	10,953	12,652	155	68	449
3	Capacity Related Maintenance		220	10,054	9,963	5,113	2,229	2,575	32	14	91
4	Energy Related Operations		100	3,399	3,358	1,446	798	1,084	22	8	41
5	Energy Related Maintenance		100	31,285	30,910	13,312	7,346	9,975	206	71	374
6	Capacity Related Fuel Handling		220	0	0	0	0	0	0	0	0
7	Energy Related Fuel Handling		100	4,905	4,846	2,087	1,152	1,564	32	11	59
8	Total Fossil O&M Expense			99,042	98,028	47,079	22,478	27,850	448	173	1,014
9	Nuclear Plant O&M Expense										
10	Capacity Related Operations			0	-	-	-	-	-	-	-
11	Capacity Related Maintenance			0	-	-	-	-	-	-	-
12	Energy Related Maintenance			0	-	-	-	-	-	-	-
13	XYZ			0	-	-	-	-	-	-	-
14	XYZ			0	-	-	-	-	-	-	-
15	Total Nuclear Plant O&M Expense			0	-	-	-	-	-	-	-
16	Hydro Plant O&M Expense										
17	Capacity Related Operations		220	8,464	8,387	4,304	1,877	2,168	27	12	77
18	Capacity Related Maintenance		220	5,557	5,506	2,826	1,232	1,423	17	8	51
19	Energy Related Operations		100	796	787	339	187	254	5	2	10
20	Energy Related Maintenance		100	5,880	5,810	2,502	1,381	1,875	39	13	70
21	XYZ		220	0	0	0	0	0	0	0	0
22	Total Hydro O&M Total			20,698	20,490	9,971	4,676	5,720	88	35	207
23	Other Power Generation O&M Expense										
24	Capacity Related Operations & Maintenance		220	67,608	66,993	34,381	14,990	17,316	213	94	615
25	Energy Related Operations & Maintenance		100	0	0	0	0	0	0	0	0
26	XYZ			0	-	-	-	-	-	-	-
27	Total Other Power Gen O&M Expense			67,608	66,993	34,381	14,990	17,316	213	94	615
28	Other Power Supply Expense										
29	Capacity Related Sys Cntl Load Disp		220	9,684	9,596	4,925	2,147	2,480	30	13	88
30	Energy Related Sys Cntl Load Disp		100	0	0	0	0	0	0	0	0
31	Total Other Power Supply O&M Expense			9,684	9,596	4,925	2,147	2,480	30	13	88
32	Disposition of Allowances		220	0	0	0	0	0	0	0	0
33	Total Production O&M (excluding Fuel and P&I)			197,032	195,108	96,356	44,291	53,367	779	314	1,924
34	Total Production O&M Expense			1,663,918	1,645,934	754,665	378,980	500,844	8,317	3,128	17,984

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TRANSMISSION O&M											
Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
			Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	Transmission O&M Expense										
2	Transmission		120	498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
3	Reclassified Transmission		127	0	0	0	0	0	0	0	0
4	Other		120	0	0	0	0	0	0	0	0
5	Total Transmission O&M Expense			498,412	493,382	238,116	108,120	144,283	2,124	739	5,030
6	Other O&M Adjustments										
7	Tax Benefit of Proforma Interest & Interest Synchronization Adjustment		150	0	0	0	0	0	0	0	0
8	Other Advertising Programs - Disallowance		412	0	0	0	0	0	0	0	0
9	Income Tax Effect of Interest		390	0	0	0	0	0	0	0	0
10	Charitable, Civic, Dues & Donations		412	0	0	0	0	0	0	0	0
11	Transmission reclass (indirect costs)		DIR	0	-	-	-	-	-	-	-
12	Streelighting O&M		DIR	0	-	-	-	-	-	-	-
13	Customer O&M		411	0	0	0	0	0	0	0	0
14	Administrative and General O&M		412	0	0	0	0	0	0	0	0
15	Other O&M Inflation		443	0	0	0	0	0	0	0	0
16	Other O&M Adjmts		438	0	0	0	0	0	0	0	0
17	Total Other O&M Adjustments			0	0	0	0	0	0	0	0

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DISTRIBUTION O&M										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
Distribution Operation Expense										
1	580 Supv & Engineering - Distribution (LVD)	400	35,154	35,150	24,019	8,047	2,097	982	5	4
2	580 Supv & Engineering - HVD (345-138kV)	402	201	199	99	40	60	0	0	2
3	580 Supv & Engineering - HVD (46-23kV)	404	479	479	256	100	121	1	1	0
4	581 Load Dispatch - Distribution	301	0	0	0	0	0	0	0	0
5	582 Station Expense - Distribution (LVD)	238	729	729	419	164	145	1	-	-
6	582 Station Expense - HVD (345-138kV)	303	537	532	262	105	163	1	1	4
7	582 Station Expense - HVD (46-23kV)	304	679	679	363	142	172	1	1	0
8	583 Overhead Expense - Distribution (LVD)	307	23,875	23,873	15,870	6,199	1,755	44	5	2
9	583 Overhead Expense - HVD (345-138kV)	121	63	62	34	14	15	0	0	1
10	583 Overhead Expense - HVD (46-23kV)	237	1,004	1,004	536	210	254	2	1	0
11	584 Underground	308	7,303	7,303	5,128	1,857	301	17	-	-
12	585 Street Lighting & Signal System	311	1,058	1,057	-	-	-	1,057	-	1
13	585 Metering Expense	313	967	967	750	156	61	0	0	0
14	587 Customer Installations	160	5,651	5,651	4,974	662	12	3	0	0
15	588 Miscellaneous	400	24,425	24,422	16,689	5,591	1,457	682	3	3
16	589 Rents	309	2,457	2,455	1,583	586	234	52	1	1
17	Total Distribution Operation Expense		104,580	104,563	70,983	23,872	6,847	2,843	18	17
Distribution Maintenance Expense										
18	590 Supv & Engineering - Distribution (LVD)	401	5,636	5,636	3,761	1,433	424	17	1	0
19	590 Supv & Engineering - HVD (345-138kV)	403	207	206	104	42	59	0	0	1
20	590 Supv & Engineering - HVD (46-23kV)	405	493	493	264	103	125	1	1	0
21	591 Structures - Distribution (LVD)	238	480	480	276	108	95	1	-	-
22	591 Structures - HVD (345-138kV)	303	55	55	27	11	17	0	0	0
23	591 Structures - HVD (46-23kV)	304	70	70	37	15	18	0	0	0
24	592 Station Equipment - Distribution (LVD)	238	7,623	7,623	4,380	1,713	1,515	15	-	-
25	592 Station Equipment - HVD (345-138kV)	303	2,368	2,349	1,158	464	720	4	3	19
26	592 Station Equipment - HVD (46-23kV)	304	2,996	2,996	1,601	626	759	5	4	1
27	593 Overhead Lines - Distribution (LVD)	307	131,639	131,627	87,503	34,179	9,677	243	25	12
28	593 Overhead Lines - HVD (345-138kV)	224	889	889	480	195	211	2	1	-
29	593 Overhead Lines - HVD (46-23kV)	301	14,216	14,213	7,596	2,971	3,600	26	20	3
30	594 Underground Lines- Distribution (LVD)	308	2,915	2,915	2,047	741	120	7	-	-
31	594 Underground Lines- HVD (345-138kV)	121	0	0	0	0	0	0	0	0
32	594 Underground Lines- HVD (46-23kV)	237	0	0	0	0	0	0	0	0
33	595 Line Transformers	312	11,637	11,637	8,341	2,999	270	28	-	-
34	596 Street Lighting & Signal System	311	197	197	-	-	-	197	-	0
35	597 Meters	313	5,010	5,010	3,885	808	314	1	1	0
36	598 Miscellaneous	401	(42)	(42)	(28)	(11)	(3)	(0)	(0)	(0)
37	Total Distribution Maintenance Expense		186,389	186,353	121,432	46,395	17,921	547	57	37
38	Total Distribution O&M Expense		290,969	290,915	192,415	70,267	24,768	3,391	74	54

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CUSTOMER RELATED AND ADMINISTRATIVE & GENERAL EXPENSE																					
Line No.	Description	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j)	
		Alloc	Total Electric	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Lighting & Unmetered	Rate GSG	Total Non Jurisdictional										
1	Customer Accounts Expense																				
2	901 Supervision	408	5,071	5,071	4,466	594	9	1	0	0											
3	902 Meter Reading	263	6,638	6,638	5,857	779	-	1	-	-											
4	903 Rcrds & Collection	160	19,710	19,710	17,349	2,309	44	9	0	0											
5	904 Uncollectibles	264	17,079	17,079	15,039	2,001	38	-	0	0											
6	905 Misc Expenses	408	0	0	0	0	0	0	0	0											
7	Total Customer Accounts		48,498	48,498	42,711	5,684	91	11	0	0											
8	Customer Services Expense																				
9	907 Supervision	160	10	10	8	1	0	0	0	0											
10	908 Customer Assist	603	3,628	3,588	1,333	757	1,469	21	8	40											
11	909 Info & Inst	160	841	841	740	98	2	0	0	0											
12	910 Miscellaneous	160	0	0	0	0	0	0	0	0											
13	Total Customer Services		4,478	4,438	2,081	857	1,471	21	8	40											
14	Other Expense																				
15	911-916 Sales Expense	160	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)											
16	Customer Contact Center (CCC)	161	18,518	18,518	17,422	1,096	-	-	-	-											
17	Business Customer Care (BCC)	162	2,250	2,250	-	2,156	77	16	0	-											
18	0		0	-	-	-	-	-	-	-											
19	Total Other Expense		20,767	20,767	17,422	3,253	77	16	0	(0)											
20	Administrative & General Expense																				
21	Production	500	49,084	48,638	24,961	10,883	12,572	154	68	446											
22	HV Distribution	406	5,950	5,943	3,145	1,235	1,544	11	8	8											
23	Distribution	407	65,675	65,669	44,241	16,066	4,533	819	10	5											
24	Customer	409	13,810	13,800	11,677	1,705	407	8	2	10											
25	Total Administrative & General Expense		134,520	134,050	84,023	29,890	19,056	993	88	470											
26	Total O&M Expense (excluding PSOR Expense)																				
			696,264	693,776	435,009	154,242	98,830	5,210	485	2,488											
27	Total O&M Expense																				
			2,661,562	2,637,984	1,331,434	597,050	690,590	14,873	4,037	23,578											

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DEPRECIATION EXPENSE (SUMMARY)											
Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
			Alloc	Total Electric	Total Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional
1	Production Depreciation Expense										
2	Production Depreciation Expense			308,389	305,585	156,826	68,376	78,985	970	427	2,804
3	GSU Depreciation Expense			5,456	5,407	2,775	1,210	1,398	17	8	50
4	Test Year Production Change		220	0	0	0	0	0	0	0	0
5	Total Production			313,845	310,992	159,601	69,586	80,383	987	435	2,853
6	Transmission										
7	Bulk Power Transm		0	0	-	-	-	-	-	-	-
8	Transm; Subtrans		0	0	-	-	-	-	-	-	-
9	Subtransmission		0	0	-	-	-	-	-	-	-
10	Total Transmission			0	-	-	-	-	-	-	-
11	Distribution										
12	Stations and Equipment			67,347	67,242	41,293	15,526	10,245	139	40	105
13	Overhead System			140,692	140,681	94,377	34,641	11,323	315	24	11
14	Underground System			20,545	20,545	14,427	5,224	846	48	-	-
15	Meters and Svc Drops			67,922	67,921	48,856	16,160	2,310	587	8	1
16	St Lgts and OPL			6,210	6,205	-	-	-	6,205	-	5
17	PowerMIDrive Amortization		444	763	762	501	180	62	18	0	0
18	Total Distribution			303,479	303,357	199,454	71,732	24,787	7,312	73	122
19	General/Common/Intangible										
20	Total Gen/Comm/Int			102,095	101,738	63,770	22,685	14,463	753	67	356
21	Test Year Gen/Comm/Int Change		445	0	0	0	0	0	0	0	0
22	Total General/Common/Intangible Dep Expense			102,095	101,738	63,770	22,685	14,463	753	67	356
23	Other Amortization Expense			0	0	0	0	0	0	0	0
24	Total Depreciation & Amortization Expense			719,418	716,087	422,825	164,003	119,632	9,052	574	3,331

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DEPRECIATION EXPENSE (PRODUCTION & TRANSMISSION)										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	Production Depreciation Expense									
2	0									
3	Fossil (Production-Steam)	220	224,235	222,196	114,031	49,718	57,431	705	311	2,039
4	Demand Response	220	497	493	253	110	127	2	1	5
5	Hydro	220	53,777	53,288	27,348	11,924	13,774	169	75	489
6	Other Production	220	29,880	29,608	15,195	6,825	7,653	94	41	272
7	Solar	220	5,456	5,407	2,775	1,210	1,398	17	8	50
8	Jackson Gas Plant	220	0	0	0	0	0	0	0	0
9	7 Classics	220	0	-	-	-	-	-	-	-
10	Total Production Depreciation Expense		313,845	310,992	159,601	69,586	80,383	987	435	2,853
11	Transmission Depreciation Expense									
12	Direct		0	-	-	-	-	-	-	-
13	Transmission		0	-	-	-	-	-	-	-
14	Subtransmission		0	-	-	-	-	-	-	-
15	Total Transmission Depreciation Expense		0	-	-	-	-	-	-	-

Projected 12-Month Period Ending Dec 31, 2022  
Version 2  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

DEPRECIATION EXPENSE (DISTRIBUTION & GENERAL)											
(a)											
Line No.	Description	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
		Alloc	Total Electric	Jurisdictional Electric	Total Residential	Total Commercial Secondary	Total Primary	Total Lighting & Unmetered	Rate GSG	Total Non Jurisdictional	
1	Distribution Depreciation Expense										
2	Distribution Land & Right of Way (360)	236	-	-	-	-	-	-	-	-	
3	METC HVD (345-138 kV)	236	313	311	153	61	95	1	0	2	
4	HVD (345-138 kV)	236	187	186	91	37	57	0	0	0	
5	HVD (46-23 kV)	237	619	619	331	129	157	1	1	0	
6	Substations/Overheads (Assignable)	DIR	0	-	-	-	-	-	-	-	
7	OH Land & ROW	307	541	541	360	140	40	1	0	0	
8	Total Distribution Land & ROW Depreciation Expense		1,660	1,656	935	368	349	3	2	4	
9	Distribution Substations & Equipment (361/362)										
10	Customer Substations (Assignable)	DIR	0	-	-	-	-	-	-	-	
11	HVD (345-138 kV)	236	12,257	12,159	5,994	2,400	3,729	21	16	98	
12	Distribution Substations	238	8,239	8,239	4,734	1,851	1,637	16	-	-	
13	Total Distribution Substations & Equipment Depreciation Expense		35,630	35,529	18,815	7,413	9,198	65	38	101	
14	Distribution Overhead System (364/365)										
15	HVD (345-138 kV)	236	987	979	483	193	300	2	1	8	
16	HVD (46-23 kV)	237	16,007	16,004	8,553	3,345	4,053	29	23	3	
17	LVD (Distribution)	305	123,698	123,698	85,341	31,103	6,970	284	-	-	
19	Total Distribution Overhead Depreciation Expense		140,692	140,681	94,377	34,641	11,323	315	24	11	
20	Distribution Underground System (366/367)										
21	Underground System	308	20,545	20,545	14,427	5,224	846	48	-	-	
22	Total Distribution Underground Depreciation Expense		20,545	20,545	14,427	5,224	846	48	-	-	
23	Distribution Line Equipment (368)										
24	Line Equipment	312	30,057	30,057	21,543	7,745	698	71	-	-	
25	Total Distribution Line Equipment Depreciation Expense		30,057	30,057	21,543	7,745	698	71	-	-	
26	Distribution Services (369)										
27	Overhead & Underground Services	310	30,526	30,526	20,305	10,222	-	-	-	-	
28	Total Distribution Services Depreciation Expense		30,526	30,526	20,305	10,222	-	-	-	-	

Projected 12-Month Period Ending Dec 31, 2022  
Version 2  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

DEPRECIATION EXPENSE (DISTRIBUTION & GENERAL)																				
Line No.	Description	(a)		(b)		(c)		(d)		(e)		(f)		(g)		(h)		(i)		(j) Total Non Jurisdictional
		Alloc		Total Electric		Jurisdictional Electric		Total Residential		Commercial Secondary		Total Primary		Lighting & Unmetered		Rate GSG				
1	Distribution (cont.)																			
2	Distribution Metering Equipment (370)																			
3	Metering Equipment	170	36,817	-	36,817	28,551	5,939	2,310	8	1										
4	Total Distribution Metering Equipment Depreciation Expense		36,817		36,817	28,551	5,939	2,310	8	1										
5	Distribution Installations on Customer Premises (371)																			
6	Streetlighting Installations	DIR	578	-	578	-	-	-	-	-										
7	Total Distribution Installations on Customer Premises		578		578	0	0	0	578	0										
8	Distribution Streetlighting Equipment Depreciation Expense (373)	311	6,210		6,205	-	-	6,205	-	5										
9	Total Distribution Depreciation Expense		302,716		302,595	198,953	71,552	24,724	7,293	121										
10	General/Common/Intangible																			
11	General (E-GP)	502	8,874		8,843	5,543	1,972	1,257	65	31										
12	Common (C-GP)	502	23,288		23,207	14,546	5,174	3,299	172	81										
13	Intangible	502	69,933		69,689	43,681	15,539	9,907	516	244										
14	Total Gen/Comm/Int Depreciation Expense		102,095		101,738	63,770	22,685	14,463	753	356										
15	Other Amortization																			
16	Amort of 7 Classics Inventory	220	0		0	0	0	0	0	0										
17	AFUDC in Excess of FERC Rate	330	0		0	0	0	0	0	0										
18	Securitized Regulatory Assets	150	0		0	0	0	0	0	0										
19	ARO Accretion/Transition Expense	220	0		0	0	0	0	0	0										
20	Total Other Amortization Expense		0		0	0	0	0	0	0										
21	Total Depreciation & Amortization Expense		718,656		715,324	422,324	163,823	119,570	9,034	574										3,331

TAX										
Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
1	City Income Tax	150	1,193	1,180	438	249	483	7	3	13
2	Single Business Tax	601	0	0	0	0	0	0	0	0
4	State Income Tax	439	34,719	34,889	17,975	10,523	5,733	632	25	(170)
5	RP&P Tax	220	82,733	81,981	42,073	18,344	21,190	260	115	752
6	R&PP Taxes - Prod	220	0	0	0	0	0	0	0	0
7	XYZ	220	0	0	0	0	0	0	0	0
8	R&PP Taxes - HVD (345-138kV)	303	8,346	8,279	4,081	1,634	2,539	14	11	66
9	R&PP Taxes - HVD (46-23kV)	302	17,605	17,601	9,407	3,679	4,458	32	25	4
10	R&PP Taxes - LVD	306	79,472	79,470	53,805	19,649	3,942	2,073	2	1
11	R&PP Taxes - General	315	5,462	5,443	3,417	1,214	768	41	4	19
12	R&PP Taxes - Common/Intangible	502	15,452	15,398	9,652	3,433	2,189	114	10	54
13	R&PP Taxes - PHFFU	226	31	31	16	7	8	0	0	-
14	XYZ	330	0	0	0	0	0	0	0	0
15	Total R&PP Taxes		209,100	208,203	122,450	47,959	35,094	2,534	166	897
16	Payroll and Miscellaneous Tax									
17	Payroll Related Taxes	502	23,159	23,078	14,466	5,146	3,281	171	15	81
18	Miscellaneous General Taxes	150	0	0	0	0	0	0	0	0
19	Total Payroll/Miscellaneous Taxes		23,159	23,078	14,466	5,146	3,281	171	15	81
20	Other Taxes	150	10,499	10,383	3,857	2,191	4,253	60	22	116
21	Total Other Taxes		278,670	277,733	159,187	66,068	48,843	3,404	231	937
22	Federal Income Tax Provision	439	68,078	68,412	35,247	20,635	11,241	1,240	49	(333)
23	Total Taxes Other Than Income		243,951	242,844	141,211	55,545	43,110	2,772	206	1,107
24	Total Income Taxes		102,797	103,301	53,222	31,158	16,973	1,872	74	(503)
25	Total Taxes		346,748	346,145	194,434	86,703	60,084	4,644	280	603

Projected 12-Month Period Ending Dec 31, 2022  
Version 2  
4CP 75/0/25 Production and 12CP Transmission  
(thousands of dollars)

Line No.	(a) Description	(b) Alloc	(c) Total Electric	(d) Total Jurisdictional Electric	(e) Total Residential	(f) Total Commercial Secondary	(g) Total Primary	(h) Total Lighting & Unmetered	(i) Rate GSG	(j) Total Non Jurisdictional
<b>Other Adjustments to the Income Statement</b>										
1	Adjustments to NOI - Miscellaneous	316	0	0	0	0	0	0	0	0
2	Interest Expense Securitization I	130	0	0	0	0	0	0	-	0
3	Gain/Losses from Disposition of Utility Plant	316	0	0	0	0	0	0	0	0
4	Disallowed Corp Memb	502	0	0	0	0	0	0	0	0
5	Advertising		0	0	0	0	0	0	0	0
6	Interest Synch Adj	390	0	0	0	0	0	0	0	0
7	Allowable Charitable	140	0	0	0	0	0	0	0	0
8	MERC Consolidation	220	0	0	0	0	0	0	0	0
9	Clean Air Act	226	0	0	0	0	0	0	0	0
10	AFUDC	330	13,010	12,936	7,367	2,938	2,508	111	13	74
11	Jurisdictional factor adjustment due to production allocator	220	0	0	0	0	0	0	0	0
12	<b>Total Other Adjustments</b>		13,010	12,936	7,367	2,938	2,508	111	13	74

[illegible]

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
**Electric Cost-of-Service Study**  
**Capacity Related Cost and Charge Calculation**  
**Test Year 2022**

Case No.: U-20963  
Exhibit No.: A-76 (EAD-3)  
Page: 1 of 1  
Witness: EADavis  
Date: March 2021

Line No.	(a) <u>Description</u>	(b) <u>Total Electric</u> (\$000)	(c) <u>Capacity Charge</u>	(d) <u>Formula</u>
1	Total Production Related Cost	\$ 2,828,297		
	<u>Non-Capacity Related Cost:</u>			
2	Fuel Expense	\$ 508,684		
3	Purchased & Interchanged	438,496		
4	Energy Related Other O&M Expense	46,265		
5	PSCR Revenue Credits	(105,887)		
6	Non-PSCR Revenue Credits	(62,467)		
7	Transmission Expense	498,412		
8	Total Non-Capacity Related Cost	\$ 1,323,503		Σ Lines 2:7
9	<b>Total Capacity Related Cost</b>	<b>\$ 1,504,795</b>		Line 1 - Line 8
	<u>Offsets:</u>			
10	Energy Market Sales	\$ 905,943		
11	Off-System Energy Sales	10,309		
12	Ancillary Service Sales	10,686		
13	Bilateral Energy Sales	-		
14	Total Revenue	\$ 926,938		Σ Lines 10:13
15	Related Fuel Cost	821,150		
16	<b>Total Revenue Less Fuel Cost</b>	<b>\$ 105,788</b>		Line 14 - Line 15
17	<b>Net Capacity Cost</b>	<b>\$ 1,399,007</b>		Line 9 - Line 16
18	<b>Capacity Charge Demand (MW)</b>		<b>7,539</b>	
19	<b>Capacity Charge (\$/MW-Day)</b>		<b>\$508.41</b>	$[(\text{Line 17} \times 1,000) \div \text{Line 18}] \div 365$

Source:  
Lines 1-7: Exhibit A-16 (EAD-2) Schedule F-1.1  
Lines 10-15,18 Testimony of Company Witness JSRose

**MICHIGAN PUBLIC SERVICE COMMISSION**
Consumers Energy

Substation Ownership Credit

General Service Primary Demand

(thousands of dollars)

Case No.: U-20963

Exhibit No.: A-77 (EAD-4)

Page: 1 of 1

Witness: EADavis

Date: March 2021

Line	(a) Description	(b) Rate GPD Voltage 1		(c) Rate GPD Voltage 2		(d) Rate GPTU Voltage 1		(e) Rate GPTU Voltage 2		(f) Rate EIP Voltage 1		(g) Rate EIP Voltage 2	
1	Plant in Service	\$	23,967	\$	32,538	\$	4,882	\$	13,020	\$	4,927	\$	660
2	Depreciation Reserve		(4,941)		(6,671)		(1,006)		(2,669)		(1,016)		(135)
3	Net Plant		19,026		25,868		3,875		10,351		3,911		524
4	Working Capital		674		1,844		167		751		129		48
5	CWIP (HV Distribution)		449		195		89		77		92		4
6	Substation Rate Base	\$	20,149	\$	27,907	\$	4,132	\$	11,179	\$	4,133	\$	577
7	Pre-Tax ROE		6.93%		6.93%		6.93%		6.93%		6.93%		6.93%
8	Pre-Tax Return	\$	1,397	\$	1,935	\$	286	\$	775	\$	287	\$	40
9	Depreciation Expense		491		719		100		288		101		15
10	O&M Expense		117		171		24		68		24		3
11	Other Taxes		818		865		175		348		165		27
12	Revenue Credits		(537)		(251)		(112)		(99)		(104)		(9)
13	Total Revenue Requirement	\$	2,286	\$	3,439	\$	474	\$	1,379	\$	473	\$	76
14	Max Demand (MW)		<b>4,534</b>		<b>5,007</b>		<b>1,208</b>		<b>2,386</b>		<b>1,457</b>		<b>430</b>
15	Substation Ownership Credit (kW)	\$	0.5042	\$	0.6869	\$	0.3923	\$	0.5780	\$	0.3247	\$	0.1766

Source: Exhibit A-16 (EAD-2) Schedule F-1.1  
WP-HWM-3 and 4  
WP-EAD-192-193

1/ Demand Response Revenue Requirement 46,762

	Total Electric (a)	Total Jurisdictional Electric (b)	Total Residential (c)	Total Commercial Secondary (d)	Total Primary (e)	Total Lighting & Unmetered (f)	Rate GSG (g)	Total Non Jurisdictional (h)
4CP 75/0/25	100.0000	99.0909	50.8534	22.1721	25.6122	0.3145	0.1386	0.9091
	\$ 46,762	\$ 46,337	\$ 23,780	\$ 10,368	\$ 11,977	\$ 147	\$ 65	\$ 425

Demand Response Surcharge Allocation (\$000)

Source;  
1/ Exhibit JRC-52  
Exhibit A-16 (EAD-2) Schedule F-1.1

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Demand Response Revenue Requirement Allocation

Case No.: U-20963

Exhibit No.: A-78 (EAD-5)

Page: 2 of 3

Witness: EADavis

Date: March 2021

	Rate Residential	Total Residential	Rate GS	Rate GSD	Rate GS GEI	Rate GSD GEI	Total Commercial Secondary
4CP 75/0/25	(a) 50.8534	(c) 50.8534	(d) 12.3334	(e) 9.1874	(f) 0.2654	(g) 0.3859	(h) 22.1721
<b>Demand Response Surcharge Allocation (\$000)</b>	<b>23,780</b>	<b>23,780</b>	<b>5,767</b>	<b>4,296</b>	<b>124</b>	<b>180</b>	<b>10,368</b>

Rate GP	Rate GFTU VII 1	Rate GFTU VII 2	Rate GFTU VII 3	Rate GPD VII 1	Rate GPD VII 2	Rate GPD VII 3	Rate EIP VII 1	Rate EIP VII 2	Rate EIP VII 3	Rate GEI VII 1	Rate GEI VII 2	Rate GEI VII 3	Rate GML	Rate GUL	Rate GUL-XL	Rate GU	Total Lighting & Unmetered (p)
220	1.0055	2.2848	10.0845	1.0873	2.3484	5.6346	0.2639	0.3021	0.0076	-	(h)	(i)	0.0111	0.0526	0.0163	0.2346	0.3145
4CP 750/25	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
1,041	470	1,068	4,716	508	1,098	2,635	123	141	24	4	29	118	5	25	8	110	147

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**CHRISTOPHER T. FULTZ**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

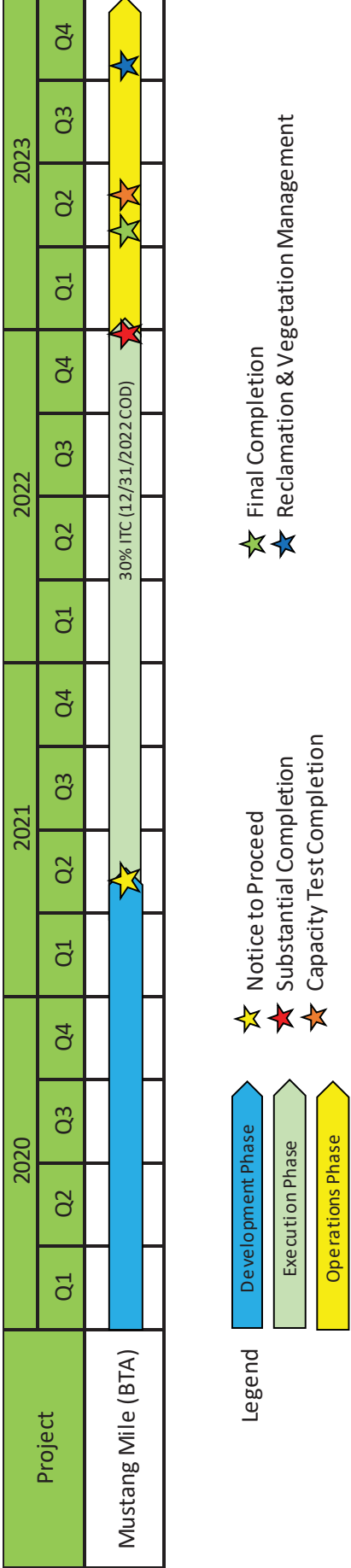
March 2021

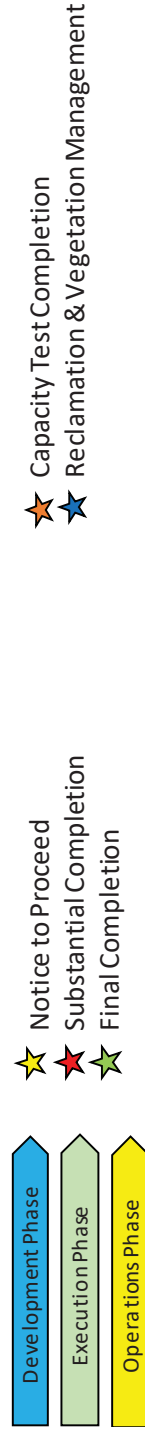
**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
**Projected Capital Expenditures**  
**Company Owned IRP Solar Resources**  
**Summary of Actual and Projected Capital Expenditures**  
**(\$000)**

Case No.: U-20963  
Exhibit No.: A-79 (CTF-1)  
Page: 1 of 1  
Witness: CTFultz  
Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
			12 Mos Ended 12/31/2020 <sup>1</sup>	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	Solar - 2019 Bid Event	-	60,929	83,811,836	83,872,765	167,000,217
2	Contractor		-	72,916,297	72,916,297	145,290,189
3	Labor		36,221	251,436	287,657	501,001
4	Materials			-	-	
5	Business Expenses			-	-	
6	Contingency			3,939,156	3,939,156	7,849,010
7	Other (Loadings, Chargebacks)		24,708	6,704,947	6,729,655	13,360,017
8	Solar - 2020 Bid Event	-	-	14,623,250	14,623,250	119,624,253
9	Contractor			12,722,228	12,722,228	104,073,100
10	Labor			43,870	43,870	358,873
11	Materials			-	-	
12	Business Expenses			-	-	
13	Contingency			687,293	687,293	5,622,340
14	Other (Loadings, Chargebacks)			1,169,860	1,169,860	9,569,940
15	Solar - Development & Land Acquisition	-	520,824	24,000,000	24,520,824	-
16	Contractor		-	22,320,000	22,320,000	-
17	Labor		5,740	25,000	30,740	-
18	Materials			-	-	-
19	Business Expenses			-	-	-
20	Contingency			-	-	-
21	Other (Loadings, Chargebacks)		515,084	1,655,000	2,170,084	-
22	<b>Total Capital</b>	<b>-</b>	<b>581,753</b>	<b>122,435,086</b>	<b>123,016,839</b>	<b>286,624,470</b>

# Mustang Mile – Milestone Schedule



[illegible]

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**KAREN M. GASTON**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Projected Electric & Common O&M Expense  
for the Years 2019, 2020, 2021 and the 12 Months Ending December 31, 2022  
(\$000)Case No.: U-20963  
Exhibit No.: A-82 (KMG-1)  
Page: 1 of 1  
Witness: KMGaston  
Date: March 2021**Corporate O&M**

Line No.	(a) Program Description	(b) Source	(c) 2019 Actual	(d) 2020 Projected	(e) 2021 Projected	(f) 12 Months Ending 12/31/2022 Projected
1	Adjusted Corporate Services Expense	Exhibit A-83 (KMG-2)	\$ 51,124	\$ 53,153	\$ 54,805	\$ 62,734
2	Uncollectible Expense	Exhibit A-85 (KMG-4)	15,932	17,433	16,877	17,079
3	Injuries & Damages Expense	Exhibit A-86 (KMG-5)	2,951	4,115	3,785	3,785
4	<b>TOTAL O&amp;M EXPENSES</b>		<b>\$ 70,007</b>	<b>\$ 74,701</b>	<b>\$ 75,467</b>	<b>\$ 83,598</b>

Case No.: U-20963  
Exhibit No.: A-83 (KMG-2)  
Page: 1 of 1  
Witness: KMGaston  
Date: March 2021

Exhibit No.: A-05 (KMG-2)  
Page: 1 of 1  
Witness: KMGaston  
Date: March 2021

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**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
S&P Global Market Intelligence Ranking of Consumers Energy Electric A&G Costs for 2019  
Ranked by A&G per Customer (less Pension and Benefits)  
(Companies over 500K Customers)

Case No.: U-20963  
Exhibit No.: A-84 (KMG-3)  
Page: 1 of 1  
Witness: KMGaston  
Date: March 2021

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Rank No.	Company Name	Total Customers (actual)	Total Admin & Gen: O&M Expense (\$'000)	Total Admin & Gen: Pension & Benefits (\$'000)	Total Admin & Gen: Excluding Pension & Benefits (d) - (e) (\$'000)	Total Admin & Gen: Excluding Pension & Benefits (f)/(c) x \$1,000	\$/Customer Ranking
1	PacifiCorp	1,932,531	123,137	102,224	20,913	\$10.82	1
2	MidAmerican Energy Company	786,311	59,554	19,418	40,136	\$51.04	2
3	<b>Consumers Energy Company</b>	<b>1,834,778</b>	<b>102,166</b>	<b>6,760</b>	<b>95,406</b>	<b>\$52.00</b>	<b>3</b>
4	Florida Power & Light Company	5,015,650	314,978	45,778	269,200	\$53.67	4
5	Nevada Power Company	951,034	93,091	27,080	66,011	\$69.41	5
6	Jersey Central Power & Light Company	926,121	132,121	61,111	71,010	\$76.67	6
7	Ohio Power Company	920,736	75,380	4,328	71,052	\$77.17	7
8	Public Service Company of Oklahoma	556,744	48,682	5,486	43,196	\$77.59	8
9	Public Service Company of Colorado	1,499,394	171,284	49,832	121,452	\$81.00	9
10	Appalachian Power Company	954,617	93,554	6,211	87,343	\$91.50	10
11	DTE Electric Company	2,209,021	344,509	129,628	214,881	\$97.27	11
12	Georgia Power Company	2,572,623	303,622	40,516	263,106	\$102.27	12
13	Central Maine Power Company	533,057	59,977	3,764	56,213	\$105.45	13
14	Duke Energy Carolinas, LLC	2,650,817	385,827	88,007	297,820	\$112.35	14
15	Oklahoma Gas and Electric Company	854,127	127,254	29,575	97,679	\$114.36	15
16	New York State Electric & Gas Corporation	728,822	113,758	29,685	84,073	\$115.35	16
17	Evergy Metro, Inc.	553,970	131,391	67,057	64,334	\$116.13	17
18	Commonwealth Edison Company	2,730,589	426,918	106,442	320,476	\$117.37	18
19	Arizona Public Service Company	1,260,386	209,996	55,571	154,425	\$122.52	19
20	PECO Energy Co.	1,142,446	170,354	28,504	141,850	\$124.16	20
21	Northern States Power Company - MN	1,491,046	264,790	76,964	187,826	\$125.97	21
22	Consolidated Edison Company of New York, Inc.	2,773,146	648,738	295,525	353,213	\$127.37	22
23	Duke Energy Indiana, LLC	840,115	148,810	32,155	116,655	\$138.86	23
24	Indiana Michigan Power Company	596,682	101,839	16,773	85,066	\$142.57	24
25	Duke Energy Progress, LLC	1,590,980	319,694	87,774	231,920	\$145.77	25
26	Kentucky Utilities Company	556,130	108,876	27,134	81,742	\$146.98	26
27	Baltimore Gas and Electric Company	965,643	196,447	45,373	151,074	\$156.45	27
28	Niagara Mohawk Power Corporation	1,396,453	298,496	68,739	229,757	\$164.53	28
29	Portland General Electric Company	889,387	210,249	62,502	147,747	\$166.12	29
30	PPL Electric Utilities Corporation	855,014	169,503	18,908	150,595	\$176.13	30
31	Alabama Power Company	1,485,074	334,655	64,578	270,077	\$181.86	31
32	Idaho Power Company	565,078	157,876	52,073	105,803	\$187.24	32
33	Duke Energy Florida, LLC	1,832,872	392,183	42,059	350,124	\$191.02	33
34	Indianapolis Power & Light Company	503,198	143,688	47,021	96,667	\$192.11	34
35	Connecticut Light and Power Company	946,460	193,736	11,868	181,868	\$192.16	35
36	Entergy Arkansas, LLC	713,079	204,412	66,594	137,818	\$193.27	36
37	Potomac Electric Power Company	714,526	179,964	23,227	156,737	\$219.36	37
38	Public Service Company of New Mexico	530,182	154,604	26,561	128,043	\$241.51	38
39	Massachusetts Electric Company	749,776	259,644	46,832	212,812	\$283.83	39
40	San Diego Gas & Electric Company	1,452,138	498,353	54,077	444,276	\$305.95	40
41	Pacific Gas and Electric Company	2,635,290	12,796,619	357,000	12,439,619	\$4,720.40	41

**S&P Global Market Intelligence, 55 Water Street, New York, NY 10041**

Columns c-e from S&P Global for regulated electric companies with more than 500,000 customers.

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Electric Uncollectible Accounts Expense

for the Years 2019, 2020, 2021 and the 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-85 (KMG-4)  
Page: 1 of 2  
Witness: KMGaston  
Date: March 2021

Line No.	(a) Description	(b) 2019 Actual	(c) 2020 Projected	(d) 2021 Projected	(e) 12 Months Ending 12/31/2022 Projected
1	Uncollectible Accounts Expense	\$ 15,932	\$ 17,433 <sup>1</sup>	\$ 16,877 <sup>2</sup>	\$ 17,079 <sup>3</sup>

<sup>1</sup> 2020 projected amount based on U-20697

<sup>2</sup> 2021 projected amount based on U-20697

<sup>3</sup> Exhibit A-85 (KMG-4) Page 2, row 10, column (e) (3-Year Average)

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Electric Uncollectible Accounts Expense

for 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-85 (KMG-4)

Page: 2 of 2

Witness: KMGaston

Date: March 2021

Line No.	(a) Year	(b)		(c)		(d) Net Write-Offs	(e)		(f) BDLR col (d) / col (e)
		Gross Charge-Offs	Less Recoveries	Total Electric Service Revenue MPSC P-521 P. 304.1 col (c) + P. 305 col (c)					
1	2015	46,941	16,886	30,055	4,031,759		0.745%		
2	2016	32,691	13,496	19,195	4,157,271		0.462%		
3	2017	32,032	13,060	18,972	4,245,558		0.447%		
4	2018	28,943	12,282	16,661	4,382,878		0.380%		
5	2019	27,032	11,100	15,932	4,249,553		0.375%		
6	3-Year Average	\$ 29,336	\$ 12,147	\$ 17,188	4,292,663		0.400%		
7	5-Year Average	\$ 33,528	\$ 13,365	\$ 20,163	4,213,404		0.479%		
8	Test Year Total Company Electric Revenues and Deliveries Exhibit A-15 (EMB-3), Schedule E-2, Page 1 of 1 Row 25, Column (I) - Row 25, Column (c)						\$ 4,265,275		
9	3-Year Average BDLR						0.400%		
10	Test Year Total Uncollectible Accounts Expense						<b>\$ 17,079</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Electric Injuries & Damages Expense

for the Years 2015 Through the 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963  
Exhibit No.: A-86 (KMG-5)  
Page: 1 of 1  
Witness: KMGaston  
Date: March 2021

Line No.	(a) Program Description	(b) 2015 Actual	(c) 2016 Actual	(d) 2017 Actual	(e) 2018 Actual	(f) 2019 Actual	(g) 12 Mos Ending 12/31/2020 Projected	(h) 12 Mos Ending 12/31/2021 Projected	(i) 12 Months Ending 12/31/2022 Projected	Avg (b):(f)
1	Electric Injuries & Damages	1,290	3,111	2,933	2,958	2,396	3,062	2,538	2,538	
2	Internal Legal Costs	563	562	617	559	379	579	536	536	
3	Workers' Compensation	1,115	870	937	458	176	474	711	711	
4	Total Electric Injuries & Damages	<b>2,968</b>	<b>4,543</b>	<b>4,487</b>	<b>3,975</b>	<b>2,951</b>	<b>4,115</b>	<b>3,785</b>	<b>3,785</b>	

<sup>1</sup> Electric Injuries & Damages costs are 2015 - 2019 (actual expense). Bridge periods 2020 and 2021 based on U-20697. 2022 test year based on a five-year average of actual expenses for years 2015 - 2019.

<sup>2</sup> Legal costs are 2015 - 2019 (actual expense). Bridge periods 2020 and 2021 based on U-20697. 2022 test year based on a five-year average of actual expenses for years 2015 - 2019.

<sup>3</sup> Electric Workers' Compensation costs are 2015 - 2019 (actual expense). Bridge periods 2020 and 2021 based on U-20697. 2022 test year based on a five-year average of actual expenses for years 2015 - 2019.

**Schedule B-5.7**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**

Electric Corporate Services Capital Expenditures  
for the Years 2019, 2020, 2021 and the 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-12 (KMG-6)  
Page: 1 of 1  
Schedule No.: B-5.7  
Witness: KMGaston  
Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
		Historical Year	Projected Bridge Year		Projected Test Year	
Line No.	Program Description	12 Mos Ended 12/31/2019	12 Mos Ending 12/31/2020	12 Mos Ending 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
			(b) * (1 + Inflation Rate)	(c) * (1 + Inflation Rate)	(c) + (d)	(d) * (1 + Inflation Rate)
1	Corporate Capital					
2	Labor	\$ 2	\$ 2	\$ 3	\$ 5	\$ 3
3	Labor Overhead	-	-	-	-	-
4	Materials	151	153	157	310	160
5	Contracted	175	177	182	359	186
6	Business Expenses	-	-	-	-	-
7	Contingency	-	-	-	-	-
8	Other (Loadings, Chargebacks)	(0)	(0)	(0)	(0)	(0)
9	Total Corporate Capital	\$ 329	\$ 333	\$ 341	\$ 674	\$ 349

**12 Mos Ended 2020      12 Mos Ending 2021      12 Mos Ending 2022**

10 Annual Merit Rate (Testimony of Amy M. Conrad)

11 Annual Inflation Rates per WP-JRC-59

3.20%	3.20%	3.20%
1.20%	2.50%	2.30%

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
**OF**  
**ANITA J. GRIFFIN**  
**ON BEHALF OF**  
**CONSUMERS ENERGY COMPANY**

March 2021

## Schedule: B-5.8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Customer Experience &amp; Operations

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (AJG-1)

Schedule: B-5.8

Page: 1 of 5

Witness: AJGriffin

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	<b>Customer Interactions</b>	<b>83</b>	<b>1,462</b>	<b>1,887</b>	<b>3,349</b>	<b>2,236</b>
	Contractor	69	1,124	1,125	2,248	1,423
	Labor	12	260	420	680	250
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	2	79	343	421	564
2	<b>Billing &amp; Payment</b>	<b>-</b>	<b>24</b>	<b>-</b>	<b>24</b>	<b>2,500</b>
	Contractor	-	24	-	24	500
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	2,000
3	<b>Demand Response</b>	<b>13,048</b>	<b>8,784</b>	<b>9,192</b>	<b>17,976</b>	<b>9,317</b>
	Contractor	7,785	4,874	-	4,874	-
	Labor	593	553	500	1,053	500
	Material	4,446	3,073	8,692	11,765	8,817
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	225	284	-	284	-
4	<b>Internal Fleet EV Pilot</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,900</b>
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	1,900
5	<b>Total Capital</b>	<b>13,131</b>	<b>10,271</b>	<b>11,079</b>	<b>21,350</b>	<b>15,953</b>

## Schedule: B-5.8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Customer Interactions

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (AJG-1)

Schedule: B-5.8

Page: 2 of 5

Witness: AJGriffin

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
1	<b>Business Customer Care</b>	0	1,458	1,734	3,192	1,758
	Contractor	-	1,122	972	2,094	1,270
	Labor	-	258	420	678	250
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	0	78	343	420	239
2	<b>Credit &amp; Assistance</b>	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	-
3	<b>Customer Contact Center</b>	-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	-
4	<b>Digital Customer Operations</b>	-	-	153	153	478
	Contractor	-	-	153	153	153
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	325
5	<b>Analytics &amp; Outreach</b>	83	5	-	5	-
	Contractor	69	2	-	2	-

## Schedule: B-5.8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Billing &amp; Payment

Summary of Actual and Projected Capital Expenditures

(\$000)

Case No.: U-20963

Exhibit No.: A-12 (AJG-1)

Schedule: B-5.8

Page: 3 of 5

Witness: AJGriffin

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		2019	12 Mos Ended 12/31/2020 2020	12 Mos Ended 12/31/2021 2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022 2022
1	<b>Customer Billing</b>	-	24	-	24	-
	Contractor	-	24	-	24	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	-
2	<b>Customer Payment Programs</b>	-	-	-	-	2,500
	Contractor	-	-	-	-	500
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	2,000
3		-	-	-	-	-
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	-
4	<b>Total Capital</b>	-	24	-	24	2,500

## Schedule: B-5.8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Demand Response

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (AJG-1)

Schedule: B-5.8

Page: 4 of 5

Witness: AJGriffin

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year 12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	Projected Test Year 12 Mos Ending 12/31/2022
		2019	2020	2021		2022
1	<b>Demand Response- Res</b>	<b>11,731</b>	<b>7,417</b>	<b>8,500</b>	<b>15,917</b>	<b>8,600</b>
	Contractor	7,098	3,994	-	3,994	-
	Labor	373	379	500	879	500
	Material	4,118	2,840	8,000	10,840	8,100
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	142	204	-	204	-
2	<b>Demand Response- C&amp;I</b>	<b>1,317</b>	<b>1,367</b>	<b>692</b>	<b>2,059</b>	<b>717</b>
	Contractor	688	880	-	880	-
	Labor	219	174	-	174	-
	Material	328	233	692	925	717
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	82	80	-	80	-
3	<b>Total Capital</b>	<b>13,048</b>	<b>8,784</b>	<b>9,192</b>	<b>17,976</b>	<b>9,317</b>

## Schedule: B-5.8

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Internal Fleet Electric Vehicle Pilot

Summary of Actual and Projected Capital Expenditures  
(\$000)

Case No.: U-20963

Exhibit No.: A-12 (AJG-1)

Schedule: B-5.8

Page: 5 of 5

Witness: AJGriffin

Date: March 2021

Line No	( a ) Description	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year		Projected Test Year	
		2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	24 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022
		2019	2020	2021		2022
1	Internal Fleet EV Pilot	-	-	-	-	1,900
	Contractor	-	-	-	-	-
	Labor	-	-	-	-	-
	Material	-	-	-	-	-
	Business Expenses	-	-	-	-	-
	Contingency	-	-	-	-	-
	Other	-	-	-	-	1,900
3	Total Capital	-	-	-	-	1,900

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Summary of Actual & Projected O&M Expenses  
Customer Experience & Operations  
(\$000)

Case No.: U-20963  
Exhibit No.: A-87 (AJG-2)  
Page: 1 of 5  
Witness: AJGriffin  
Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
1	<b>Customer Interactions</b>	<b>26,509</b>	<b>31,371</b>
	Labor	17,650	19,321
	Material	208	392
	Contractor	7,096	9,479
	Non-Labor Overheads	0	0
	Non-Labor Other	1,554	2,179
2	<b>Billing &amp; Payment</b>	<b>19,474</b>	<b>24,441</b>
	Labor	3,124	3,008
	Material	629	572
	Contractor	8,188	9,308
	Non-Labor Overheads	2,044	3,290
	Non-Labor Other	5,490	8,264
3	<b>Demand Response</b>	<b>12,776</b>	<b>39,356</b>
	Labor	2,113	5,747
	Material	689	0
	Contractor	8,228	25,541
	Non-Labor Overheads	0	0
	Non-Labor Other	1,745	8,068
4	<b>Total Customer Experience &amp; Operations O&amp;M Expenses</b>	<b>\$ 58,759</b>	<b>\$ 95,168</b>
	Labor	22,887	28,076
	Material	1,526	963
	Contractor	23,512	44,328
	Non-Labor Overheads	2,044	3,290
	Non-Labor Other	8,789	18,511

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Summary of Actual & Projected O&M Expenses  
Customer Interactions  
(\$000)

Case No.: U-20963  
Exhibit No.: A-87 (AJG-2)  
Page: 2 of 5  
Witness: AJGriffin  
Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
1	<b>Business Customer Care</b>	<b>3,648</b>	<b>3,633</b>
	Labor	3,248	2,438
	Material	13	0
	Contractor	203	721
	Non-Labor Overheads	0	0
	Non-Labor Other	183	473
2	<b>Credit &amp; Assistance</b>	<b>3,416</b>	<b>4,460</b>
	Labor	1,732	1,973
	Material	60	0
	Contractor	1,585	2,267
	Non-Labor Overheads	0	0
	Non-Labor Other	40	221
3	<b>Customer Contact Center</b>	<b>16,296</b>	<b>18,206</b>
	Labor	11,868	13,385
	Material	125	392
	Contractor	3,159	3,978
	Non-Labor Overheads	0	0
	Non-Labor Other	1,143	452
4	<b>Digital Customer Operations</b>	<b>1,746</b>	<b>4,363</b>
	Labor	341	1,254
	Material	-1	0
	Contractor	1,432	2,265
	Non-Labor Overheads	0	0
	Non-Labor Other	-26	843
5	<b>Analytics &amp; Outreach</b>	<b>1,404</b>	<b>709</b>
	Labor	461	271
	Material	11	0
	Contractor	717	248
	Non-Labor Overheads	0	0
	Non-Labor Other	215	190
6	<b>Total Customer Interactions O&amp;M Expenses</b>	<b>\$ 26,509</b>	<b>\$ 31,371</b>
	Labor	17,650	19,321
	Material	208	392
	Contractor	7,096	9,479
	Non-Labor Overheads	0	0
	Non-Labor Other	1,554	2,179

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Summary of Actual & Projected O&M Expenses  
 Billing & Payment  
 (\$000)

Case No.: U-20963  
 Exhibit No.: A-87 (AJG-2)  
 Page: 3 of 5  
 Witness: AJGriffin  
 Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
1	<b>Customer Billing</b>	<b>11,418</b>	<b>10,901</b>
	Labor	2,466	2,267
	Material	619	572
	Contractor	1,264	286
	Non-Labor Overheads	1,614	2,479
	Non-Labor Other	5,454	5,297
2	<b>Customer Payment Programs</b>	<b>8,057</b>	<b>13,540</b>
	Labor	657	741
	Material	10	0
	Contractor	6,924	9,022
	Non-Labor Overheads	430	811
	Non-Labor Other	35	2,967
3	<b>Total Billing &amp; Payment O&amp;M Expenses</b>	<b>\$ 19,474</b>	<b>\$ 24,441</b>
	Labor	3,124	3,008
	Material	629	572
	Contractor	8,188	9,308
	Non-Labor Overheads	2,044	3,290
	Non-Labor Other	5,490	8,264

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Summary of Actual & Projected O&M Expenses  
Demand Response  
(\$000)

Case No.: U-20963  
Exhibit No.: A-87 (AJG-2)  
Page: 4 of 5  
Witness: AJGriffin  
Date: March 2021

( a )		( b )	( c )
Line No.	Description	2019 Actual	12 Mos Ending Dec-31-2022 Projected
1	<b>Demand Response- Res</b>	<b>7,074</b>	<b>22,557</b>
	Labor	610	2,062
	Material	2	0
	Contractor	6,419	20,429
	Non-Labor Overheads	0	0
	Non-Labor Other	42	67
2	<b>Demand Response- C&amp;I</b>	<b>5,702</b>	<b>16,798</b>
	Labor	1,503	3,685
	Material	687	0
	Contractor	1,808	5,112
	Non-Labor Overheads	0	0
	Non-Labor Other	1,703	8,002
3	<b>Total Demand Response O&amp;M Expenses</b>	<b>\$ 12,776</b>	<b>\$ 39,356</b>
	Labor	2,113	5,747
	Material	689	0
	Contractor	8,228	25,541
	Non-Labor Overheads	0	0
	Non-Labor Other	1,745	8,068

Case No.: U-20963  
Exhibit No.: A-87 (AJG-2)  
Page: 5 of 5  
Witness: AJGriffin  
Date: March 2021

Line No.	(a) Description	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		2019 Actual	Base O&M for Inflation 12 Mos Ending Dec 31, 2019	Inflation 12 Mos Ending Dec 31, 2020	Base O&M for Inflation Dec 31, 2020	Inflation 12 Mos Ending Dec 31, 2021	Base O&M for Inflation Dec 31, 2021	Inflation for the 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
<div>(c) * Inflation Rate</div> <div>(e) * Inflation Rate</div> <div>(g) * Inflation Rate</div> <div>(b) + (d) + (f) + (h) + (i)</div>										
1	Customer Interactions	26,509	17,650	565	18,215	583	18,798	602	3,112	31,371
	Labor	17,650	17,650	585	18,215	583	18,798	602	-79	19,321
	Material	208		0		0		0	183	392
	Contractor	7,096		0		0		0	2,383	9,479
	Non-Labor Overheads	0		0		0		0	0	0
	Non-Labor Other	1,554		0		0		0	624	2,179
1	Billing & Payment	19,474	3,124	100	3,223	103	3,327	106	4,658	24,441
	Labor	3,124	3,124	100	3,223	103	3,327	106	-425	3,008
	Material	629		0		0		0	572	9308
	Contractor	8,188		0		0		0	1,120	3,290
	Non-Labor Overheads	2,044		0		0		0	1,245	3,290
	Non-Labor Other	5,490		0		0		0	2,774	8,264
2	Demand Response	12,776	2,413	68	2,181	70	2,251	72	26,371	39,356
	Labor	2,113	2,113	68	2,181	70	2,251	72	-54	5,745
	Material	689		0		0		0	-689	0
	Contractor	8,228		0		0		0	17,313	25,541
	Non-Labor Overheads	0		0		0		0	0	0
	Non-Labor Other	1,745		0		0		0	6,323	8,068

		2019												Full Year Actual
	Description	Jan Actual	Feb Actual	Mar Actual	Apr Actual	May Actual	Jun Actual	Jul Actual	Aug Actual	Sep Actual	Oct Actual	Nov Actual	Dec Actual	
PLUG-IN ELECTRIC VEHICLES														
Cost Centers														
141136	Labor	\$ -	\$ 21,168	\$ 13,684	\$ 17,229	\$ 17,419	\$ 17,229	\$ 17,469	\$ 17,469	\$ 17,469	\$ 17,469	\$ 17,469	\$ 17,469	\$ 191,546
141137	Non-Labor	-	-	-	3,614	37	-	-	-	-	381	-	-	4,031
141137	Employee Training	-	-	-	-	-	-	-	-	-	-	-	-	-
141137	Employee Dues & Membership	-	-	-	-	-	-	-	-	-	-	-	-	-
141137	Misc Travel	-	-	-	-	-	1,939	636	-	-	-	32	-	2,607
141137	CGI	-	-	-	-	-	9,337	-	-	-	-	-	-	9,337
141137	Contractors	-	-	-	-	-	-	-	-	-	-	4,805	4,702	9,508
Internal Orders														
6509071	Other Outside Services (Labor Loadings)	-	10,372	6,705	8,442	8,535	8,442	8,560	8,560	8,560	8,560	8,560	8,560	93,858
6509071	Other Outside Services (Website & IT)	-	-	-	45,200	-	(4,884)	107	295	-	-	-	-	40,718
6509072	Other Outside Services (Edu & Outreach)	-	-	-	-	6,686	371	114,867	-	13,217	15,216	45,327	238,478	434,163
6509073	Residential L2 Rebates	-	-	-	-	-	10,000	10,000	6,400	12,400	15,700	8,500	14,000	77,000
6509074	Public/Workplace L2 Rebates	-	-	-	-	-	-	-	15,000	-	5,000	20,000	14,509	54,509
6509075	Public DCFC Rebates	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		\$ -	\$ 31,541	\$ 20,389	\$ 74,485	\$ 32,677	\$ 42,435	\$ 151,639	\$ 47,725	\$ 51,646	\$ 62,326	\$ 104,695	\$ 297,719	\$ 917,276

PowerMIDrive Costs  
Summary of 2020 Actual & Projected O&M Costs  
(\$000)

		2020												Full Year	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Actual	Actual
PLUG-IN ELECTRIC VEHICLES															
Cost Centers	Description	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
141136	Labor	\$ 17,214	\$ 17,214	\$ 17,214	\$ 21,962	\$ 27,797	\$ 27,986	\$ 18,615	\$ 36,386	\$ 57,437	\$ 34,208	\$ 34,257	\$ 35,276	\$	\$ 345,565
141137	Employee Training	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141137	Employee Dues & Membership	-	874	-	27	151	88	299	89	81	3,544	(3,500)	105	-	1,757
141137	Misc Travel	5,175	-	-	-	1,529	-	1,319	119	-	-	-	-	-	8,142
141137	Other Outside Services (DBA, Misc)	3,511	4,154	4,569	5,917	5,465	3,143	4,452	5,062	2,499	5,607	3,904	3,744	-	52,027
141137	Contractors	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Orders															
6509071	Other Outside Services (Labor Loadings)	8,435	8,435	8,435	9,883	12,509	12,594	8,377	16,374	27,306	14,038	15,415	15,874	-	157,674
6509071	Other Outside Services (Website & IT)	-	-	-	-	-	-	-	-	13,425	(10,425)	25,000	54,348	-	82,348
6509072	Other Outside Services (Educ & Outreach)	36,343	5,537	26,000	30,384	1,028	16,440	1,739	614	-	24,624	4,759	94,688	-	242,156
6509073	Residential L2 Rebates	9,000	10,600	10,500	11,900	7,500	8,600	7,500	11,700	11,000	15,900	8,700	15,200	-	128,100
6509074	Public/Workplace L2 Rebates	40,000	30,000	59,637	10,000	5,000	35,000	33,406	30,000	70,000	60,000	45,000	40,000	-	458,043
6509075	Public DCFRC Rebates	-	-	-	-	-	-	70,000	319,038	70,000	(38,840)	420,000	140,000	-	980,198
6509077	PMD - Make Ready Funds (LVD Billing)	-	-	-	-	-	-	-	10,000	10,000	528,763	(173,798)	65,505	-	440,470
Total		\$ 119,677	\$ 76,813	\$ 126,354	\$ 90,074	\$ 60,977	\$ 103,850	\$ 145,706	\$ 429,381	\$ 261,749	\$ 637,420	\$ 379,738	\$ 464,740	\$	\$ 2,896,479

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**GREGORY R. GRIFFIN**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021

**2021 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1	ADDISON VLG	Lenawee	116 S Steer St/US-127 335' south of W Main St	1
2	ADDISON VLG	Lenawee	Steer St/US-127 & Mason St	1
3	ADDISON VLG	Lenawee	N Comstock St & Walnut St	1
4	ALANSON VLG	Emmet	River St 150' east of US-31/Burr Ave	1
5	ALANSON VLG	Emmet	7307 US-31 365' north of M-68	1
6	ALANSON VLG	Emmet	US-31 & North Pine St	1
7	ALANSON VLG	Emmet	7177 US-31 400' north of North Pine St	1
8	ALMA CITY	GRATIOT	E Superior St(BR-27) & Euclid Ave	1
9	AMBER TWP	Mason	US-10 and Brye Rd	1
10	AMBER TWP	Mason	US-10 and SB US-31 on-ramp	1
11	ARENAC COUNTY	ARENAC	Deep River Rd & M-61	2
12	ARENAC COUNTY	ARENAC	M-61 & Lincoln Rd	2
13	ARENAC COUNTY	ARENAC	M-61 & Melita Rd	2
14	ARENAC COUNTY	ARENAC	M-61, E of Deep River Rd	1
15	ARENAC COUNTY	ARENAC	M-61 btwn Deep River Rd & Melita Rd	5
16	ARENAC COUNTY	ARENAC	M-61, W of Melita, E of Hwy	1
17	ATHENS VLG	Calhoun	North St and Capital Ave/M-66	1
18	BANGOR CH TWP	Bay	Euclid Ave/M-13 & Kiesel Rd	2
19	BANGOR CH TWP	Bay	E North Union Rd & S Euclid Rd/M-13	4
20	BEDFORD TWP	Monroe	Temperance Rd & Lewis Ave	1
21	BEDFORD TWP	Monroe	Dean Rd & Secor Rd	1
22	BEDFORD TWP	Monroe	Lewis Ave & Dean Rd	1
23	BEDFORD TWP	Monroe	Telegraph Rd (US-24) & Sterns Rd	1
24	BEDFORD TWP	Monroe	Telegraph Rd (US-24) & Lavoy Rd/Smith Rd	1
25	BEDFORD TWP	Monroe	Sterns Rd & Jackman Rd	1
26	BEDFORD TWP	Monroe	Jackman Rd & Smith Rd	1
27	BEDFORD TWP	Monroe	Sterns Rd & Douglas Rd	1
28	BELLEVUE VLG	EATON	733 S Main St 710' south of Sharkey St	1
29	BENNINGTON TWP	Shiawassee	M-52 & Hibbard Rd	1
30	BENNINGTON TWP	Shiawassee	Bennington Rd & M-52	1
31	BENNINGTON TWP	Shiawassee	Garrison Rd & M-52	1
32	BENNINGTON TWP	Shiawassee	Tyrrell Rd & M-52	1
33	BLACKMAN CH TWP	JACKSON	Wildwood Ave & Lawrence Ave	1
34	BLACKMAN CH TWP	JACKSON	Airport Rd & west bound on/off ramp with I-94	1
35	BOYNE CITY	Charlevoix	S Lake St & Franklin St	1
36	BOYNE CITY	Charlevoix	E Division St 580' east of Lewis St @ Sutliff Ln	1
37	BOYNE CITY	Charlevoix	E Main St & Mclean St	1
38	BOYNE CITY	Charlevoix	Michigan Ave (C-56) & N Lake St	1
39	BOYNE CITY	Charlevoix	Michigan Ave (C-56) & Robinson St	1
40	BRECKENRIDGE VLG	Gratiot	Saginaw St & Wisner Rd	1

**2021 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
41	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 990' west of Monroe Pike Rd	1
42	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 1,265' west of Monroe Pike Rd	1
43	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 1,240' east of M-50/Main St	1
44	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 980' east of M-50/Main St	1
45	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 710' east of M-50/Main St	1
46	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 410' east of M-50/Main St	1
47	BROOKLYN VLG	Jackson	Wamplers Lake Rd/M-124 & M-50/Main St	2
48	BURTON CITY	GENESEE	Genesee Rd & Atherton Rd	1
49	CASCADE CH TWP	KENT	Kraft Ave SE & 36th St SE	1
50	CASCADE CH TWP	KENT	Cascade Rd SE & Laraway Lake Dr SE	1
51	CASCADE CH TWP	KENT	28th St SE & west bound I-96 on/off ramp	2
52	CHIPPEWA TWP	Isabella	E Broadway Rd & Leaton Rd	1
53	CLAM LAKE TWP	Wexford	S Mitchell St (Bus 131) & S Mackinaw Trail	1
54	CLARE CITY	CLARE	314 E 6th St 530' east of Hemlock St	1
55	COLUMBIA TWP	VAN BUREN	CR 388 and CR 215	1
56	COLUMBIA TWP	VAN BUREN	54386 Phoenix St. 65' east of RR tracks (Grand Junction)	1
57	COLUMBIA TWP	VAN BUREN	CR 388 and Middle St	1
58	COLUMBIA TWP	VAN BUREN	CR 388 and 54th	1
59	COLUMBIA TWP	VAN BUREN	CR 388 and Van Buren St	1
60	DELHI CH TWP	INGHAM	Sycamore St & Aurelius Rd	1
61	EAST GRAND RAPIDS CITY	KENT	Lake Dr SE & Hall St SE	1
62	EDMORE VLG	Montcalm	Wyman Rd & Center St	1
63	EDMORE VLG	Montcalm	1st St & Johnson Ave	1
64	EDMORE VLG	Montcalm	S 1st St & Forest St	1
65	EDMORE VLG	Montcalm	S 2nd St & Camp St	1
66	EDMORE VLG	Montcalm	S 1st St & Pine St	1
67	EDMORE VLG	Montcalm	S 1st St & E Gilson St	1
68	EDMORE VLG	Montcalm	Main St(M-46) & 1st St	1
69	EDMORE VLG	Montcalm	Gilson St & 4th St	1
70	EDMORE VLG	Montcalm	Gilson St & Moore St	1
71	EDMORE VLG	Montcalm	Main St(M-46) & Brown St	1
72	EDMORE VLG	Montcalm	Main St(M-46) & Moore St	1
73	EDMORE VLG	Montcalm	311 W Main St(M-46) 140' west of Moore St	1
74	EDMORE VLG	Montcalm	Main St(M-46) & Maple St	1
75	EDMORE VLG	Montcalm	501 W Main St(M-46) 345' east of S Juniper St NE	1
76	EDMORE VLG	Montcalm	Main St(M-46) & Juniper St NE/Baldwin St	1
77	EDMORE VLG	Montcalm	N 1st St & E North St	1
78	ESSEXVILLE CITY	BAY	Woodside Ave & Scheurmann St	1
79	ESSEXVILLE CITY	BAY	Essex St & Pine St	1
80	ESSEXVILLE CITY	BAY	Woodside Ave & Pine St	1
81	FENTON CITY	GENESEE	Owen Rd and SB US-23 ramps	1
82	FLINT CITY	GENESEE	Leith St & Center Rd	1
83	FLINT CITY	GENESEE	E Carpenter Rd & N Dort Hwy(M-54)	1
84	FLINT CITY	GENESEE	W Carpenter Rd & Clio Rd	1
85	FRASER TWP	Bay	N Huron Rd/US-13 & E Anderson Rd	1
86	FRASER TWP	Bay	W Benjamin St & First St	1
87	FRASER TWP	Bay	W Benjamin St & Second St	1
88	FRASER TWP	Bay	W Benjamin St & Fifth St	1
89	FRASER TWP	Bay	Edwin St & Third St	1

**2021 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
90	GARFIELD TWP (Clare Co)	Clare	W Ludington Rd/US-10 & Gibson Rd	1
91	GRAND BLANC CH TWP	GENESEE	Hill Rd & S Center Rd	1
92	GRAND HAVEN CH TWP	OTTAWA	Comstock St & US-31 (Southbound)	1
93	GRAND HAVEN CH TWP	OTTAWA	Comstock St & US-31 (Northbound)	1
94	GRAND HAVEN CH TWP	OTTAWA	Comstock St & 172nd Ave	1
95	GRAND RAPIDS CH TWP	KENT	Cascade Rd SE & Kenmoor Ave SE	1
96	GRAND RAPIDS CH TWP	KENT	Cascade Rd SE & Morningside Dr SE	1
97	GRAND RAPIDS CH TWP	KENT	Cascade Rd SE & Kingswood Dr SE	1
98	GRAND RAPIDS CH TWP	KENT	Cascade Rd SE & Robinson Rd SE	1
99	GRANDVILLE CITY	KENT	44th St SW & 196 west bound ent./exit ramp	2
100	GRATTAN TWP	Kent	Belding Rd/M-44 & Lincoln Lake Ave	1
101	GREENBUSH TWP	Clinton	Maple Rapids Rd & Welling Rd	1
102	GROVELAND TWP	Oakland	Dixie Hwy & Lahring Rd	1
103	GROVELAND TWP	Oakland	Dixie Hwy 620' north of Tripp Rd	1
104	HIGGINS TWP	Roscommon	Federal Hwy, 750' N of Edna	1
105	JONESFIELD TWP	Saginaw	Gratiot Rd/M-46 & N Fenmore Rd	1
106	KAWKAWLIN	BAY	Center St & Fourth St	1
107	KAWKAWLIN	BAY	Guy St & Fifth St	1
108	KAWKAWLIN	BAY	First St & Guy St	1
109	KAWKAWLIN	BAY	N Huron Rd/US-13 & E Parish Rd	1
110	KAWKAWLIN	BAY	N Huron Rd/US-13 & E Beaver Rd	2
111	KAWKAWLIN	BAY	E Beaver Rd & south bound I-75 on/off ramp	1
112	KAWKAWLIN	BAY	E Beaver Rd & Fraser Rd	1
113	KAWKAWLIN	BAY	E Beaver Rd & north bound I-75 on/off ramp	1
114	LEONI TWP	JACKSON	Page Ave & Falahee Rd	1
115	MADISON CH TWP	Lenawee	Beecher Rd & Sand Creek Hwy	1
116	MANISTEE TWP	Manistee	US-31 & M-55	1
117	MAYFIELD TWP	Grand Traverse	M-113 & M-37	1
118	MAYFIELD TWP	Grand Traverse	M-113 & Hannah Rd	1
119	MAYFIELD TWP	Grand Traverse	M-113 425' east of Hannah Rd	1
120	MDOT	MASON	US-10 & Ramp "B"(off ramp of north bound US-31 to E.B	1
121	MERIDIAN TWP	INGHAM	Grand River Ave(M-43) & Marsh Rd	1
122	MERIDIAN TWP	INGHAM	Grand River Ave(M-43) & Okemos Rd	1
123	MERIDIAN TWP	INGHAM	Marsh Rd & Franklin St	1
124	MERIDIAN TWP	INGHAM	Haslett Rd & Marsh Rd	1
125	MERIDIAN TWP	INGHAM	Marsh Rd & Lake Lansing Rd (north side of intersection)	1
126	MIDLAND CH TWP	MIDLAND	Ireland Ln & Ashby Rd	1
127	MIDLAND CH TWP	MIDLAND	Poseyville Rd & Crosby Ct	1
128	MIDLAND CH TWP	MIDLAND	Poseyville Rd & Progress Pl	1
129	MIDLAND CH TWP	MIDLAND	Miller Rd & Poseyville Rd	1
130	MIDLAND CH TWP	MIDLAND	Bullock Creek Dr & Frederick St	1
131	MIDLAND CH TWP	MIDLAND	Poseyville Rd & Gordonville Rd	1
132	MONITOR CH TWP	Bay	S Huron Rd/M-13 & Grove St	1
133	MONROE CH TWP	Monroe	Telegraph Rd & Albain Rd	1
134	MONROE CH TWP	Monroe	Dixie Hwy & Dunbar Rd	1
135	MONROE CH TWP	Monroe	Dixie Hwy@Ent. to Mable Kehres Apts 200' south of Dalla	1
136	MONROE CH TWP	Monroe	Dixie Hwy & Albain Rd	1

**2021 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
137	MONTGOMERY VLG	Hillsdale	McCallum St & Main St	1
138	MOSCOW TWP	Hillsdale	US-12 & West St	1
139	MOSCOW TWP	Hillsdale	US-12 195' west of Moscow Rd	1
140	MOSCOW TWP	Hillsdale	US-12 330' east of Moscow Rd	1
141	MOSCOW TWP	Hillsdale	US-12 660' east of Moscow Rd	1
142	MT MORRIS CH TWP	GENESEE	East River Rd & Elms Rd	1
143	MT MORRIS CH TWP	GENESEE	Pierson Rd & Elms Rd	1
144	MT MORRIS CH TWP	GENESEE	W Mt Morris Rd & Neff Rd	1
145	MT MORRIS CH TWP	GENESEE	W Stanley Rd & Clío Rd	1
146	MT MORRIS CH TWP	GENESEE	W Mt Morris Rd & Clío Rd	1
147	MUNDY TWP	GENESEE	Grand Blanc Rd & Torrey Rd	1
148	OLIVE TWP	Ottawa	Port Sheldon St & US-31 North	1
149	OLIVE TWP	Ottawa	Port Sheldon St & US-31 South	1
150	PERRINTON VLG	Gratiot	Robinson St, 75' north of RR Tracks	1
151	PERRINTON VLG	Gratiot	Railroad & Cole St	1
152	PERRINTON VLG	Gratiot	Railroad & Sickles St	1
153	PERRINTON VLG	Gratiot	Railroad & Esley St	1
154	PERRINTON VLG	Gratiot	Railroad & Hodges St	1
155	PERRINTON VLG	Gratiot	Robinson & Allor St	1
156	PERRINTON VLG	Gratiot	Robinson St, 825' north of Cleveland Rd (M-57)	1
157	PERRINTON VLG	Gratiot	Robinson St, 410' north of Cleveland Rd (M-57)	1
158	PERRINTON VLG	Gratiot	Robinson St & Cleveland Rd (M-57)	1
159	ROCKFORD CITY	Kent	S Fremont St NE & Division St NE	1
160	ROSCOMMON TWP	ROSCOMMON	Federal Ave 215' west of W Houghton Lake Dr(M-55)	1
161	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Roosevelt Ave	1
162	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Village Ave/Desoto Ave	1
163	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Missaukee Ave	1
164	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Marquette Ave	1
165	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Champlain Ave	1
166	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Collingwood Ave	1
167	ROSCOMMON TWP	ROSCOMMON	Federal Ave 420' west of Collingwood Ave	1
168	ROSCOMMON TWP	ROSCOMMON	Federal Ave & Loxley Rd	1
169	ROSCOMMON TWP	ROSCOMMON	W Houghton Lake Dr(M-55) & Old US Hwy 27	2
170	ROSEBUSH VLG	Isabella	Mission Rd & Elizabeth St	1
171	ROSEBUSH VLG	Isabella	Rosebush Rd & Maple St	1
172	ROSEBUSH VLG	Isabella	Mission Rd & South St	1
173	SAGINAW CH TWP	Saginaw	Weiss Rd & Hemmeter Rd	1
174	SANFORD VLG	MIDLAND	W Saginaw Rd & N Meridian Rd(M-30)	1
175	SCOTTVILLE CITY	Mason	Broadway Ave & Reinberg Ave	1
176	SCOTTVILLE CITY	Mason	Maple Ave & Gay St	1
177	SCOTTVILLE CITY	Mason	Beryl St & Gay St	1
178	SCOTTVILLE CITY	Mason	Beryl St & Loomis St	1
179	SCOTTVILLE CITY	Mason	Thomas St & Bery St	1
180	SCOTTVILLE CITY	Mason	Thomas St & Maple Ave	1
181	SCOTTVILLE CITY	Mason	Thomas St & James St	1
182	SCOTTVILLE CITY	Mason	Broadway Ave & Columbia Ave	1
183	SCOTTVILLE CITY	Mason	Broadway Ave & Thomas St	1
184	SCOTTVILLE CITY	Mason	Reinberg Ave & 1st St	1
185	SCOTTVILLE CITY	Mason	1st St & Scott St	1
186	SCOTTVILLE CITY	Mason	Scott St & 2nd St	1

**2021 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
187	SCOTTVILLE CITY	Mason	3rd St & Scott St	1
188	SCOTTVILLE CITY	Mason	4th St & Scott St	1
189	SCOTTVILLE CITY	Mason	4th St & Rowley St (Crowley on Google)	1
190	SCOTTVILLE CITY	Mason	3rd St & Rowley St (Crowley on Google)	1
191	SCOTTVILLE CITY	Mason	2nd St & Rowley St (Crowley on Google)	1
192	SCOTTVILLE CITY	Mason	1st St & Rowley ST (Crowley on Google)	1
193	SCOTTVILLE CITY	Mason	Paul St & Blaine St	1
194	SCOTTVILLE CITY	Mason	Paul St & Columbia Ave	1
195	SELMA TWP	Wexford	W M-115 & W 13th St	1
196	SHEPHERD VLG	Isabella	Wright Ave & Chippewa St	1
197	SHEPHERD VLG	Isabella	4th St & Maple St	1
198	SHEPHERD VLG	Isabella	Chippewa St & North Dr	1
199	SIMS TWP	Arenac	Michigan Ave & Foster Rd	1
200	SOMERSET TWP	Hillsdale	US-12 & Baker RD (to north - east bound)	1
201	SOMERSET TWP	Hillsdale	US-12 & Baker RD (to north - west bound)	1
202	SOMERSET TWP	Hillsdale	US-12 & Baker RD (to south)	1
203	SOMERSET TWP	Hillsdale	US-12 & Fairway Dr	1
204	SOMERSET TWP	Hillsdale	US-12 & LeAnn Tr	1
205	SOMERSET TWP	Hillsdale	US-12 & Jerome Rd	1
206	SOMERSET TWP	Hillsdale	US-12 & Emerald Dr	1
207	SPAULDING TWP	SAGINAW	S Washington Rd & Sheridan Rd	1
208	STANWOOD VLG	Mecosta	Front St/Stanwood Dr 280' south of Jefferson St	1
209	STERLING VLG	Arenac	509 Saginaw St/M-76, 750' south of Grant St	1
210	SULLIVAN TWP	Muskegon	Heights Ravenna and Maple Island Rd	1
211	SULLIVAN TWP	Muskegon	Heights Ravenna and Wolf Lake Rd	1
212	SULLIVAN TWP	Muskegon	Sullivan RD and Ellis Rd	1
213	SUMMIT TWP	JACKSON	Horton Rd & Harding Rd	1
214	SUMMIT TWP	JACKSON	2919 Francis St 170' south of Pierce St	1
215	SUMMIT TWP	JACKSON	Morrell St & Leo Rd	1
216	SUMMIT TWP	JACKSON	708 Leo Rd 330' south of Carlton Blvd	1
217	SUMMIT TWP	JACKSON	Leo Rd & Carlton Blvd	1
218	SUMNER TWP	Gratiot	Lumberjack Rd & Cedar	1
219	SUMNER TWP	Gratiot	Van Buren Rd & Grove (to North)	1
220	SUMNER TWP	Gratiot	Van Buren Rd & Lumberjack	1
221	SUMNER TWP	Gratiot	W St Charles Rd & Sumner St	1
222	SUMNER TWP	Gratiot	Sumner & Pine St	1
223	SUMNER TWP	Gratiot	W St Charles Rd & Lynn St	1
224	SUNFIELD VLG	Eaton	M-43/Grand Ledge Hwy 555' east of 3rd St	1
225	SUNFIELD VLG	Eaton	M-43/Grand Ledge Hwy & 3rd St	1
226	SUNFIELD VLG	Eaton	M-43/Grand Ledge Hwy 320' west of 3rd St	1
227	SWAN CREEK TWP	Saginaw	Swan Creek and Graham/M-52	1
228	TWINING VLG	Arenac	State St, 305' south of Lee St	1
229	TWINING VLG	Arenac	State St, 600' south of Lee St	1
230	UNION CH TWP	ISABELLA	Broomfield & Isabella	1
231	VIENNA TWP	Genesee	Saginaw Rd & Clio Rd/M-54 (north side of intersection)	1
232	VIENNA TWP	Genesee	Saginaw Rd & Clio Rd/M-54 (south side of intersection)	1
233	VIENNA TWP	Genesee	Vienna Rd/M-57 & Elms Rd	1
234	VIENNA TWP	Genesee	Clio Rd & Dodge Rd	1
235	WARREN TWP	Midland	W Baker Rd & Coleman Rd	1
236	WISE TWP	Isabella	Monroe St & Loomis St	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1	ACME TWP	Grand Traverse	Deepwater Point and Dock Rd	1
2	ADA TWP	KENT	Fulton St E & Pettis Ave	2
3	ADA TWP	KENT	Fulton St E(M-21) & Ada Dr SE	2
4	ADA TWP	KENT	Fulton St E(M-21) & Headley St SE	1
5	ADA TWP	KENT	Fulton St E(M-21) & Bronson St SE	1
6	ADRIAN CITY	LENAWEE	Division St & US-223	1
7	ADRIAN CITY	LENAWEE	US-223 & M-52(Main St)	1
8	ADRIAN CITY	LENAWEE	Beecher St & Center St	1
9	ADRIAN CITY	LENAWEE	Beecher St & Division St	1
10	ADRIAN CITY	LENAWEE	Beecher St & Winter St	1
11	ADRIAN CITY	LENAWEE	M-52( Main St) & Beecher St	2
12	ADRIAN CITY	LENAWEE	Wolf Creek Hwy/Sand Creek Hwy & US-223/Maumee St	1
13	ADRIAN CITY	LENAWEE	Maumee St & McKenzie St	1
14	ADRIAN CITY	LENAWEE	Maple Ave & Broad St	1
15	ALPINE TWP	KENT	4 Mile Rd NW & Cordes Ave NW	1
16	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Lamoreaux Dr NW	1
17	BARRYTON VLG	MECOSTA	20 Mile Rd & Perry St	1
18	BARRYTON VLG	MECOSTA	362 Norman St 700' south of 20 Mile Rd	1
19	BARRYTON VLG	MECOSTA	298 Perry St 535' south of 20 Mile Rd	1
20	BARRYTON VLG	MECOSTA	Marion Ave at Sterns St	1
21	BARRYTON VLG	MECOSTA	Marion Ave at Renwick St	1
22	BARRYTON VLG	MECOSTA	Marion Ave at Hudnut St	1
23	BARRYTON VLG	MECOSTA	Angel St at Sterns St	1
24	BARRYTON VLG	MECOSTA	Angel St at Renwick St	1
25	BARRYTON VLG	MECOSTA	Angel St at Hudnut St	1
26	BARRYTON VLG	MECOSTA	Coolidge Rd & Chippewa Dr	1
27	BARRYTON VLG	MECOSTA	Northern Ave & Darrah St	1
28	BARRYTON VLG	MECOSTA	Northern Ave 180' east of Darrah St	1
29	BELDING CITY	IONIA	E State St(M-44) & S Bridge St	1
30	BELLAIRE VLG	ANTRIM	402 W Cayuga St 125' west of North St	1
31	BELLAIRE VLG	ANTRIM	Bridge and State	1
32	BIG RAPIDS CITY	Mecosta	Northland and Pere Marquette St	1
33	BIG RAPIDS CITY	Mecosta	Locust and Northland	1
34	BRIDGEPORT CH TWP	SAGINAW	Williamson Rd & Southfield Dr	1
35	BUNKER HILL TWP	Ingham	Williamston Rd 130' north of Decamp Rd	1
36	BURTON CITY	GENESEE	E Maple Ave & Belsay Rd (south of E Maple Ave)	1
37	BURTON CITY	GENESEE	3052 Belsay Rd 550' south of E Atherton Rd	1
38	CALEDONIA VLG	KENT	Cherry Valley Ave SE(M-37) & 100th St SE	1
39	CALEDONIA VLG	KENT	Cherry Valley Ave SE(M-37) & E Main St SE	1
40	CAMDEN VLG	Hillsdale	Alley 170' North of W Wales St & Dwight St Intersection	2
41	CATO TWP	MONTCALM	Howard City-Edmore(M-46) & Greenville Rd(M-91)	2
42	CHARLOTTE CITY	EATON	Battle Creek Rd & Shepherd St	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
43	CHESTONIA TWP	ANTRIM	Maple St 300' west of US-131	1
44	CHESTONIA TWP	ANTRIM	5871 Alba Rd 160' east of 2nd St	1
45	CHESTONIA TWP	ANTRIM	Alba Rd & Jordan River Rd (Cinder Hill Rd)	1
46	CHIPPEWA TWP	Isabella	Broomfield Rd & Shepherd Rd	1
47	CHURCHILL TWP	Ogemaw	1309 E State Rd/CO Hwy F24 2,060' west of Gerald Miller	1
48	CLAYTON CH TWP	GENESEE	Corunna Rd(M-21) & Seymour Rd	2
49	COLEMAN CITY	Midland	Fraser St & Mill St	1
50	COLEMAN CITY	Midland	W Adams St & Mill St	1
51	COLEMAN CITY	Midland	Railway St & Mary St	1
52	COLEMAN CITY	Midland	W Webster St 1,000' east of N Dickenson	1
53	COLEMAN CITY	Midland	W Webster St 225' east of N Dickenson	1
54	COLEMAN CITY	Midland	N Dickenson Rd 1,900' south of W Webster St	1
55	COLEMAN CITY	Midland	3rd St/Coleman Rd 360' south of Jackson St	1
56	COLEMAN CITY	Midland	Coleman Rd 700' south of Jackson St @ Southgate Dr	1
57	COLEMAN CITY	Midland	Coleman Rd 1,420' south of Jackson St	1
58	COLEMAN CITY	Midland	Miller St 730' south east of Brown St	1
59	COMSTOCK CH TWP	KALAMAZOO	E ML Ave & River St	1
60	COMSTOCK CH TWP	KALAMAZOO	W Battle Creek St & S 35th St	1
61	DAVISON CITY	Genesee	W Second St & Aloha St	1
62	DAVISON CITY	Genesee	E Lexington & S Davison St	1
63	DAVISON CITY	Genesee	E 3rd St & N Davison St	1
64	DAVISON CITY	Genesee	E 3rd St & N Lapeer St	1
65	DAVISON TWP	GENESEE	Davison Rd & Irish Rd	1
66	DEERFIELD VLG	LENAWEE	Carey St & Railroad St	1
67	DELHI CH TWP	INGHAM	Sycamore St & Elm St	1
68	DELHI CH TWP	INGHAM	Sycamore St & Walnut St	1
69	DELHI CH TWP	INGHAM	Grove St & Chestnut St	1
70	DELHI CH TWP	INGHAM	Dallas Ave/Micael Ave & Hancock Dr	1
71	DELHI CH TWP	INGHAM	2069 Auburn Ave 790' north of Holt Rd	1
72	DELHI CH TWP	INGHAM	2194 West Blvd 825' south of Tolland Ave	1
73	DELHI CH TWP	INGHAM	Fay Ave & Krental Ave	1
74	DELHI CH TWP	INGHAM	Dell Rd & Fontaine Tr	1
75	DELHI CH TWP	INGHAM	Dell Rd & Lamoreaux Ln	1
76	DELHI CH TWP	INGHAM	Bishop Rd & Frank St	1
77	DELHI CH TWP	INGHAM	6084 Bishop Rd 430' east of Gilbert	1
78	DELHI CH TWP	INGHAM	Bishop Rd & Gilbert Rd	1
79	DELHI CH TWP	INGHAM	6171 Bishop Rd 480' west of Gilbert	1
80	DELHI CH TWP	INGHAM	6285 Bishop Rd 575' west of Eaton Rapids Rd(M-99)	1
81	DELHI CH TWP	INGHAM	6342 Bishop Rd 1,180' west of Eaton Rapids Rd(M-99)	1
82	DELHI CH TWP	INGHAM	6377 Bishop Rd 1,320' east of Waverly Rd	1
83	DELHI CH TWP	INGHAM	Bishop Rd & Waverly Rd	1
84	DENVER TWP	Isabella	Rosebush Rd & Genuine Rd	1
85	DENVER TWP	Isabella	Leaton Rd & Beal City Rd	1
86	DENVER TWP	Isabella	Beal City Rd 670' west of Leaton Rd	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
87	DEWITT CH TWP	CLINTON	Old US-27 & E Round Lake Rd	2
88	DOUGLAS VLG	ALLEGAN	Blue Star Hwy & W Center st	1
89	DURAND CITY	SHIAWASSEE	E Monroe Rd & N Saginaw St	1
90	EAST LANSING CITY	Ingham	Mt Hope Rd & Harrison Rd	2
91	ELBA TWP	Gratiot	Arnold Rd 355' norht of Cleveland Rd (M-57)	1
92	ELBA TWP	Gratiot	Arnold Rd 940' norht of Cleveland Rd (M-57)	1
93	ELBA TWP	Gratiot	Main St & Water St	1
94	ELBA TWP	Gratiot	Main St 325' west of the R.R. tracks	1
95	ELBA TWP	Gratiot	Main St 110' west of the R.R. tracks	1
96	ELBA TWP	Gratiot	Main St & Maple St	1
97	ELLSWORTH VLG	Antrim	Lake St, 320' north east of White St	1
98	ELLSWORTH VLG	Antrim	Lake St and Church St	1
99	ELLSWORTH VLG	Antrim	On Lake St, 370' south of Church St	1
100	ELLSWORTH VLG	Antrim	Lake St & Bridge St	1
101	ELLSWORTH VLG	Antrim	Lake St, 240' south of Bridge St	1
102	ELLSWORTH VLG	Antrim	Lake St, 500' south of Bridge St	1
103	ELLSWORTH VLG	Antrim	Center St & Harris St	1
104	ELLSWORTH VLG	Antrim	Center St, 120' east of Main St	1
105	ELLSWORTH VLG	Antrim	Center St and Park	1
106	ELLSWORTH VLG	Antrim	Park St, 340' south of Church St	1
107	ELLSWORTH VLG	Antrim	Church St and Main St	1
108	ELLSWORTH VLG	Antrim	Main St, 290' north of Lincoln St	1
109	ELLSWORTH VLG	Antrim	Main St and Hardy	1
110	ELLSWORTH VLG	Antrim	Main St, 160' north of Center St	1
111	ELLSWORTH VLG	Antrim	Main St and Maple	1
112	EMMETT CH TWP	Calhoun	Verona Rd 525' east of Jane St	1
113	EMMETT CH TWP	Calhoun	Golden Ave/G Dr N & Cherokee St	1
114	EMMETT CH TWP	Calhoun	Golden Ave/G Dr N & Pawnee St	1
115	ERIE TWP	MONROE	Luna Pier Rd & Telegraph Rd(US-24)	1
116	FENTON CH TWP	Genesee	Fenton Rd & Thompson Rd	1
117	FENTON CITY	GENESEE	S Long Lake and Westman	1
118	FENTON CITY	GENESEE	2076 S Long Lake 300' west of Westman Dr	1
119	FENTON CITY	GENESEE	2136 S Long Lake 800' west of WestmanDr	1
120	FENTON CITY	GENESEE	2217 S Long Lake 285' north east of Swanee Beach Dr	1
121	FENTON CITY	GENESEE	Swanee Beach Rd 575' north of S Long Lake	1
122	FENTON CITY	GENESEE	Swanee Beach and S Long Lake	1
123	FENTON CITY	GENESEE	2331 S Long Lake 305' east of Blue Heron Dr	1
124	FENTON CITY	GENESEE	2397 S Long Lake, 550' east of Torrey Rd	1
125	FENTON CITY	GENESEE	5th and Oak	1
126	FENTON CITY	GENESEE	5th and East	1
127	FENTON CITY	GENESEE	4th and Walnut	1
128	FENTON CITY	GENESEE	N Leroy St 48' north of RR track	1
129	FENTON CITY	GENESEE	Parallel and Summit	1

**2022 Center Suspension Streetlight Conversion Projects**

(a) (b) (c) (d)

Line No.	Municipality	County	Location Description	# of Fixtures
130	FENTON CITY	GENESEE	Shiawassee Ave 230' south of Owen Rd	1
131	FENTON CITY	GENESEE	Owen and Jennings	1
132	FENTON CITY	GENESEE	Grant and West	1
133	FENTON CITY	GENESEE	916 North Rd 385' east of Worchester Dr	1
134	FENTON CITY	GENESEE	Lincoln and Jefferson	1
135	FENTON CITY	GENESEE	Adelaide and Wood	1
136	FERRYSBURG CITY	Ottawa	Ridge Ave 360' south east of Lane Ave	1
137	FERRYSBURG CITY	Ottawa	Ridge Ave & Lane Ave	1
138	FERRYSBURG CITY	Ottawa	Ridge Ave 435' north west of Michigan Ave	1
139	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Elms Rd	1
140	FLINT CH TWP	GENESEE	Beecher Rd & Mill Rd	1
141	FLINT CITY	GENESEE	1505 W McClellan St 95' west of Burgess St	1
142	FLINT CITY	GENESEE	1325 W McClellan St 45' east of Forest Hill Ave	1
143	FLINT CITY	GENESEE	2023 Center Rd 385' south of Holly Ave	1
144	FREMONT TWP	ISABELLA	Michigan St & S Winn Rd	1
145	FRUITPORT CH TWP	MUSKEGON	Farr Rd & Airline Rd (north of I-96)	1
146	FRUITPORT CH TWP	MUSKEGON	Hile Rd & Airline Hwy	1
147	GAINES CH TWP	KENT	84th St SE & Division Ave S	1
148	GAINES CH TWP	KENT	68th St SE & Eastern Ave SE	1
149	GARFIELD CH TWP	GRAND TRAVERSE	N Long Lake Rd(Co HWY 610) & Barnes Rd	1
150	GENESEE CH TWP	GENESEE	3049 Gehring Dr 535' north of E Potter Rd	1
151	GENESEE CH TWP	GENESEE	3089 Gehring Dr 930' north of E Potter Rd	1
152	GENESEE CH TWP	GENESEE	3128 Gehring Dr 1,330' north of E Potter Rd	1
153	GENESEE CH TWP	GENESEE	3170 Gehring Dr 655' south of Richfield Rd	1
154	GENESEE CH TWP	GENESEE	3217 Gehring Dr 260' south of Richfield Rd	1
155	GENESEE CH TWP	GENESEE	3126 N Belsay Rd 1,445' south of Richfield Rd	1
156	GENESEE CH TWP	GENESEE	3153 N Belsay Rd 1,185' south of Richfield Rd	1
157	GENESEE CH TWP	GENESEE	3211 N Belsay Rd 565' south of Richfield Rd	1
158	GENESEE CH TWP	GENESEE	3277 N Belsay Rd 260' south of Richfield Rd	1
159	GENESEE CH TWP	GENESEE	6535 Richfield Rd 205' south west of N Vassar Rd	1
160	GENESEE CH TWP	GENESEE	6509 Richfield Rd 505' south west of N Vassar Rd	1
161	GENESEE CH TWP	GENESEE	6474 Richfield Rd 785' south west of N Vassar Rd	1
162	GENESEE CH TWP	GENESEE	6461 Richfield Rd 1,020' south west of N Vassar Rd	1
163	GENESEE CH TWP	GENESEE	6431 Richfield Rd 1,310' south west of N Vassar Rd	1
164	GENESEE CH TWP	GENESEE	6405 Richfield Rd 1,600' south west of N Vassar Rd	1
165	GENESEE CH TWP	GENESEE	6308 Richfield Rd 2,500' south west of N Vassar Rd	1
166	GENESEE CH TWP	GENESEE	6259 Richfield Rd 2,090' north east of Eastdale Dr	1
167	GENESEE CH TWP	GENESEE	6247 Richfield Rd 1,810' north east of Eastdale Dr	1
168	GENESEE CH TWP	GENESEE	6223 Richfield Rd 1,530' north east of Eastdale Dr	1
169	GENESEE CH TWP	GENESEE	6190 Richfield Rd 1,220' north east of Eastdale Dr	1
170	GENESEE CH TWP	GENESEE	6158 Richfield Rd 900' north east of Eastdale Dr	1
171	GENESEE CH TWP	GENESEE	6130 Richfield Rd 620' north east of Eastdale Dr	1
172	GENESEE CH TWP	GENESEE	3351 N Belsay Rd 220' south of Tipperary Ln	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
173	GENESEE CH TWP	GENESEE	3157 Mac Ave 250' north of Richfield Rd	1
174	GENESEE CH TWP	GENESEE	3186 Mac Ave 625' north of Richfield Rd	1
175	GENESEE CH TWP	GENESEE	3213 Mac Ave 880' north of Richfield Rd	1
176	GENESEE CH TWP	GENESEE	3239 Mac Ave 1,095' north of Richfield Rd	1
177	GENESEE CH TWP	GENESEE	3273 Mac Ave 1,360' north of Richfield Rd	1
178	GENESEE CH TWP	GENESEE	3228 N Genesee Rd 875' north of Richfield Rd	1
179	GENESEE CH TWP	GENESEE	4015 Mitchell Dr 90' north of S Kearsley Blvd	1
180	GENESEE CH TWP	GENESEE	4101 Mitchell Dr 240' north of S Kearsley Blvd east int.	1
181	GENESEE CH TWP	GENESEE	3339 S Kearsley Blvd 210' south of Mitchell Dr east int.	1
182	GENESEE CH TWP	GENESEE	3311 S Kearsley Blvd 525' north of Dowdall St	1
183	GENESEE CH TWP	GENESEE	3293 S Kearsley Blvd 340' north of Dowdall St	1
184	GENESEE CH TWP	GENESEE	Dowdall St & S Kearsley Blvd	1
185	GENESEE CH TWP	GENESEE	E Carpenter Rd & Rose Ln	1
186	GENESEE CH TWP	GENESEE	E Carpenter Rd & Dearing Dr	1
187	GENESEE CH TWP	GENESEE	6490 E Coldwater Rd 230' west of N Vassar Rd	1
188	GENESEE CH TWP	GENESEE	E Coldwater Rd & Kader Dr	1
189	GENESEE CH TWP	GENESEE	4252 E Coldwater Rd 990' west of Kader Dr	1
190	GENESEE CH TWP	GENESEE	4174 E Coldwater Rd 1,645' east of Center Rd	1
191	GENESEE CH TWP	GENESEE	1197 Morris Hills Pkwy 145' west of Horton St	1
192	GENESEE CH TWP	GENESEE	1181 Morris Hills Pkwy 345' west of Horton St	1
193	GENESEE CH TWP	GENESEE	1029 Morris Hills Pkwy 300' east of Saginaw St	1
194	GENESEE CH TWP	GENESEE	1241 E Stanley Rd 2,020' east of Union St	1
195	GENESEE CH TWP	GENESEE	6121 N Genesee Rd 225' north of Weeping Willow Dr	1
196	GEORGETOWN CH TWP	OTTAWA	Port Sheldon St & 40th Ave	1
197	GEORGETOWN CH TWP	OTTAWA	Chicago Dr(M-121 east bound) & 12th Ave	1
198	GEORGETOWN CH TWP	OTTAWA	Chicago Dr(M-121 west bound) & 12th Ave	1
199	GOODAR TWP	Ogemaw	Heath Rd & Mack Lake Trl	1
200	GOODAR TWP	Ogemaw	Heath Rd & Alcona St	1
201	GRAND BLANC CH TWP	GENESEE	Baldwin Rd & Halsey Rd	1
202	GRAND BLANC CH TWP	GENESEE	Fenton Rd & Barbara St	1
203	GRAND BLANC CH TWP	GENESEE	Cook Rd & McWain Rd	1
204	GRAND BLANC CH TWP	GENESEE	Saginaw Rd & E Cook Rd	1
205	GRAND BLANC CH TWP	GENESEE	8308 S Saginaw St 650' north of McCandlish Rd	1
206	GRAND BLANC CH TWP	GENESEE	8265 S Saginaw St 880' north of McCandlish Rd	1
207	GRAND BLANC CH TWP	GENESEE	8231 S Saginaw St 1,430' north of McCandlish Rd	1
208	GRAND BLANC CH TWP	GENESEE	8195 S Saginaw St 1,905' north of McCandlish Rd	1
209	GRAND LEDGE CITY	EATON	W Saginaw Hwy(M-43) & Jenne St	1
210	GRANT TWP	Clare	Clare Ave & Surrey Rd	1
211	GRAYLING CITY	Crawford	In municipal parking lot north of Norway and west Mich.	2
212	GREENVILLE CITY	MONTCALM	Charles St & N Lafayette St(M-91)	1
213	GREENVILLE CITY	MONTCALM	E Van Deine St/Greenville W Dr & N Lafayette St(M-91)	1
214	GUN PLAIN TWP	Allegan	10th St & 107th Ave	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
215	HAMLIN TWP	MASON	W Jagger Rd & N Jebavy Dr	1
216	HAMPTON CH TWP	BAY	22nd St(Kosciuszko Ave) & S Trumbull St	1
217	HARING CH TWP	WEXFORD	34 Rd/E Boon Rd/Bus 131 & Plett Rd	1
218	HARRISVILLE CITY	Alcona	State St (US-23) & Main St (M-72)	1
219	HESPERIA VLG	OCEANA	Michigan Ave & N Cook St	1
220	HESPERIA VLG	OCEANA	Greenback St & Weaver St	1
221	HESPERIA VLG	OCEANA	Weavewr St & Cook St	1
222	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Peters Rd	1
223	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 180' north of Campbell Sr(N end	1
224	HILL TWP	Ogemaw	357 N Sage Lake Rd/CO Hwy F19 650' south of Francis Rd	1
225	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Schemp Rd	1
226	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Shady Shores Rd/CO Hwy F17	1
227	HILL TWP	Ogemaw	Townhall Rd/CO Hwy F26 & County Line Rd CO Hwy F21	1
228	HILL TWP	Ogemaw	Forest Dr 400' west of Lake Forest Ave	1
229	HILL TWP	Ogemaw	Forest Dr 50' west of Lake Forest Ave	1
230	HILL TWP	Ogemaw	Forest Dr 135' north east of Lake Forest Ave	1
231	HILL TWP	Ogemaw	Forest Dr 130' north east of Silverwood Rd	1
232	HILL TWP	Ogemaw	Forest Dr & Lakeside Dr	1
233	HILL TWP	Ogemaw	Shady Shores Rd/CO Hwy F17 & CO Hwy F 28/Rose City Ci	1
234	HOLLAND CH TWP	Ottawa	Riley St & 128th Ave	1
235	HOLLAND CH TWP	Ottawa	Riley St & 120th Ave	1
236	HOLLAND CH TWP	Ottawa	Riley St & 112th Ave	1
237	HOLLAND CH TWP	Ottawa	Riley St & 100th Ave	1
238	HOLLAND CH TWP	Ottawa	Riley St & 96th Ave/N State St	1
239	HOLLAND CH TWP	Ottawa	James St & Beeline Rd	1
240	HOLLAND CH TWP	Ottawa	James St & 120th Ave	1
241	HOLLAND CH TWP	Ottawa	E Lakewood Blvd/Chicago Dr & 112th Ave	1
242	HOLLAND CH TWP	Ottawa	I-196 Bus RT & 112th Ave	2
243	HOLLAND CH TWP	Ottawa	Chicago Dr & Van Hill Dr	1
244	HOLLAND CH TWP	Ottawa	Chicago Dr & 104th Ave	1
245	HOME TWP	MONTCALM	N County Line Rd & Wyman Rd	1
246	HOME TWP	MONTCALM	Pine Rd & M575	1
247	HOME TWP	MONTCALM	M575 & Fred Meijer Heartland Trail 445' south of Pine Rd	1
248	HOME TWP	MONTCALM	M575 390' north of Quarter Rd	1
249	HOME TWP	MONTCALM	Quarter Rd & M575	1
250	HOME TWP	MONTCALM	M575 195' south of Quarter Rd	1
251	HOME TWP	MONTCALM	7260 M575 450' south of Quarter Rd	1
252	HOMER TWP	MIDLAND	Tittabawassee River Rd & Saginaw Rd	1
253	HOMER TWP	MIDLAND	Homer Rd & Olson Rd	1
254	HOMER TWP	MIDLAND	5 Mile Rd & Chippewa River Rd	1
255	HOMER TWP	MIDLAND	Meridian Rd & Miller Rd	1
256	HOMER TWP	MIDLAND	Gordonville Rd & Meridian Rd	1
257	HOMER VLG	CALHOUN	E Water St & S Clay St	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
258	HOPE TWP	MIDLAND	E Hull Rd & N Hope Rd	1
259	HOPKINS VLG	ALLEGAN	128th Ave/E Main St & Hoffmaster St/Jackson St	1
260	HOPKINS VLG	ALLEGAN	128th Ave/W Main St & Selby St	1
261	HOPKINS VLG	ALLEGAN	128th Ave/W Main St & Center St	1
262	HOWARD CITY VLG	MONTCALM	Shaw St & Federal Rd/Ensley St	1
263	HUDSON CITY	Lenawee	Maple St & Oak St	1
264	HUDSON CITY	Lenawee	Mechanic St & St.Giles St 45' east of St.Giles St	1
265	HUDSON CITY	Lenawee	Mechanic St 370' east of St.Giles St	1
266	HUDSON CITY	Lenawee	Maple Grove Ave & Hill St	1
267	HUDSON CITY	Lenawee	Maple Grove Ave 300' north of Wilcox St	1
268	HUDSON CITY	Lenawee	Maple Grove Hwy & Taney St	1
269	HUDSON CITY	Lenawee	Maple Grove Hwy 305' north of Buchanan St	1
270	HUDSON CITY	Lenawee	Maple Grove Hwy 590' north of Buchanan St	1
271	HUDSON CITY	Lenawee	Maple Grove Hwy 1185' south of Cadmus Rd	1
272	HUDSON CITY	Lenawee	Maple Grove Hwy 275' south of Cadmus Rd	1
273	JEROME TWP	Midland	Wackerly Rd 500' south east of 7mi Rd @end of curve	1
274	JEROME TWP	Midland	Nielson Rd & Nine Mile Rd	1
275	JEROME TWP	Midland	799 W Saginaw Rd 330' south east of Irish St	1
276	JEROME TWP	Midland	Saginaw Rd & 11 Mile Rd	1
277	JEROME TWP	Midland	2974 Saginaw Rd 470' south east of Castor Rd	1
278	JEROME TWP	Midland	N W River Rd & Ridge Dr	1
279	KAWKAWLIN	BAY	Guy St & Third St	1
280	KAWKAWLIN	BAY	Telu Ct 300' south of Maroba Rd	1
281	KAWKAWLIN	BAY	1026 E Beaver Rd 300' east of Fraser Rd	1
282	KENTWOOD CITY	KENT	Kalamazoo Ave SE & Pickett St SE	1
283	KOCHVILLE TWP	Saginaw	Tittabawassee Rd & Kenora Dr	1
284	KOCHVILLE TWP	Saginaw	Liberty Rd & N Michigan Rd	1
285	LAKE TWP	Roscommon	M-55 & Old US Hwy 27	1
286	LAKETOWN TWP	Allegan	32nd St & Saunders Ave	1
287	LAKETOWN TWP	Allegan	32nd Ave 785' west of Saunders Ave	1
288	LEE TWP	ALLEGAN	Pullman Ave & Pearl St	1
289	LEE TWP	ALLEGAN	Commerce Dr & 56th St 670' north of Main St (109th Ave)	1
290	LEE TWP	ALLEGAN	5646 109th Ave 350' west of Pullman Ave	1
291	LEIGHTON TWP	Allegan	Janice St & Division St	1
292	LEIGHTON TWP	Allegan	Aster St & Violet St	1
293	LEIGHTON TWP	Allegan	Lilac St & Garden St	1
294	LENNON VLG	Shiawassee	Lennon Rd and Reed St/Cornin St	1
295	LENNON VLG	Shiawassee	Lennon Rd 335' west of Haviland St	1
296	LENNON VLG	Shiawassee	Lennon Rd and Haviland St	1
297	LIBERTY TWP	JACKSON	Liberty Rd & S Jackson Rd	1
298	LINCOLN TWP	Osceola	Reed Rd/210th Ave & Penasha Rd/Nine Mile Rd	1
299	LITCHFIELD CITY	Hillsdale	W St Joe St & Warriner Ave	1
300	LITCHFIELD CITY	Hillsdale	210 W St Joe St 235' west of Warriner Ave	1
301	LITCHFIELD CITY	Hillsdale	Williams St & West St	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
302	LUDINGTON CITY	MASON	US-10 ( Ludington Ave ) & Washington Ave	1
303	MADISON CH TWP	Lenawee	Airport Rd on curve 60' east of Elwood Dr	1
304	MADISON CH TWP	Lenawee	W Cadmus Rd & Baldwin Rd	1
305	MADISON CH TWP	Lenawee	Baldwin Rd & Thayer Rd	1
306	MAPLE GROVE TWP	Saginaw	Lincoln Rd 260' north of Peet Rd/M-57	1
307	MARION VLG	Osceola	E Main St, 470' west of Lowry St	1
308	MARION VLG	Osceola	Main St & Lake St	1
309	MCBRIDE VLG	MONTCALM	E Coral Rd & Wayne St	1
310	MECOSTA VLG	Mecosta	Hayes St & Webber St	1
311	MECOSTA VLG	Mecosta	Main St & "A" St	1
312	MENTOR TWP	OSCODA	Wilson Dr & Glennie Dr	1
313	MERIDIAN TWP	INGHAM	Hamilton Rd & Montrose Ave	1
314	MERIDIAN TWP	INGHAM	Hamilton Rd & Liverance St	1
315	MERIDIAN TWP	INGHAM	2691 Skyline Ct 365' east of Dawn Ave	1
316	MERIDIAN TWP	INGHAM	Ridge St & Lee St	1
317	MERIDIAN TWP	INGHAM	Lake Dr & Milenz St	1
318	MERIDIAN TWP	INGHAM	6177 E Lake Dr 65' north west of Crane St	1
319	MERIDIAN TWP	INGHAM	Lake Dr & Partridge St	1
320	MIDLAND CITY	MIDLAND	James Savage Rd & S Saginaw Rd	1
321	MIDLAND CITY	MIDLAND	E Lyon Rd(M-20) & Bayliss St	1
322	MIDLAND CITY	MIDLAND	E Patrick Rd(M-20) & Jefferson Ave	1
323	MIDLAND CITY	MIDLAND	Buttles St E(M-20/Bus 10) & Cronkright St	2
324	MIDLAND CITY	MIDLAND	Haley St & Jefferson Ave	1
325	MIDLAND CITY	MIDLAND	Eastman Ave(Bus 10) & Dilloway Dr	1
326	MIDLAND CITY	MIDLAND	Wheeler St & Swede Ave	1
327	MIDLAND CITY	MIDLAND	N Saginaw Rd & Artcrest Dr/Northwood Dr	1
328	MONITOR CH TWP	Bay	E Salzburg Rd 220' east of S 8 Mile Rd	1
329	MONITOR CH TWP	Bay	E Salzburg Rd 490' east of S 8 Mile Rd	1
330	MONITOR CH TWP	Bay	E Salzburg Rd 775' east of S 8 Mile Rd	1
331	MONITOR CH TWP	Bay	S 8 Mile Rd 270' south of E Salzburg Rd	1
332	MOSCOW TWP	Hillsdale	Moscow Rd 290' north of US-12	1
333	MOSCOW TWP	Hillsdale	Moscow Rd 390' south of US-12	1
334	MOSCOW TWP	Hillsdale	Moscow Rd & Kalamazoo Sq	1
335	MT MORRIS CH TWP	GENESEE	4518 Elms Rd 1,330' south of Carpenter Rd	1
336	MT MORRIS CH TWP	GENESEE	5171 Elms Rd 415' north of Carpenter Rd	1
337	MT MORRIS CH TWP	GENESEE	Hickory St & Elms Rd	1
338	MT PLEASANT CITY	ISABELLA	Pickard Rd & N Main St	1
339	MUNDY TWP	GENESEE	Baldwin Rd & Fenton Rd	1
340	MUNDY TWP	GENESEE	1235 Lawnview Ct 430' south west of Bedford Ave	1
341	MUNDY TWP	GENESEE	W Maple Ave & Pilgrim Rd	1
342	MUSKEGON CITY	MUSKEGON	Moses J Jones Pkwy(US-31 BUS) & Getty St	2
343	MUSKEGON CITY	MUSKEGON	Marquette Ave & Broadmoor St	1
344	MUSKEGON CITY	MUSKEGON	Marquette Ave & Harvey St	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
345	MUSKEGON HEIGHTS CITY	MUSKEGON	W Summit Ave & Seaway Dr (US 31 BUS North)	1
346	MUSKEGON HEIGHTS CITY	MUSKEGON	E Broadway Ave & Hoyt St	1
347	MUSKEGON HEIGHTS CITY	MUSKEGON	W Broadway Ave & 6th St	1
348	MUSKEGON HEIGHTS CITY	MUSKEGON	E Sherman Blvd & Baker St	1
349	MUSKEGON HEIGHTS CITY	MUSKEGON	W Hume Ave & Sanford St	1
350	MUSKEGON HEIGHTS CITY	MUSKEGON	W Hackley Ave & Peck St	1
351	MUSKEGON HEIGHTS CITY	MUSKEGON	E Hackley Ave & Hoyt St	1
352	NEWAYGO CITY	NEWAYGO	M-37(Mason Dr) & M-82(82nd St)	2
353	NORTH MUSKEGON CITY	Muskegon	Whitehall Rd & Ruddiman Dr	1
354	NORTON SHORES CITY	MUSKEGON	Seaway Dr(US 31 BUS) & Getty St	2
355	NOTTAWA TWP	ISABELLA	W Beal City Rd	1
356	OSHTEMO TWP	KALAMAZOO	M-43 (W Main St) & N 9th St	1
357	OSHTEMO TWP	KALAMAZOO	M-43 (W Main St) & 10th St N	1
358	OTISCO TWP	IONIA	Whites Bridge Rd & 6 Mile Rd	1
359	OTISVILLE VLG	GENESEE	409 Center St 185' north of Kurtz St	1
360	OTSEGO CITY	Allegan	Farmer St & Washington St/Dix St	1
361	OVID VLG	Clinton	Main St, 140' south of W Pearl St	1
362	OVID VLG	Clinton	S Main St, 330' south of Willow St	1
363	PARK TWP	OTTAWA	W Lakewood Blvd & 152nd Ave	1
364	PERE MARQUETTE CH TWP	MASON	US-10 & S Jackaon Rd	1
365	PINE RIVER TWP	Gratiot	Jefferson & Luce Rd (US-27)	1
366	PINE RIVER TWP	Gratiot	Jerome Rd s/o Hoffman Rd s/o RR Tracks	1
367	PLAINFIELD TWP	IOSCO	Long Lake Rd & Flint Rd	1
368	PLAINFIELD TWP	IOSCO	4874 Long Lake Rd 240' north west of Flint Rd	1
369	PLAINFIELD TWP	IOSCO	Long Lake Rd 605' north west of Flint Rd	1
370	PLAINFIELD TWP	IOSCO	4950 N Main St 265' south of Rose City Rd	1
371	PLAINFIELD TWP	IOSCO	Long Lake Rd & Rose City Rd	1
372	PLAINFIELD TWP	IOSCO	N Main St & Kokosing Rd	1
373	PORTAGE CITY	KALAMAZOO	Portage Rd & I-94 east bound exit/ent. Ramp	2
374	READING CITY	Hillsdale	E Michigan St & Martin St @ R.R. tracks	1
375	READING CITY	Hillsdale	E Michigan St 230' east of Chestnut St	1
376	READING CITY	Hillsdale	W Elm St 245' west of S Main St	1
377	READING CITY	Hillsdale	W Elm St & Hill St	1
378	READING CITY	Hillsdale	W Elm St & Ridge St	1
379	READING CITY	Hillsdale	W Elm St 415' west of 1st St	1
380	REYNOLDS TWP	MONTCALM	Federal Rd & M-46	1
381	RICHFIELD TWP	Roscommon	Airport and Lakewood Beach	1
382	RICHFIELD TWP	Roscommon	Airport and Muskegon	1
383	RICHFIELD TWP	Roscommon	Airport and Otsego	1
384	RICHFIELD TWP	Roscommon	Airport and Houghton	1
385	RICHFIELD TWP	Roscommon	Airport and Mullet	1
386	RICHFIELD TWP	Roscommon	Airport, 290' E of Mullet Ave	1
387	RICHFIELD TWP	Roscommon	Madison and N St Helen	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
388	RICHFIELD TWP	Roscommon	N St Helen, 120' N of Ford Dr	1
389	RICHFIELD TWP	Roscommon	Tamarack and Lakeview	1
390	RICHFIELD TWP	Roscommon	Artesia Beach and Ash	1
391	RICHFIELD TWP	Roscommon	N St Helen Rd, north of Davies	1
392	RICHFIELD TWP	Roscommon	N St Helen Rd and Davies	1
393	RICHFIELD TWP	Roscommon	N St Helen Rd and Kenwood Ct (south)	1
394	RICHFIELD TWP	Roscommon	N St Helen Rd, 400' south of Airport Rd	1
395	RICHFIELD TWP	Roscommon	N St Helen Rd 140' south of Lee Rd	1
396	RICHFIELD TWP	Roscommon	N St Helen Rd and Carter	1
397	RICHFIELD TWP	Roscommon	N St Helen Rd and Glenwood Rd	1
398	RICHFIELD TWP	Roscommon	Airport and Lakewoods Beach Dr	1
399	RICHFIELD TWP	Roscommon	Airport and Muskegon	1
400	RICHFIELD TWP	Roscommon	Airport and Otsego	1
401	RICHFIELD TWP	Roscommon	Airport and Houghton	1
402	RICHFIELD TWP	Roscommon	Airport and Mullet	1
403	RICHFIELD TWP	Roscommon	Airport, between Mullet and Lake	1
404	RICHFIELD TWP	Roscommon	Pleasant and Lake	1
405	RICHFIELD TWP	Roscommon	Madison and N St Helen	1
406	RICHFIELD TWP	Roscommon	N St Helen, between Madison and Ford	1
407	RICHFIELD TWP	Roscommon	Tamarack and Lakeview	1
408	RICHFIELD TWP	Roscommon	Artesia Beach Rd and Ash Ave	1
409	RICHLAND TWP	KALAMAZOO	M-89 & Ryan Dr	1
410	ROCKFORD CITY	Kent	261 S Fremont St NE 835' south of Ogden St	1
411	ROCKFORD CITY	Kent	245 S Fremont St NE 415' south of Ogden St	1
412	ROCKFORD CITY	Kent	Courtland Dr NE & 11 Mile Rd	1
413	ROCKFORD CITY	Kent	9105 Courtland Dr NE 755' south of the north Int w/ 11mi	1
414	ROCKFORD CITY	Kent	9124 Courtland Dr Ne 400' south of the north Int w/11mi	1
415	ROCKFORD CITY	Kent	Courtland Dr NE & 11 Mile Rd north intersection	1
416	ROCKFORD CITY	Kent	Summit Ave NE & Highland Dr	1
417	ROCKFORD CITY	Kent	Summit Ave NE & Kinross Dr NE & Riverchase Dr	1
418	ROSCOMMON TWP	ROSCOMMON	Old US Hwy 27 & Emery Rd	1
419	ROSCOMMON TWP	ROSCOMMON	Loxley Rd & Perry Rd	1
420	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 335' south of Stone School Rd	1
421	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 360' north of Stone School Rd	1
422	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 675' north of Stone School Rd	1
423	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr between Houghton Lk Dr & Clarence St	1
424	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Clarence St	1
425	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Brown St	1
426	ROSCOMMON TWP	ROSCOMMON	Grayling & Oliver Dr	1
427	ROSCOMMON TWP	ROSCOMMON	Loxley St & Byron St	1
428	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Dodge Ave	1
429	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Barkman Ave	1
430	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Parkway Ave	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
431	ROSEBUSH VLG	Isabella	4737 N Mission Rd	1
432	ROSEBUSH VLG	Isabella	4634 N Mission Rd	1
433	ROSEBUSH VLG	Isabella	4500 N Mission Rd 2,030' north of E Monroe St	1
434	ROSEBUSH VLG	Isabella	4449 N Mission Rd 1,700' north of E Monroe St	1
435	ROSEBUSH VLG	Isabella	4418 N Mission Rd 1,490' north of E Monroe St	1
436	ROSEBUSH VLG	Isabella	4325 N Mission Rd 910' north of E Monroe St	1
437	ROSEBUSH VLG	Isabella	3891 N Mission Rd 250' south of South St	1
438	SAGINAW CH TWP	Saginaw	Shattuck Rd & Hospital Rd	1
439	SAGINAW CH TWP	Saginaw	Shattuck Rd & Hemmeter Rd	1
440	SAGINAW CH TWP	Saginaw	Northwest Dr & Edward Pl	1
441	SAGINAW CH TWP	Saginaw	Northwood St & Meyer Pl	1
442	SAGINAW CH TWP	Saginaw	Locust Rd & Holly Ln	1
443	SANFORD VLG	MIDLAND	530 W Irish St 280' west of Smith St	1
444	SANFORD VLG	MIDLAND	W Irish St & Oak Ct	1
445	SANFORD VLG	MIDLAND	591 W Irish St 350' east of N W River Rd	1
446	SCOTTVILLE CITY	Mason	Reinberg Ave, 390' north of Broadway St	1
447	SCOTTVILLE CITY	Mason	Broadway Ave 370' east of N Columbia Ave	1
448	SCOTTVILLE CITY	Mason	Broadway Ave, 190' west of Main St	1
449	SCOTTVILLE CITY	Mason	Broadway Ave, 500' west of Main St	1
450	SCOTTVILLE CITY	Mason	Parking Lot, S of State St & E of Main	1
451	SEVILLE TWP	GRATIOT	Lincoln Rd & Lumberjack Rd	1
452	SHEPHERD VLG	Isabella	416 S Chippewa St 455' south of North Dr	1
453	SHERIDAN CH TWP	NEWAYGO	W 48th St (M-82) & S Green Ave	1
454	SPAULDING TWP	SAGINAW	Curtis Rd & Sheridan Rd	1
455	SPRINGPORT VLG	JACKSON	150 E Main St (not on Main St, in Alley behind 150 E Main)	1
456	ST JOHNS CITY	Clinton	Old U.S.27 & E Sturgis St	2
457	STANTON CITY	Montcalm	E Main/E Stanton/M-66 & S Sheridan Rd/M-66	1
458	TAYMOUTH TWP	SAGINAW	8585 Saginaw St 615' south of Busch Rd	1
459	TECUMSEH CITY	Lenawee	Russell Rd & Evans St	1
460	TECUMSEH CITY	Lenawee	Chicago Blv/M-50 & Union St	2
461	TECUMSEH CITY	Lenawee	Chicago Blv/M-50 & Maumee St	2
462	TECUMSEH CITY	Lenawee	Evans St & Red Mill Dr/Burt St	1
463	THOMAS TWP	SAGINAW	N Thomas Rd & Beamish Ln	1
464	THOMAS TWP	SAGINAW	N Thomas Rd & Dice Rd	1
465	UNION CH TWP	ISABELLA	Broadway & Isabella	1
466	UNION CH TWP	ISABELLA	Lincoln & Remus (M-20)	1
467	VIENNA TWP	Genesee	12595 Tuscola Rd 280' south of Farrand Rd	1
468	WALKER CITY	KENT	Wilson Ave SW(M-11) & Burton St SW	1
469	WALKER CITY	KENT	Wilson Ave NW(M-11) & Leonard St NW	1
470	WALKER CITY	KENT	Leonard St NW & Remembrance Rd NW	1
471	WALKER CITY	KENT	4020 Remembrance Rd NW 80' north west of Kinney Rd N	1
472	WALKER CITY	KENT	3 Mile Rd NW & Alpine Ave NW	1
473	WARREN TWP	Midland	W Saginaw Rd & Lewis Rd	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
474	WAYLAND TWP	ALLEGAN	10th St & Far Hill Trail 480' north of 129th Ave	1
475	WAYLAND TWP	ALLEGAN	2891 10th St 335' south of 129th Ave	1
476	WAYLAND TWP	ALLEGAN	833 125th Ave 395' south & west of E Selkirk Lake Dr	1
477	WAYLAND TWP	ALLEGAN	952 124th Ave 225' west of Pearl St	1
478	WAYLAND TWP	ALLEGAN	124th Ave & Pearl St	1
479	WAYLAND TWP	ALLEGAN	929 124th Ave 380' east of Pearl St	1
480	WHITEHALL TWP	MUSKEGON	Whitehall & White Lake	1
481	WILLIAMS CH TWP	BAY	Garfield & Midland	1
482	WYOMING CITY	KENT	5131 Canal Ave SW 485' north of 52nd St SW	1
483	WYOMING CITY	KENT	Canal Ave SW & 52nd St SW	1
484	WYOMING CITY	KENT	5384 Ivanrest Ave SW 410' south of Maple Ridge Ct	1
485	WYOMING CITY	KENT	2958 52nd St SW 700' west of Crooked Pine Dr	1
486	WYOMING CITY	KENT	2514 38th St SW 615' east of Wedgewood Dr SW	1
487	WYOMING CITY	KENT	2452 38th St SW 230' west of Tioga Dr SW	1
488	WYOMING CITY	KENT	Walton Ave & Crown St SW	1
489	WYOMING CITY	KENT	Buchanan Ave & Maplelawn St SW	1
490	WYOMING CITY	KENT	Lacrosse St SW & Wyoming Ave	1
491	WYOMING CITY	KENT	38th St & Hubal Ave Sw	1
492	WYOMING CITY	KENT	3175 Union Ave Se 250' north of 32nd St Se	1
493	WYOMING CITY	KENT	Rogers Ln Ave SW & Alson St SW	1
494	WYOMING CITY	KENT	Newport St SW & Wyoming Ave SW	1
495	WYOMING CITY	KENT	Wrenwood St SW & Byron Center Ave SW	1
496	WYOMING CITY	KENT	Byron Center Ave SW & Thornwood St SW	1
497	WYOMING CITY	KENT	Thornwood St SW & Central Ave SW	1
498	WYOMING CITY	KENT	Elbon St SW & Camden Ave SW	1
499	WYOMING CITY	KENT	Elbon St SW & Avon Ave SW	1
500	WYOMING CITY	KENT	Avon Ave SW & Lee St SW	1
501	WYOMING CITY	KENT	Ithaca St SW & Wyoming Ave SW	1
502	WYOMING CITY	KENT	1648 Porter St SW 505' west of Burlingame Ave SW	1
503	WYOMING CITY	KENT	Porter St SW & Dalton Ave SW	1
504	WYOMING CITY	KENT	Porter St SW & Camden Ave SW	1
505	WYOMING CITY	KENT	Porter St SW & Meyer Ave SW	1
506	WYOMING CITY	KENT	Porter St SW & Berwyn Ave SW	1
507	WYOMING CITY	KENT	Porter St SW & Avon Ave SW	1
508	WYOMING CITY	KENT	2020 Porter St SW 265' east of Sharon Ave SW	1
509	WYOMING CITY	KENT	Porter St SW & Sharon Ave SW	1
510	WYOMING CITY	KENT	Porter St SW & Parkdale Ave SW	1
511	WYOMING CITY	KENT	Porter St SW & Roys Ave SW (north of Porter)	1
512	WYOMING CITY	KENT	2549 Glenbrook Ave SW 80' north of Lee St SW	1
513	WYOMING CITY	KENT	2275 Roys Ave SW 885' north of Porter St SW	1
514	GRAND BLANC CH TWP	GENESEE	Sun Valley Dr & Belsay Rd	1
515	GRAND BLANC CH TWP	GENESEE	Sun Valley Dr & Corvette Pass	1
516	GRAND BLANC CH TWP	GENESEE	Hill Rd & Corvette Pass	1
517	GRAND BLANC CH TWP	GENESEE	Hill Rd & Chalfonte Pass	1

**2022 Center Suspension Streetlight Conversion Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
518	GRAND BLANC CH TWP	GENESEE	Sugarloaf Dr & Rushmore Pass	1
519	COMINS TWP	OSCODA	2061 Church St 500' east of M-33(N Abbe Rd)	1
520	COMINS TWP	OSCODA	2106 Kauffman Rd 800' east of M-33(N Abbe Rd)	1
521	COMINS TWP	OSCODA	Kauffman Rd & Troyer Rd	1
522	HUDSONVILLE CITY	OTTAWA	32nd Ave & Allen St	1
523	ONONDAGA TWP	INGHAM	Kinneville Rd & Silver St	1
524	OSCODA TWP (2 Cas)	IOSCO	East River Rd & Denise St	1
525	OSCODA TWP (2 Cas)	IOSCO	1408 East River Dr 345' west of Harmony St	1
526	OSCODA TWP (2 Cas)	IOSCO	E Park Ave & S Lake St	1
527	OSCODA TWP (2 Cas)	IOSCO	222 E Park St 270' east of S Lake St	1
528	OSCODA TWP (2 Cas)	IOSCO	E Dwight Ave & S Lake St	1
529	OSCODA TWP (2 Cas)	IOSCO	E Bank St & N Lake St	1
530	OSCODA TWP (2 Cas)	IOSCO	E Water Ave & N Lake St	1
531	OSCODA TWP (2 Cas)	IOSCO	Evergreen Ave & N Lake St	1
532	OSCODA TWP (2 Cas)	IOSCO	5620 Cedar Lake Rd 735' north of Woodland Rd	1
533	OSCODA TWP (2 Cas)	IOSCO	5609 Cedar Lake Rd 1,090' north of Woodland Rd	1
534	OSCODA TWP (2 Cas)	IOSCO	5679 Cedar Lake Rd 940' south of Chalet Ct	1
535	OSCODA TWP (2 Cas)	IOSCO	5805 Cedar Lake Rd 325' south of Beech St	1
536	OSCODA TWP (2 Cas)	IOSCO	Cherokee Ave & Iroquois St	1
537	OSCODA TWP (2 Cas)	IOSCO	6431 Iroquois St 515' south of Chippewa Ave	1
538	OSCODA TWP (2 Cas)	IOSCO	Cedar Lake Rd & Chippewa Ave	1
539	OSCODA TWP (2 Cas)	IOSCO	7888 F 41 650' south of Kings Corner Rd	1
540	OSCODA TWP (2 Cas)	IOSCO	7793 F 41 1,340' south of Kings Corner Rd	1
541	PORTSMOUTH CH TWP	BAY	Cass Ave & M-15	1
542	PORTSMOUTH CH TWP	BAY	Hale Dr & Morin Dr	1
543	PORTSMOUTH CH TWP	BAY	Trumbull St & 25th St (west)	1
544	PORTSMOUTH CH TWP	BAY	Michigan Ave & Paradise Ct	1
545	PORTSMOUTH CH TWP	BAY	Michigan Ave & Sarah Ct	1
546	PORTSMOUTH CH TWP	BAY	Michigan Ave & Sandra Ct	1
547	PORTSMOUTH CH TWP	BAY	Cass Ave & S. Monroe St (south)	1
548	SAGINAW CITY	SAGINAW	1901 Findley St 740' north of E Washington Rd	1
549	SAGINAW CITY	SAGINAW	1957 Findley St 1,440' north of E Washington Rd	1
550	STANDISH CITY	ARENAC	W Pine St & S Court St	1
551	STANDISH CITY	ARENAC	Church St 245' south of Cedar St	1
552	STANDISH CITY	ARENAC	S Front St 215' south of Cedar St	1
553	STANDISH CITY	ARENAC	Court St N 145' south of Mill St	1
554	STANDISH CITY	ARENAC	401 N Grove St 495' north of Orchard St	1
555	STANDISH CITY	ARENAC	N Cass St & E Beaver St	1
556	STANDISH CITY	ARENAC	Cherry St & N Lapeer St	1
557	VERNON TWP	SHIAWASSEE	Durand Rd & Lansing Rd	1
558	VERNON TWP	SHIAWASSEE	Lansing Rd & N Saginaw St	1
559	WATERTOWN CH TWP	CLINTON	I-96BL & Francis Rd	1
560	WATERTOWN CH TWP	CLINTON	W Herbison Rd & Wacousta Rd	1
561	WATERTOWN CH TWP	CLINTON	9195 W Herbison Rd	1
562	WEST BRANCH TWP	OGEMAW	485 State Rd 330' east of S Campbell Rd	1
563	WEST BRANCH TWP	OGEMAW	2456 State Rd 500' north east of Fairview St	1
564	WEST BRANCH TWP	OGEMAW	2446 M-55 100' north of M-76	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1	ACME TWP	Grand Traverse	Deepwater Point and Dock Rd	1
2	ACME TWP	Grand Traverse	Acme Rd and M-72	1
3	ACME TWP	Grand Traverse	Holt Rd and M-72	1
4	ACME TWP	Grand Traverse	On M-72, 375' east of Acme Rd	1
5	ACME TWP	Grand Traverse	On Acme Rd, 240' north of M-72	1
6	ADA TWP	KENT	Fulton St E & Pettis Ave	2
7	ADA TWP	KENT	Fulton St E(M-21) & Ada Dr SE	2
8	ADA TWP	KENT	Fulton St E(M-21) & Headley St SE	1
9	ADA TWP	KENT	Fulton St E(M-21) & Bronson St SE	1
10	ADRIAN CH TWP	LENAWEE	N Adrian Hwy(M-52) & Curtis Rd	1
11	ADRIAN CH TWP	LENAWEE	N Adrian Hwy(M-52) & Moore Rd	1
12	ADRIAN CH TWP	LENAWEE	N Adrian Hwy(M-52) & Shepherd Rd	1
13	ADRIAN CH TWP	LENAWEE	N Adrian Hwy(M-52) & Alamo Ct	1
14	ADRIAN CITY	LENAWEE	Division St & US-223	1
15	ADRIAN CITY	LENAWEE	US-223 & Winter St	1
16	ADRIAN CITY	LENAWEE	US-223 & M-52(Main St)	1
17	ADRIAN CITY	LENAWEE	Beecher St & Center St	1
18	ADRIAN CITY	LENAWEE	Beecher St & Division St	1
19	ADRIAN CITY	LENAWEE	Beecher St & Winter St	1
20	ADRIAN CITY	LENAWEE	M-52( Main St) & Beecher St	2
21	ADRIAN CITY	LENAWEE	Wolf Creek Hwy/Sand Creek Hwy & US-223/Maumee St	1
22	ADRIAN CITY	LENAWEE	1629 W Maumee St/US-223 665' east of Wolf Creek Hwy	2
23	ADRIAN CITY	LENAWEE	US-223/Maumee St & Cherry Dr	2
24	ADRIAN CITY	LENAWEE	US-223 & Maumee St (270' east of US-223 & Cherry Dr)	1
25	ADRIAN CITY	LENAWEE	Maumee St & Stratford Ave	1
26	ADRIAN CITY	LENAWEE	Maumee St & Charles St	1
27	ADRIAN CITY	LENAWEE	Maumee St & Madison St	1
28	ADRIAN CITY	LENAWEE	Maumee St & Scott St	1
29	ADRIAN CITY	LENAWEE	Maumee St & McKenzie St	1
30	ADRIAN CITY	LENAWEE	1149 M-52 340' north of Albert St	1
31	ADRIAN CITY	LENAWEE	1200 Main St(M-52) 675' north of Albert St	1
32	ADRIAN CITY	LENAWEE	1221 Main St(M-52) 815' south west of Mill St	1
33	ADRIAN CITY	LENAWEE	1252 Main St(M-52) 440' south west of Mill St	1
34	ADRIAN CITY	LENAWEE	N Main St & Mill St	1
35	ADRIAN CITY	LENAWEE	1325 M-52 450' north east of Mill St	1
36	ADRIAN CITY	LENAWEE	Toledo St & Broad St(M-52)	1
37	ADRIAN CITY	LENAWEE	Front St & Broad St (M-52)	1
38	ADRIAN CITY	LENAWEE	Maple Ave & Broad St	1
39	ALBEE TWP	SAGINAW	Sheridan Rd(M-13) & Gray Rd	1
40	ALBEE TWP	SAGINAW	Albee Rd(M-13) & W Birch Run Rd	1
41	ALBEE TWP	SAGINAW	Albee Rd(M-13) & W Verne Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
42	ALBEE TWP	SAGINAW	10650 Albee Rd(M-13) 905' south of Ann St	1
43	ALBEE TWP	SAGINAW	East Rd(M-13) & W Rathbun Rd	1
44	ALBEE TWP	SAGINAW	East Rd(M-13) & W Sloan Rd	1
45	ALBEE TWP	SAGINAW	East Rd(M-13) & Fry Rd	1
46	ALCONA TWP	ALCONA	N Huron Rd(US-23) & E Black River Rd	1
47	ALLEGAN CITY	ALLEGAN	Lincoln Rd(M-89) & 113th St	1
48	ALLEGAN CITY	ALLEGAN	1304 Lincoln Rd(M-89) 435' north west of 113th St	1
49	ALLEGAN CITY	ALLEGAN	Marshall St(M-89) & Parkway Ave	1
50	ALLEGAN CITY	ALLEGAN	32nd St(M-40) & Linn St	1
51	ALLEGAN CITY	ALLEGAN	Western Ave(M-40,M-89) & Sherman St	2
52	ALLEGAN CITY	ALLEGAN	Western Ave(M-40,M-89) & Grant St	1
53	ALLEGAN CITY	ALLEGAN	518 Cutler St(M-89) 320' west of Pine St	1
54	ALLEGAN CITY	ALLEGAN	Grand St(M-222) & Main St	1
55	ALLEGAN CITY	ALLEGAN	Grand St(M-222) & Catherine Ct	1
56	ALLEGAN TWP	ALLEGAN	Lincoln Rd(M-40,M-89) & Fern St	1
57	ALLEGAN TWP	ALLEGAN	1525 Lincoln Rd(M-40,M-89) 530' north west of Fern St	1
58	ALLEGAN TWP	ALLEGAN	1575 Lincoln Rd(M-40,M-89) 280' south of 116th Ave	1
59	ALLEGAN TWP	ALLEGAN	Lincoln Rd(M-40,M-89) & 116th Ave	1
60	ALLEGAN TWP	ALLEGAN	1563 Lincoln Rd(M-40,M-89) 235' north of 116th Ave	1
61	ALLEGAN TWP	ALLEGAN	1556 Lincoln Rd(M-40,M-89) 695' north of 116th Ave	1
62	ALLEGAN TWP	ALLEGAN	1588 Lincoln Rd(M-40,M-89) 360' south of Monroe Rd	1
63	ALLEGAN TWP	ALLEGAN	Lincoln Rd(M-40,M-89) & Monroe Rd	1
64	ALLEGAN TWP	ALLEGAN	Lincoln Rd(M-40,M-89) & River Ridge Dr	1
65	ALLEN TWP	HILLSDALE	250 W Chicago Rd(US-12) 205' east of S Allen Rd N	1
66	ALLEN TWP	HILLSDALE	224 W Chicago Rd(US-12) 740' east of S Allen Rd N	1
67	ALLEN TWP	HILLSDALE	217 W Chicago Rd(US-12) 1,015' east of S Allen Rd N	1
68	ALLEN TWP	HILLSDALE	209 W Chicago Rd(US-12) 1,415' west of Railroad St(M-49)	1
69	ALLEN TWP	HILLSDALE	167 W Chicago Rd(US-12) 1,145' west of Railroad St(M-49)	1
70	ALLEN TWP	HILLSDALE	159 W Chicago Rd(US-12) 895' west of Railroad St(M-49)	1
71	ALLEN TWP	HILLSDALE	147 W Chicago Rd(US-12) 610' west of Railroad St(M-49)	1
72	ALLEN TWP	HILLSDALE	143 W Chicago Rd(US-12) 450' west of Railroad St(M-49)	1
73	ALLEN TWP	HILLSDALE	124 W Chicago Rd(US-12) 275' west of Railroad St(M-49)	1
74	ALLEN TWP	HILLSDALE	105 W Chicago Rd(US-12) 140' west of Railroad St(M-49)	1
75	ALLEN TWP	HILLSDALE	104 E Chicago St(US-12) 145' east of Railroad St	1
76	ALLEN TWP	HILLSDALE	113 E Chicago St(US-12) 305' east of Railroad St	1
77	ALLEN TWP	HILLSDALE	E Chicago St(US-12) & Prentiss St	1
78	ALLEN TWP	HILLSDALE	210 E Chicago St(US-12) 375' east of Prentiss Rd	1
79	ALLEN TWP	HILLSDALE	222 E Chicago St(US-12) 675' east of Prentiss Rd	1
80	ALLEN TWP	HILLSDALE	224 E Chicago St(US-12) 815' east of Prentiss Rd	1
81	ALLEN TWP	HILLSDALE	236 E Chicago St(US-12) 1,000' east of Prentiss St	1
82	ALLEN TWP	HILLSDALE	236 E Chicago St(US-12) 1,125' east of Prentiss St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
83	ALLEN TWP	HILLSDALE	N Railroad St(M-49) & Aller St	1
84	ALLEN TWP	HILLSDALE	N Railroad St(M-49) & Williams St	1
85	ALLEN TWP	HILLSDALE	310 N Railroad St(M-49) 470' north of Williams St	1
86	ALMA CITY	GRATIOT	E Superior St(BR-27) & Republic Ave	1
87	ALMA CITY	GRATIOT	E Superior St(BR-27) & Bridge Ave	1
88	ALMA CITY	GRATIOT	927 E Superior St(BR-27) 160' west of Bridge Ave	1
89	ALMA CITY	GRATIOT	E Superior St(BR-27) & Adams St	1
90	ALMA CITY	GRATIOT	802 E Superior St(BR-27) 430' east of Euclid Ave	1
91	ALPINE TWP	KENT	4 Mile Rd NW & Cordes Ave NW	1
92	ALPINE TWP	KENT	3690 Alpine Ave NW(M-37) 615' north of 4 Mile Rd NW	1
93	ALPINE TWP	KENT	3911 Alpine Ave NW(M-37) 300' south of Henze Dr	1
94	ALPINE TWP	KENT	4331 Alpine Ave NW(M-37) 500' south of Lamoreaux Dr NW	1
95	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Lamoreaux Dr NW	1
96	ALPINE TWP	KENT	4525 Alpine Ave NW(M-37) 725' north of Lamoreaux Dr NW	1
97	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Westshire Dr NW	1
98	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Alpine Church Rd NW	1
99	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Vinton Ave NW	1
100	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Vitality Dr	1
101	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Marway NW(both sides of Alpine)*	2
102	ALPINE TWP	KENT	Alpine Ave NW(M-37) & Vogelane Dr NW	1
103	ALPINE TWP	KENT	Alpine Ave NW(M-37) & 8 Mile Rd NW	2
104	ALPINE TWP	KENT	M-37 & Alpine Ave NW*	2
105	ALPINE TWP	KENT	M-37 & 9 Mile Rd NW	2
106	AU GRES TWP	Arenac	US-23 and Crawford Rd	1
107	AU SABLE TWP	Iosco	On US-23, 50' S of Mill	1
108	AU SABLE TWP	Iosco	On US-23, 220' S of Mill	1
109	AU SABLE TWP	Iosco	On US-23, 90' N of Lake	1
110	AU SABLE TWP	Iosco	US-23 and Lake	1
111	AU SABLE TWP	Iosco	US-23, 300' S of Lake	1
112	AU SABLE TWP	Iosco	US-23, 150' of Cameron	1
113	AU SABLE TWP	Iosco	US-23 and Cameron	1
114	AU SABLE TWP	Iosco	US-23, 420' S of Cameron	1
115	AU SABLE TWP	Iosco	US-23, 615' S of Cameron	1
116	AU SABLE TWP	Iosco	US-23, 480' N of Lake Trout Dr	1
117	AU SABLE TWP	Iosco	US-23, 240' N of Lake Trout Dr	1
118	AU SABLE TWP	Iosco	US-23, 80' N of Lake Trout Dr	1
119	AU SABLE TWP	Iosco	US-23 and Smith St	1
120	AU SABLE TWP	Iosco	S of 4400 US-23	1
121	AU SABLE TWP	Iosco	4336 US-23	1
122	AU SABLE TWP	Iosco	4289 US-23	1
123	AU SABLE TWP	Iosco	4196 US-23	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
124	AU SABLE TWP	Iosco	US-23 and MacKenzie	1
125	AU SABLE TWP	Iosco	4070 US-23	1
126	AU SABLE TWP	Iosco	US-23 and Johnson	1
127	AU SABLE TWP	Iosco	3900 US-23	1
128	AU SABLE TWP	Iosco	3812 US-23	1
129	AU SABLE TWP	Iosco	3758 US-23	1
130	AU SABLE TWP	Iosco	3710 US-23	1
131	AU SABLE TWP	Iosco	US-23 and Rollin Hill Ct	1
132	AU SABLE TWP	Iosco	3496 US-23	1
133	AU SABLE TWP	Iosco	3297 US-23	1
134	AU SABLE TWP	Iosco	3219 US-23	1
135	AU SABLE TWP	Iosco	3102 US-23	1
136	AU SABLE TWP	Iosco	3008 US-23	1
137	AU SABLE TWP	Iosco	2956 US-23	1
138	AU SABLE TWP	Iosco	2845 US-23	1
139	AU SABLE TWP	Iosco	2742 US-23	1
140	AU SABLE TWP	Iosco	2655 US-23	1
141	AU SABLE TWP	Iosco	2530 US-23	1
142	AU SABLE TWP	Iosco	2474 US-23	1
143	AU SABLE TWP	Iosco	2400 US-23	1
144	AU SABLE TWP	Iosco	2376 US-23	1
145	AU SABLE TWP	Iosco	2282 US-23	1
146	AU SABLE TWP	Iosco	US-23 and Au Sable Point	1
147	AU SABLE TWP	Iosco	2230 US-23	1
148	AU SABLE TWP	Iosco	2139 US-23	1
149	AU SABLE TWP	Iosco	2113 US-23	1
150	AU SABLE TWP	Iosco	US-23 and East Point Rd	1
151	AU SABLE TWP	Iosco	2068 US-23	1
152	BARRYTON VLG	MECOSTA	20 Mile Rd & Perry St	1
153	BARRYTON VLG	MECOSTA	362 Norman St 700' south of 20 Mile Rd	1
154	BARRYTON VLG	MECOSTA	298 Perry St 535' south of 20 Mile Rd	1
155	BARRYTON VLG	MECOSTA	19730 30th Ave(M-66) 245' south of Arthur St	1
156	BARRYTON VLG	MECOSTA	19636 30th Ave(M-66) 530' south of Arthur St	1
157	BARRYTON VLG	MECOSTA	Marion Ave at Sterns St	1
158	BARRYTON VLG	MECOSTA	Marion Ave at Renwick St	1
159	BARRYTON VLG	MECOSTA	Marion Ave at Hudnut St	1
160	BARRYTON VLG	MECOSTA	Angel St at Sterns St	1
161	BARRYTON VLG	MECOSTA	Angel St at Renwick St	1
162	BARRYTON VLG	MECOSTA	Angel St at Hudnut St	1
163	BARRYTON VLG	MECOSTA	Coolidge Rd & Chippewa Dr	1
164	BARRYTON VLG	MECOSTA	19926 30th Ave 470' south of 20 Mile Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
165	BARRYTON VLG	MECOSTA	20111 M-66(30th Ave) 690' north of 20 Mile Rd	1
166	BARRYTON VLG	MECOSTA	20213 M-66(30th Ave) 1,005' north of 20 Mile Rd	1
167	BARRYTON VLG	MECOSTA	20244 M-66(30th Ave) 1,285' north of 20 Mile Rd	1
168	BARRYTON VLG	MECOSTA	Northern Ave & Darrah St	1
169	BARRYTON VLG	MECOSTA	Northern Ave 180' east of Darrah St	1
170	BARRYTON VLG	MECOSTA	30th Ave(M-66) 335' south of Angel	1
171	BARRYTON VLG	MECOSTA	19136 30th Ave(M-66) 1,235' north of 19 Mile Rd	1
172	FORK TWP	MECOSTA	19238 30th Ave(M-66) 1,235' north of 19 Mile Rd	1
173	BEAVER TWP	Bay	W. Parish Rd 480' west of Flajole Rd	1
174	BEAVER TWP	Bay	Garfield Rd & Seilders Rd	1
175	BEAVER TWP	Bay	Seidlers Rd, 550' west of Eleven Mile Rd	1
176	BEAVER TWP	Bay	Eleven Mile Rd & Beaver Rd	1
177	BEAVER TWP	Bay	Beaver Rd & Garfield Rd	1
178	BELDING CITY	IONIA	M-44(Belding Rd/E State St) & Hawley Hwy	1
179	BELDING CITY	IONIA	M-44(Belding Rd/E State St) & Hummingbird Lane	1
180	BELDING CITY	IONIA	M-44(E State St) & Ionia St	1
181	BELDING CITY	IONIA	540 E State St(M-44) 265' east of Hall St	1
182	BELDING CITY	IONIA	530 E State St(M-44) 135' east of Hall St	1
183	BELDING CITY	IONIA	E State St(M-44) & Taft Ct	1
184	BELDING CITY	IONIA	E State St(M-44) & Charles St	1
185	BELDING CITY	IONIA	E State St(M-44) & S Bridge St	1
186	BELDING CITY	IONIA	W State St(M-44) & S Broas St	1
187	BELDING CITY	IONIA	W State St(M-44) & Wells Rd	1
188	BELDING CITY	IONIA	W State St(M-44) & Water St	1
189	BELDING CITY	IONIA	930 W State St(M-44) 595' west of Water St	1
190	BELDING CITY	IONIA	1020 W State St(M-44) 1,025' west of Water St	1
191	BELDING CITY	IONIA	1130 W State St(M-44) 1,530' east of Orchard St	1
192	BELDING CITY	IONIA	1240 W State St(M-44) 1,075' east of Orchard St	1
193	BELDING CITY	IONIA	1405 W State St(M-44) 510' east of Orchard St	1
194	BELDING CITY	IONIA	W State St(M-44) & Orchard St	1
195	BELLAIRE VLG	ANTRIM	402 W Cayuga St 125' west of North St	1
196	BELLAIRE VLG	ANTRIM	Bridge and State	1
197	BENZONIA VLG	Benzie	M-115 and Severance	1
198	BENZONIA VLG	Benzie	US-31 and Benzie St	1
199	BEULAH VLG	BENZIE	S Michigan Ave(US-31) & Highland Dr	1
200	BEULAH VLG	BENZIE	211 N Michigan Ave(US-31) 150' south of 4th St	1
201	BEULAH VLG	BENZIE	291 N Michigan Ave(US-31) 335' north of 4th St	1
202	BEULAH VLG	BENZIE	425 US-31(N Michigan Ave) 120' south of Birchwood St	1
203	BIG CREEK TWP	Oscoda	M-33/S Mt. Tom Rd & Walker Rd	1
204	BIG CREEK TWP	Oscoda	M-33/S Mt. Tom Rd & E Hughes Lake Rd	1
205	BIG CREEK TWP	Oscoda	M-33/S Mt. Tom Rd & Valley Rd/CO Hwy 488	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
206	BIG CREEK TWP	Oscoda	M-33/S Mt. Tom Rd & Zimowske Rd/CO Hwy 489	1
207	BIG CREEK TWP	Oscoda	Deeter Rd/CO Hwy 490 & Middle Rd	1
208	BIG CREEK TWP	Oscoda	Deeter Rd/CO Hwy 490 360' south of N Rd	1
209	BIG CREEK TWP	Oscoda	Deeter Rd/CO Hwy 490 & N Rd	1
210	BIG CREEK TWP	Oscoda	Deeter Rd/CO Hwy 489 230' north of M-72/Crispps Rd	1
211	BIG CREEK TWP	Oscoda	M-72/Crispps Rd 460' east of Deeter Rd/CO Hwy 489	1
212	BIG CREEK TWP	Oscoda	M-72/Park Rd 300' west of Deeter Rd	1
213	BIG CREEK TWP	Oscoda	M-72/Park Rd 630' west of Deeter Rd	1
214	BIG CREEK TWP	Oscoda	M-72 & Randall Rd	1
215	BIG CREEK TWP	Oscoda	M-72/Crispps Rd & Gorton Rd	1
216	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & Camp 10 Rd	1
217	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & Pierce Rd	1
218	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & Mishler Rd	1
219	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & Wildwood Tr	1
220	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & 14th St	1
221	BIG CREEK TWP	Oscoda	M-72/Ryno Rd & 8th St/M-72 at CE Mio Scenic Overlook	1
222	BIG CREEK TWP	Oscoda	M-72/8th St 140' west of Mccormac St	1
223	BIG CREEK TWP	Oscoda	M-72/8th St 170' east of Mccormac St	1
224	BIG CREEK TWP	Oscoda	M-72/8th St 360' east of Mccormac St	1
225	BIG CREEK TWP	Oscoda	M-72/8th St 170' west of Jay Smith Dr	1
226	BIG CREEK TWP	Oscoda	M-72/8th St & Jay Smith Dr	1
227	BIG CREEK TWP	Oscoda	M-72/8th St & Nolan St	1
228	BIG CREEK TWP	Oscoda	M-72/8th St & Frick St	1
229	BIG CREEK TWP	Oscoda	M-72/8th St 400' east of Frick St	1
230	BIG CREEK TWP	Oscoda	M-72/8th St & Au Sable Way	1
231	BIG CREEK TWP	Oscoda	M-72/8th St 300' east of Vine St	1
232	BIG CREEK TWP	Oscoda	M-72/8th St & Deyarmond St	1
233	BIG CREEK TWP	Oscoda	M-72/8th St 165' west of M-33/Morenci Ave	1
234	BIG CREEK TWP	Oscoda	M-72/M-33/Mount Tom Rd & Popps Rd	1
235	BIG CREEK TWP	Oscoda	Cherry Creek Rd 300' west of M-72/M-33/Mt. Tom Rd	1
236	BIG CREEK TWP	Oscoda	W 4 Mile Rd & south bound exit/on ramp to I-75	1
237	BIG RAPIDS CITY	Mecosta	Northland and Pere Marquette St	1
238	BIG RAPIDS CITY	Mecosta	Locust and Northland	1
239	BOYNE FALLS VLG	CHARLEVOIX	US-131 & Cherry Hill Rd	1
240	BOYNE FALLS VLG	CHARLEVOIX	US-131 & Lynn St	1
241	BOYNE FALLS VLG	CHARLEVOIX	2716 US-131 400' south of State St	1
242	BOYNE FALLS VLG	CHARLEVOIX	US-131 & State St	1
243	BOYNE FALLS VLG	CHARLEVOIX	US-131 & Main St	1
244	BOYNE FALLS VLG	CHARLEVOIX	US-131 & Mill St(M-75)	1
245	BRIDGEPORT CH TWP	SAGINAW	Williamson Rd & Southfield Dr	1
246	BRITTON VLG	LENAWEE	E Monroe Rd/ E Chicago Blvd(M-50) & Smith Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
247	BRITTON VLG	LENAWEE	298 E Monroe Rd(M-50) 385' north west of Smith St	1
248	BRITTON VLG	LENAWEE	E Monroe Rd/ E Chicago Blvd(M-50) & South St	1
249	BRITTON VLG	LENAWEE	136 E Monroe Rd(M-50) 210' south east of Church St	1
250	BRITTON VLG	LENAWEE	E Monroe Rd/ E Chicago Blvd(M-50) & Church St	1
251	BRITTON VLG	LENAWEE	257 W Chicago Blvd(M-50)/E Monroe Rd 300' N.W. of Church St	1
252	BRITTON VLG	LENAWEE	297 W Chicago Blvd(M-50)/E Monroe Rd 170' S.E. of College Ave	1
253	BRITTON VLG	LENAWEE	359 W Chicago Blvd(M-50)/E Monroe Rd 105' N.W. of College Ave	1
254	BRITTON VLG	LENAWEE	425 W Chicago Blvd(M-50)/E Monroe Rd 625' N.W. of College Ave	1
255	BRITTON VLG	LENAWEE	523 W Chicago Blvd(M-50)/E Monroe Rd 1,080' N.W. of College Ave	1
256	BROOKS TWP	Newaygo	M-37 and Evergreen Drive	1
257	BROOKS TWP	Newaygo	M-82 and Linden Avenue	1
258	BROOKS TWP	Newaygo	M-82 and Basswood Avenue	1
259	BROOKS TWP	Newaygo	M-82 and Summer Avenue	1
260	BROOKS TWP	Newaygo	M-82 and Spruce Avenue	1
261	BROOKS TWP	Newaygo	M-82 and Edgewood	1
262	BROOKS TWP	Newaygo	M-82 and Greenwood	1
263	BROOKS TWP	Newaygo	88th and M-37	1
264	BROOMFIELD TWP	Isabella	W. Remus Rd / M-20 & S. Rolland Rd	1
265	BROOMFIELD TWP	Isabella	W.Remus Rd / M-20 & S.W. County Line Rd	1
266	BUNKER HILL TWP	Ingham	Williamston Rd 130' north of Decamp Rd	1
267	BURTON CITY	GENESEE	3325 S Dort Hwy(M-54) 280' north of Joyce St	1
268	BURTON CITY	GENESEE	3397 S Dort Hwy(M-54) 335' south of Joyce St	1
269	BURTON CITY	GENESEE	3478 S Dort Hwy(M-54) 450' north of E Bristol Rd	1
270	BURTON CITY	GENESEE	4010 S Dort Hwy(M-54) 230' south of E Bristol Rd	1
271	BURTON CITY	GENESEE	4057 S Dort Hwy(M-54) 700' south of E Bristol Rd	1
272	BURTON CITY	GENESEE	4099 S Dort Hwy(M-54) 220' south of Spartan Dr	1
273	BURTON CITY	GENESEE	4153 S Dort Hwy(M-54) 615' south of Spartan Dr	1
274	BURTON CITY	GENESEE	S Dort Hwy(M-54) & Judd Rd	1
275	BURTON CITY	GENESEE	4283 S Dort Hwy(M-54) 300' south of Judd Rd	1
276	BURTON CITY	GENESEE	4396 S Dort Hwy(M-54) 620' south of Judd Rd	1
277	BURTON CITY	GENESEE	4349 S Dort Hwy(M-54) 955' south of Judd Rd	1
278	BURTON CITY	GENESEE	4396 S Dort Hwy(M-54) 1,310' south of Judd Rd	1
279	BURTON CITY	GENESEE	4420 S Dort Hwy(M-54) 930' north of E Maple Ave	1
280	BURTON CITY	GENESEE	4462 S Dort Hwy(M-54) 600' north of E Maple Ave	1
281	BURTON CITY	GENESEE	E Maple Ave & Belsay Rd (south of E Maple Ave)	1
282	BURTON CITY	GENESEE	3052 Belsay Rd 550' south of E Atherton Rd	1
283	CALEDONIA VLG	KENT	Cherry Valley Ave SE(M-37) & 100th St SE	1
284	CALEDONIA VLG	KENT	Cherry Valley Ave SE(M-37) & E Main St SE	1
285	CAMDEN VLG	Hillsdale	Alley 170' North of W Wales St & Dwight St Intersection	2
286	CATO TWP	MONTCALM	Howard City-Edmore(M-46) & Greenville Rd(M-91)	2
287	CHARLOTTE CITY	EATON	Battle Creek Rd & Shepherd St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
288	CHASE TWP	LAKE	US-10 & Hawkins Rd	1
289	CHASE TWP	LAKE	US-10 & S Frank Smith Rd	1
290	CHEBOYGAN CITY	Cheboygan	E State St (US-23) & N Eastern Ave	1
291	CHEBOYGAN CITY	Cheboygan	E State St (US-23) & Sutherland St	1
292	CHEBOYGAN CITY	Cheboygan	E State St (US-23) 385' west of Gerow St	1
293	CHEBOYGAN CITY	Cheboygan	E State St (US-23) 134' north west of Lafayette Ave	1
294	CHEBOYGAN CITY	Cheboygan	F St & 1st St	1
295	CHEBOYGAN CITY	Cheboygan	W State St & N Western Ave	1
296	CHEBOYGAN CITY	Cheboygan	Mackinaw Ave (US-23)& N Western Ave	1
297	CHEBOYGAN CITY	Cheboygan	Mackinaw Ave (US-23) 375' north west Martha St	1
298	CHEBOYGAN CITY	Cheboygan	W Lincoln Ave & S Huron St	1
299	CHEBOYGAN CITY	Cheboygan	W Lincoln Ave & Loomis St	1
300	CHESTONIA TWP	ANTRIM	US-131 & Jordan River Rd	1
301	CHESTONIA TWP	ANTRIM	US-131 180' south west of Maple St	1
302	CHESTONIA TWP	ANTRIM	Maple St 300' west of US-131	1
303	CHESTONIA TWP	ANTRIM	5871 Alba Rd 160' east of 2nd St	1
304	CHESTONIA TWP	ANTRIM	Alba Rd & US-131	1
305	CHESTONIA TWP	ANTRIM	US-131 90' south of 2nd St	1
306	CHESTONIA TWP	ANTRIM	US-131 & 1st St	1
307	CHESTONIA TWP	ANTRIM	Alba Rd & Jordan River Rd (Cinder Hill Rd)	1
308	CHESTONIA TWP	ANTRIM	US-131 & Kregula Rd	1
309	CHESTONIA TWP	ANTRIM	US-131 & Corey Rd	1
310	CHIPPEWA TWP	Isabella	Pickard Rd (M-20) & Loomis Rd	1
311	CHIPPEWA TWP	Isabella	Pickard Rd (M-20) & Shepherd Rd	1
312	CHIPPEWA TWP	Isabella	Broomfield Rd & Shepherd Rd	1
313	CHIPPEWA TWP	Isabella	Pickard Rd (M-20) & Wise Rd	1
314	CHIPPEWA TWP	Isabella	Pickard Rd (M-20) & Chippewa Rd	1
315	CHURCHILL TWP	Ogemaw	1309 E State Rd/CO Hwy F24 2,060' west of Gerald Miller Rd	1
316	CLAM LAKE TWP	Wexford	S 41 Rd & M-115 (north bound)	1
317	CLAM LAKE TWP	Wexford	S 41 Rd & M-115 (south bound)	1
318	CLAM LAKE TWP	Wexford	S 43 Rd & S M-55 S Bound Exit Ramp	1
319	CLAYTON CH TWP	GENESEE	Corunna Rd(M-21) & Seymour Rd	2
320	COLEMAN CITY	Midland	Fraser St & Mill St	1
321	COLEMAN CITY	Midland	W Adams St & Mill St	1
322	COLEMAN CITY	Midland	Railway St & Mary St	1
323	COLEMAN CITY	Midland	W Webster St 1,000' east of N Dickenson	1
324	COLEMAN CITY	Midland	W Webster St 225' east of N Dickenson	1
325	COLEMAN CITY	Midland	N Dickenson Rd 1,900' south of W Webster St	1
326	COLEMAN CITY	Midland	3rd St/Coleman Rd 360' south of Jackson St	1
327	COLEMAN CITY	Midland	Coleman Rd 700' south of Jackson St @ Southgate Dr	1
328	COLEMAN CITY	Midland	Coleman Rd 1,420' south of Jackson St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
329	COLEMAN CITY	Midland	Miller St 730' south east of Brown St	1
330	COMSTOCK CH TWP	KALAMAZOO	E ML Ave & River St	1
331	COMSTOCK CH TWP	KALAMAZOO	W Battle Creek St & S 35th St	1
332	COOPERSVILLE CITY	Ottawa	Cleveland St & 56th Ave/East St	1
333	COOPERSVILLE CITY	Ottawa	Randall St & Bennett St	1
334	DAVISON CITY	Genesee	W Second St & Aloha St	1
335	DAVISON CITY	Genesee	E Lexington & S Davison St	1
336	DAVISON CITY	Genesee	E 3rd St & N Davison St	1
337	DAVISON CITY	Genesee	E 3rd St & N Lapeer St	1
338	DAVISON TWP	GENESEE	M-15(S State Rd) & E Bristol Rd	1
339	DAVISON TWP	GENESEE	3926 S State Rd(M-15) 370' north of E Bristol Rd	1
340	DAVISON TWP	GENESEE	Davison Rd & Irish Rd	1
341	DAVISON TWP	GENESEE	1040 S State Rd(M-15) 260' north of Parkwood Blvd	1
342	DAVISON TWP	GENESEE	901 S State Rd(M-15) 240' south of Cypress Dr	1
343	DAVISON TWP	GENESEE	2310 N State Rd(M-15) 445' north of Quail Ridge	1
344	DAVISON TWP	GENESEE	2344 N State Rd(M-15) 695' north of Quail Ridge	1
345	DAVISON TWP	GENESEE	2370 N State Rd(M-15) 645' south of Fox Run Dr	1
346	DAVISON TWP	GENESEE	2401 N State Rd(M-15) 300' south of Fox Run Dr	1
347	DAVISON TWP	GENESEE	N State Rd(M-15) & E Potter Rd	1
348	DEERFIELD VLG	LENAWEE	Carey St & Railroad St	1
349	DELHI CH TWP	INGHAM	Sycamore St & Elm St	1
350	DELHI CH TWP	INGHAM	Sycamore St & Walnut St	1
351	DELHI CH TWP	INGHAM	Grove St & Chestnut St	1
352	DELHI CH TWP	INGHAM	Dallas Ave/Micael Ave & Hancock Dr	1
353	DELHI CH TWP	INGHAM	2069 Auburn Ave 790' north of Holt Rd	1
354	DELHI CH TWP	INGHAM	2194 West Blvd 825' south of Tolland Ave	1
355	DELHI CH TWP	INGHAM	Fay Ave & Krental Ave	1
356	DELHI CH TWP	INGHAM	Dell Rd & Fontaine Tr	1
357	DELHI CH TWP	INGHAM	Dell Rd & Lamoreaux Ln	1
358	DELHI CH TWP	INGHAM	Bishop Rd & Frank St	1
359	DELHI CH TWP	INGHAM	6084 Bishop Rd 430' east of Gilbert	1
360	DELHI CH TWP	INGHAM	Bishop Rd & Gilbert Rd	1
361	DELHI CH TWP	INGHAM	6171 Bishop Rd 480' west of Gilbert	1
362	DELHI CH TWP	INGHAM	6285 Bishop Rd 575' west of Eaton Rapids Rd(M-99)	1
363	DELHI CH TWP	INGHAM	6342 Bishop Rd 1,180' west of Eaton Rapids Rd(M-99)	1
364	DELHI CH TWP	INGHAM	6377 Bishop Rd 1,320' east of Waverly Rd	1
365	DELHI CH TWP	INGHAM	Bishop Rd & WaverlyRd	1
366	DENVER TWP	Isabella	Rosebush Rd & Genuine Rd	1
367	DENVER TWP	Isabella	Leaton Rd & Beal City Rd	1
368	DENVER TWP	Isabella	Beal City Rd 670' west of Leaton Rd	1
369	DEWITT CH TWP	CLINTON	Old US-27 & E Round Lake Rd	2

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
370	DOUGLAS VLG	ALLEGAN	Blue Star Hwy & W Center st	1
371	DURAND CITY	SHIAWASSEE	E Monroe Rd & N Saginaw St	1
372	EAST GRAND RAPIDS CITY	KENT	Hall St SE & Lake Grove Ave SE	1
373	EAST LANSING CITY	Ingham	Mt Hope Rd & Harrison Rd	2
374	EASTON TWP	IONIA	Dildine Rd & N State Rd(M-66)	1
375	EDMORE VLG	Montcalm	833 Wyman Rd 455' south of Center St	1
376	EDMORE VLG	Montcalm	690 S 1st St 360' north of Johnson St	1
377	EDMORE VLG	Montcalm	519 S 1st St 400' south of Forrest St	1
378	EDMORE VLG	Montcalm	548 N 1st St 645' north of E North St	1
379	ELBA TWP	Gratiot	Cleveland Rd(M-57) & Arnold Rd	1
380	ELBA TWP	Gratiot	Arnold Rd 355' north of Cleveland Rd (M-57)	1
381	ELBA TWP	Gratiot	Arnold Rd 940' north of Cleveland Rd (M-57)	1
382	ELBA TWP	Gratiot	Main St & Water St	1
383	ELBA TWP	Gratiot	Main St 325' west of the R.R. tracks	1
384	ELBA TWP	Gratiot	Main St 110' west of the R.R. tracks	1
385	ELBA TWP	Gratiot	Main St & Maple St	1
386	ELBA TWP	Gratiot	Cleveland Rd(M-57) & Ransom Rd	1
387	ELLSWORTH VLG	Antrim	Lake St, 320' north east of White St	1
388	ELLSWORTH VLG	Antrim	Lake St and Church St	1
389	ELLSWORTH VLG	Antrim	On Lake St, 370' south of Church St	1
390	ELLSWORTH VLG	Antrim	Lake St & Bridge St	1
391	ELLSWORTH VLG	Antrim	Lake St, 240' south of Bridge St	1
392	ELLSWORTH VLG	Antrim	Lake St, 500' south of Bridge St	1
393	ELLSWORTH VLG	Antrim	Center St & Harris St	1
394	ELLSWORTH VLG	Antrim	Center St, 120' east of Main St	1
395	ELLSWORTH VLG	Antrim	Center St and Park	1
396	ELLSWORTH VLG	Antrim	Park St, 340' south of Church St	1
397	ELLSWORTH VLG	Antrim	Church St and Main St	1
398	ELLSWORTH VLG	Antrim	Main St, 290' north of Lincoln St	1
399	ELLSWORTH VLG	Antrim	Main St and Hardy	1
400	ELLSWORTH VLG	Antrim	Main St, 160' north of Center St	1
401	ELLSWORTH VLG	Antrim	Main St and Maple	1
402	EMMETT CH TWP	Calhoun	Verona Rd 525' east of Jane St	1
403	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 1,100' west of Vernon Ave	1
404	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 830' west of Vernon Ave	1
405	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 & Strongwood Ave	1
406	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 315' north west of Strongwood	1
407	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 475' north west of Lowell Ave	1
408	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 800' north west of Lowell Ave	1
409	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 & Ackerson Rd	1
410	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 860' north west of Ackerson Dr	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
411	EMMETT CH TWP	Calhoun	E Michigan Ave/M-96 1,915' north west of Ackerson Dr	1
412	EMMETT CH TWP	Calhoun	Beadle Lake Rd/8 Mi Rd & McCormick St	1
413	EMMETT CH TWP	Calhoun	Beadle Lake Rd/8 Mi Rd & S River Rd	1
414	EMMETT CH TWP	Calhoun	Columbia Ave/M-96 & Cherokee St	1
415	EMMETT CH TWP	Calhoun	Columbia Ave/M-96 & Pawnee St	1
416	EMMETT CH TWP	Calhoun	Columbia Ave/M-96 & Auburn St	1
417	EMMETT CH TWP	Calhoun	Golden Ave/G Dr N & Cherokee St	1
418	EMMETT CH TWP	Calhoun	Golden Ave/G Dr N & Pawnee St	1
419	EMMETT CH TWP	Calhoun	Beadle Lake Rd/8 Mi Rd 740' north west of Tower Rd	1
420	EMMETT CH TWP	Calhoun	Beadle Lake Rd/8 Mi Rd & Tower Rd	1
421	ENTERPRISE TWP	Missaukee	E Houghton Lake Rd(M-55) & N Boynton Rd	1
422	ERIE TWP	MONROE	Luna Pier Rd & Telegraph Rd(US-24)	1
423	FENTON CH TWP	Genesee	Fenton Rd & Thompson Rd	1
424	FENTON CITY	GENESEE	S Long Lake and Westman	1
425	FENTON CITY	GENESEE	2076 S Long Lake 300' west of Westman Dr	1
426	FENTON CITY	GENESEE	2136 S Long Lake 800' west of WestmanDr	1
427	FENTON CITY	GENESEE	2217 S Long Lake 285' north east of Swanee Beach Dr	1
428	FENTON CITY	GENESEE	Swanee Beach Rd 575' north of S Long Lake	1
429	FENTON CITY	GENESEE	Swanee Beach and S Long Lake	1
430	FENTON CITY	GENESEE	2331 S Long Lake 305' east of Blue Heron Dr	1
431	FENTON CITY	GENESEE	2397 S Long Lake, 550' east of Torrey Rd	1
432	FENTON CITY	GENESEE	5th and Oak	1
433	FENTON CITY	GENESEE	5th and East	1
434	FENTON CITY	GENESEE	4th and Walnut	1
435	FENTON CITY	GENESEE	N Leroy St 48' north of RR track	1
436	FENTON CITY	GENESEE	Parallel and Summit	1
437	FENTON CITY	GENESEE	Shiawassee (BR US-23) 330' west of Park St	1
438	FENTON CITY	GENESEE	Shiawassee (BR US-23) and Davis	1
439	FENTON CITY	GENESEE	Shiawassee Ave 230' south of Owen Rd	1
440	FENTON CITY	GENESEE	Owen and Jennings	1
441	FENTON CITY	GENESEE	Grant and West	1
442	FENTON CITY	GENESEE	Roberts and Adelaide (BR US-23)	1
443	FENTON CITY	GENESEE	Silver Lake (BR US-23) and Ponchatrain	1
444	FENTON CITY	GENESEE	Silver Lake and NB US-23 ramp	1
445	FENTON CITY	GENESEE	916 North Rd 385' east of Worchester Dr	1
446	FENTON CITY	GENESEE	Lincoln and Jefferson	1
447	FENTON CITY	GENESEE	Adelaide and Wood	1
448	FERRYSBURG CITY	Ottawa	Ridge Ave 360' south east of Lane Ave	1
449	FERRYSBURG CITY	Ottawa	Ridge Ave & Lane Ave	1
450	FERRYSBURG CITY	Ottawa	Ridge Ave 435' north west of Michigan Ave	1
451	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Elms Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
452	FLINT CH TWP	GENESEE	6468 Corunna Rd(M-21) 455' east of Elms Rd	1
453	FLINT CH TWP	GENESEE	6354 Corunna Rd(M-21) 1,645' east of Elms Rd	1
454	FLINT CH TWP	GENESEE	6302 Corunna Rd(M-21) 610' west of Roland Ave	1
455	FLINT CH TWP	GENESEE	6247 Corunna Rd(M-21) 250' west of Roland Ave	1
456	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Roland Ave	1
457	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Dorellen Ave	1
458	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Noble Ave	1
459	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Bernice Ave	1
460	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & East Dr	1
461	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Mintola Ave	1
462	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Grassmere Ave	1
463	FLINT CH TWP	GENESEE	5421 Corunna Rd(M-21) 205' west of Kenwood Dr	1
464	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Kenwood Dr	1
465	FLINT CH TWP	GENESEE	Corunna Rd(M-21) & Shirley St	1
466	FLINT CH TWP	GENESEE	5311 Corunna Rd(M-21) 380' east of Shirley St	1
467	FLINT CH TWP	GENESEE	Beecher Rd & Mill Rd	1
468	FLINT CITY	GENESEE	1505 W McClellan St 95' west of Burgess St	1
469	FLINT CITY	GENESEE	1325 W McClellan St 45' east of Forest Hill Ave	1
470	FLINT CITY	GENESEE	3231 S Dort Hwy(M-54) 305' north of Hemphill Rd	1
471	FLINT CITY	GENESEE	4416 S Dort Hwy(M-54) 860' north of Hemphill Rd	1
472	FLINT CITY	GENESEE	3149 S Dort Hwy(M-54) 1,110' north of Hemphill Rd	1
473	FLINT CITY	GENESEE	3147 S Dort Hwy(M-54) 1,335' south of Atherton Rd	1
474	FLINT CITY	GENESEE	3103 S Dort Hwy(M-54) 1,070' south of Atherton Rd	1
475	FLINT CITY	GENESEE	3085 Dort Hwy(M-54) 760' south of Atherton Rd	1
476	FLINT CITY	GENESEE	3075 Dort Hwy(M-54) 515' south of Atherton Rd	1
477	FLINT CITY	GENESEE	3017 S Dort Hwy(M-54) 250' south of Atherton Rd	1
478	FLINT CITY	GENESEE	3111 Dort Hwy(M-54) 355' north of Eldon Baker Dr	1
479	FLINT CITY	GENESEE	3096 Dort Hwy(M-54) 455' south of Mohawk Ave	1
480	FLINT CITY	GENESEE	2918 Dort Hwy(M-54) 215' south of Mohawk Ave	1
481	FLINT CITY	GENESEE	Mohawk Ave & Dort Hwy(M-54)	1
482	FLINT CITY	GENESEE	2817 Dort Hwy(M-54) 250' north of Mohawk Ave	1
483	FLINT CITY	GENESEE	2522 S Dort Hwy(M-54) 300' south of Mitchell St	1
484	FLINT CITY	GENESEE	Dort Hwy(M-54) & Mitchell St	1
485	FLINT CITY	GENESEE	2347 Dort Hwy(M-54) 275' north of Mitchell St	1
486	FLINT CITY	GENESEE	1110 S Dort Hwy(M-54) 760' south of E Court St	1
487	FLINT CITY	GENESEE	1022 S Dort Hwy(M-54) 550' south of E Court St	1
488	FLINT CITY	GENESEE	2023 Center Rd 385' south of Holly Ave	1
489	FLINT CITY	GENESEE	4101 Dort Hwy(M-54) 85' north west of W Boulevard Dr	1
490	FLUSHING CITY	Genesee	McKinley Rd & River Rd	1
491	FREMONT TWP	ISABELLA	Michigan St & S Winn Rd	1
492	FRUITPORT CH TWP	MUSKEGON	Farr Rd & Airline Rd (north of I-96)	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
493	FRUITPORT CH TWP	MUSKEGON	Hile Rd & Airline Hwy	1
494	GAINES CH TWP	KENT	84th St SE & Division Ave S	1
495	GAINES CH TWP	KENT	68th St SE & Eastern Ave SE	1
496	GARFIELD CH TWP	GRAND TRAVERSE	US-31/M-37(Division St) & S Blue Star Dr	1
497	GARFIELD CH TWP	GRAND TRAVERSE	US-31/M-37(Division St) & Silver Pines Rd	1
498	GARFIELD CH TWP	GRAND TRAVERSE	N Long Lake Rd(Co HWY 610) & Barnes Rd	1
499	GENESEE CH TWP	GENESEE	3049 Gehring Dr 535' north of E Potter Rd	1
500	GENESEE CH TWP	GENESEE	3089 Gehring Dr 930' north of E Potter Rd	1
501	GENESEE CH TWP	GENESEE	3128 Gehring Dr 1,330' north of E Potter Rd	1
502	GENESEE CH TWP	GENESEE	3170 Gehring Dr 655' south of Richfield Rd	1
503	GENESEE CH TWP	GENESEE	3217 Gehring Dr 260' south of Richfield Rd	1
504	GENESEE CH TWP	GENESEE	3126 N Belsay Rd 1,445' south of Richfield Rd	1
505	GENESEE CH TWP	GENESEE	3153 N Belsay Rd 1,185' south of Richfield Rd	1
506	GENESEE CH TWP	GENESEE	3211 N Belsay Rd 565' south of Richfield Rd	1
507	GENESEE CH TWP	GENESEE	3277 N Belsay Rd 260' south of Richfield Rd	1
508	GENESEE CH TWP	GENESEE	6535 Richfield Rd 205' south west of N Vassar Rd	1
509	GENESEE CH TWP	GENESEE	6509 Richfield Rd 505' south west of N Vassar Rd	1
510	GENESEE CH TWP	GENESEE	6474 Richfield Rd 785' south west of N Vassar Rd	1
511	GENESEE CH TWP	GENESEE	6461 Richfield Rd 1,020' south west of N Vassar Rd	1
512	GENESEE CH TWP	GENESEE	6431 Richfield Rd 1,310' south west of N Vassar Rd	1
513	GENESEE CH TWP	GENESEE	6405 Richfield Rd 1,600' south west of N Vassar Rd	1
514	GENESEE CH TWP	GENESEE	6308 Richfield Rd 2,500' south west of N Vassar Rd	1
515	GENESEE CH TWP	GENESEE	6259 Richfield Rd 2,090' north east of Eastdale Dr	1
516	GENESEE CH TWP	GENESEE	6247 Richfield Rd 1,810' north east of Eastdale Dr	1
517	GENESEE CH TWP	GENESEE	6223 Richfield Rd 1,530' north east of Eastdale Dr	1
518	GENESEE CH TWP	GENESEE	6190 Richfield Rd 1,220' north east of Eastdale Dr	1
519	GENESEE CH TWP	GENESEE	6158 Richfield Rd 900' north east of Eastdale Dr	1
520	GENESEE CH TWP	GENESEE	6130 Richfield Rd 620' north east of Eastdale Dr	1
521	GENESEE CH TWP	GENESEE	3351 N Belsay Rd 220' south of Tipperary Ln	1
522	GENESEE CH TWP	GENESEE	3157 Mac Ave 250' north of Richfield Rd	1
523	GENESEE CH TWP	GENESEE	3186 Mac Ave 625' north of Richfield Rd	1
524	GENESEE CH TWP	GENESEE	3213 Mac Ave 880' north of Richfield Rd	1
525	GENESEE CH TWP	GENESEE	3239 Mac Ave 1,095' north of Richfield Rd	1
526	GENESEE CH TWP	GENESEE	3273 Mac Ave 1,360' north of Richfield Rd	1
527	GENESEE CH TWP	GENESEE	3228 N Genesee Rd 875' north of Richfield Rd	1
528	GENESEE CH TWP	GENESEE	4015 Mitchell Dr 90' north of S Kearsley Blvd	1
529	GENESEE CH TWP	GENESEE	4101 Mitchell Dr 240' north of S Kearsley Blvd east int.	1
530	GENESEE CH TWP	GENESEE	3339 S Kearsley Blvd 210' south of Mitchell Dr east int.	1
531	GENESEE CH TWP	GENESEE	3311 S Kearsley Blvd 525' north of Dowdall St	1
532	GENESEE CH TWP	GENESEE	3293 S Kearsley Blvd 340' north of Dowdall St	1
533	GENESEE CH TWP	GENESEE	Dowdall St & S Kearsley Blvd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
534	GENESEE CH TWP	GENESEE	E Carpenter Rd & Rose Ln	1
535	GENESEE CH TWP	GENESEE	E Carpenter Rd & Dearing Dr	1
536	GENESEE CH TWP	GENESEE	6490 E Coldwater Rd 230' west of N Vassar Rd	1
537	GENESEE CH TWP	GENESEE	E Coldwater Rd & Kader Dr	1
538	GENESEE CH TWP	GENESEE	4252 E Coldwater Rd 990' west of Kader Dr	1
539	GENESEE CH TWP	GENESEE	4174 E Coldwater Rd 1,645' east of Center Rd	1
540	GENESEE CH TWP	GENESEE	M-54(Dort Hwy) & E Coldwater Rd	2
541	GENESEE CH TWP	GENESEE	6065 Dort Hwy(M-54) 335' north of E Coldwater Rd	1
542	GENESEE CH TWP	GENESEE	1197 Morris Hills Pkwy 145' west of Horton St	1
543	GENESEE CH TWP	GENESEE	1181 Morris Hills Pkwy 345' west of Horton St	1
544	GENESEE CH TWP	GENESEE	1029 Morris Hills Pkwy 300' east of Saginaw St	1
545	GENESEE CH TWP	GENESEE	1241 E Stanley Rd 2,020' east of Union St	1
546	GENESEE CH TWP	GENESEE	7031 Dort Hwy(M-54) 300' north of E Stanley Rd	1
547	GENESEE CH TWP	GENESEE	6121 N Genesee Rd 225' north of Weeping Willow Dr	1
548	GENESEE CH TWP	GENESEE	8043 N Dort Hwy(M-54) 375' north of E Mt Morris Rd	1
549	GENESEE CH TWP	GENESEE	8247 N Dort Hwy(M-54) 215' south east of N Lewis Rd	1
550	GENESEE CH TWP	GENESEE	N Dort Hwy(M-54) & N Lewis Rd	1
551	GENESEE CH TWP	GENESEE	8289 N Dort Hwy(M-54) 310' north west of N Lewis Rd	1
552	GEORGETOWN CH TWP	OTTAWA	Port Sheldon St & 40th Ave	1
553	GEORGETOWN CH TWP	OTTAWA	Chicago Dr(M-121 east bound) & 12th Ave	1
554	GEORGETOWN CH TWP	OTTAWA	Chicago Dr(M-121 west bound) & 12th Ave	1
555	GOODAR TWP	Ogemaw	Heath Rd & Mack Lake Trl	1
556	GOODAR TWP	Ogemaw	Heath Rd & Alcona St	1
557	GRAND BLANC CH TWP	GENESEE	Baldwin Rd & Halsey Rd	1
558	GRAND BLANC CH TWP	GENESEE	Fenton Rd & Barbara St	1
559	GRAND BLANC CH TWP	GENESEE	Cook Rd & McWain Rd	1
560	GRAND BLANC CH TWP	GENESEE	Saginaw Rd & E Cook Rd	1
561	GRAND BLANC CH TWP	GENESEE	8308 S Saginaw St 650' north of McCandlish Rd	1
562	GRAND BLANC CH TWP	GENESEE	8265 S Saginaw St 880' north of McCandlish Rd	1
563	GRAND BLANC CH TWP	GENESEE	8231 S Saginaw St 1,430' north of McCandlish Rd	1
564	GRAND BLANC CH TWP	GENESEE	8195 S Saginaw St 1,905' north of McCandlish Rd	1
565	GRAND BLANC CH TWP	GENESEE	6150 Dort Hwy(M-54) 255' south of Edwards St	1
566	GRAND BLANC CH TWP	GENESEE	Dort Hwy(M-54) & Edwards St	1
567	GRAND BLANC CH TWP	GENESEE	6096 Dort Hwy(M-54) 345' north of Edwards St	1
568	GRAND BLANC CH TWP	GENESEE	5649 S Saginaw St (see notes)	1
569	GRAND BLANC CH TWP	GENESEE	S Dort Hwy(M-54) & Fisher Heights	1
570	GRAND HAVEN CH TWP	OTTAWA	US-31 (Northbound) & Buchanan St	1
571	GRAND HAVEN CH TWP	OTTAWA	US-31 (Southbound) & Buchanan St	1
572	GRAND HAVEN CH TWP	OTTAWA	US-31 (Northbound) & Lincoln St	1
573	GRAND HAVEN CH TWP	OTTAWA	US-31 (Southbound) & Lincoln St	1
574	GRAND LEDGE CITY	EATON	W Saginaw Hwy(M-43) & Jenne St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
575	GRANT TWP	Clare	Clare Ave & Surrey Rd	1
576	GRAYLING CITY	Crawford	In municipal parking lot north of Norway and west Mich.	2
577	GREENBUSH TWP	Alcona	US-23 & Sunrise Dr (Google)/Cedar Lake Rd	1
578	GREENBUSH TWP	Alcona	US-23 & Mikado Rd	1
579	GREENBUSH TWP	Alcona	US-23 & Burton St	1
580	GREENBUSH TWP	Alcona	US-23 & Main St	1
581	GREENBUSH TWP	Alcona	US-23 & Campbell St	1
582	GREENBUSH TWP	Alcona	US-23 & Lake St (1,835' north of Smith Rd)	1
583	GREENBUSH TWP	Alcona	US-23, 1225' south of Smith Rd	1
584	GREENBUSH TWP	Alcona	US-23, 580' north of N Timberlake Dr	1
585	GREENBUSH TWP	Alcona	US-23 & N Timberlakes	1
586	GREENBUSH TWP	Alcona	US-23 530' north of S Timberlakes Blvd	1
587	GREENBUSH TWP	Alcona	US-23 & Huron Cedar Rd	1
588	GREENVILLE CITY	MONTCALM	Charles St & N Lafayette St(M-91)	1
589	GREENVILLE CITY	MONTCALM	E Van Deirse St/Greenville W Dr & N Lafayette St(M-91)	1
590	GUN PLAIN TWP	Allegan	10th St & 107th Ave	1
591	HAMLIN TWP	MASON	W Jagger Rd & N Jebavy Dr	1
592	HAMPTON CH TWP	BAY	22nd St(Kosciuszko Ave) & S Trumbull St	1
593	HARING CH TWP	WEXFORD	34 Rd/E Boon Rd/Bus 131 & Plett Rd	1
594	HARRISVILLE CITY	Alcona	State St (US-23) & Main St (M-72)	1
595	HAY TWP	GLADWIN	E Winegars Rd & M-30	1
596	HAY TWP	GLADWIN	M-61 & M-30	1
597	HAY TWP	GLADWIN	M-61 & Arbutus St	1
598	HESPERIA VLG	OCEANA	Michigan Ave & N Cook St	1
599	HESPERIA VLG	OCEANA	1 Mile Rd(M-20) & Smith St	1
600	HESPERIA VLG	OCEANA	1 Mile Rd(M-20) & Shaw St	1
601	HESPERIA VLG	OCEANA	1 Mile Rd(M-20) 390' west of Smith St	1
602	HESPERIA VLG	OCEANA	1 Mile Rd(M-20) 290' east of Greenback St	1
603	HESPERIA VLG	OCEANA	1 Mile Rd(M-20) & Greenback St	1
604	HESPERIA VLG	OCEANA	Greenback St & Weaver St	1
605	HESPERIA VLG	OCEANA	Weavewr St & Cook St	1
606	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Peters Rd	1
607	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 180' north of Campbell Sr(N end)	1
608	HILL TWP	Ogemaw	357 N Sage Lake Rd/CO Hwy F19 650' south of Francis Rd	1
609	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Schemp Rd	1
610	HILL TWP	Ogemaw	Sage Lake Rd/CO Hwy F19 & Shady Shores Rd/CO Hwy F17	1
611	HILL TWP	Ogemaw	Townhall Rd/CO Hwy F26 & County Line Rd CO Hwy F21	1
612	HILL TWP	Ogemaw	Forest Dr 400' west of Lake Forest Ave	1
613	HILL TWP	Ogemaw	Forest Dr 50' west of Lake Forest Ave	1
614	HILL TWP	Ogemaw	Forest Dr 135' north east of Lake Forest Ave	1
615	HILL TWP	Ogemaw	Forest Dr 130' north east of Silverwood Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
616	HILL TWP	Ogemaw	Forest Dr & Lakeside Dr	1
617	HILL TWP	Ogemaw	Shady Shores Rd/CO Hwy F17 & CO Hwy F 28/Rose City Cir	1
618	HOLLAND CH TWP	Ottawa	Riley St & 128th Ave	1
619	HOLLAND CH TWP	Ottawa	Riley St & 120th Ave	1
620	HOLLAND CH TWP	Ottawa	Riley St & 112th Ave	1
621	HOLLAND CH TWP	Ottawa	Riley St & 100th Ave	1
622	HOLLAND CH TWP	Ottawa	Riley St & 96th Ave/N State St	1
623	HOLLAND CH TWP	Ottawa	Felch St 104th Ave	1
624	HOLLAND CH TWP	Ottawa	Flech St / Roosevelt Ave & 100th Ave/N Franklin St	1
625	HOLLAND CH TWP	Ottawa	N Franklin St/100th Ave & W Garfield Ave	1
626	HOLLAND CH TWP	Ottawa	N Franklin St & W McKinley Ave	1
627	HOLLAND CH TWP	Ottawa	N Division Ave 985' south of W Lakewood Blvd	1
628	HOLLAND CH TWP	Ottawa	James St & Beeline Rd	1
629	HOLLAND CH TWP	Ottawa	James St & 120th Ave	1
630	HOLLAND CH TWP	Ottawa	E Lakewood Blvd/Chicago Dr & 112th Ave	1
631	HOLLAND CH TWP	Ottawa	I-196 Bus RT & 112th Ave	2
632	HOLLAND CH TWP	Ottawa	Chicago Dr & Van Hill Dr	1
633	HOLLAND CH TWP	Ottawa	Chicago Dr & 104th Ave	1
634	HOME TWP	MONTCALM	N County Line Rd & Wyman Rd	1
635	HOME TWP	MONTCALM	Pine Rd & M575	1
636	HOME TWP	MONTCALM	M575 & Fred Meijer Heartland Trail 445' south of Pine Rd	1
637	HOME TWP	MONTCALM	M575 390' north of Quarter Rd	1
638	HOME TWP	MONTCALM	Quarter Rd & M575	1
639	HOME TWP	MONTCALM	M575 195' south of Quarter Rd	1
640	HOME TWP	MONTCALM	7260 M575 450' south of Quarter Rd	1
641	HOMER TWP	MIDLAND	Tittabawassee River Rd & Saginaw Rd	1
642	HOMER TWP	MIDLAND	Homer Rd & Olson Rd	1
643	HOMER TWP	MIDLAND	Isabella Rd (M-20) & Baker Dr	1
644	HOMER TWP	MIDLAND	Isabella Rd (M-20) & Spring St	1
645	HOMER TWP	MIDLAND	5 Mile Rd & Chippewa River Rd	1
646	HOMER TWP	MIDLAND	Meridian Rd & Miller Rd	1
647	HOMER TWP	MIDLAND	Gordonville Rd & Meridian Rd	1
648	HOMER VLG	CALHOUN	E Water St & S Clay St	1
649	HOPE TWP	MIDLAND	E Hull Rd & N Hope Rd	1
650	HOPKINS VLG	ALLEGAN	128th Ave/E Main St & Hoffmaster St/Jackson St	1
651	HOPKINS VLG	ALLEGAN	128th Ave/W Main St & Selby St	1
652	HOPKINS VLG	ALLEGAN	128th Ave/W Main St & Center St	1
653	HOWARD CITY VLG	MONTCALM	Shaw St & Federal Rd/Ensley St	1
654	HUDSON CITY	Lenawee	Maple St & Oak St	1
655	HUDSON CITY	Lenawee	Meridian Rd/US-127 & Maple St	1
656	HUDSON CITY	Lenawee	Mechanic St & St.Giles St 45' east of St.Giles St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
657	HUDSON CITY	Lenawee	Mechanic St 370' east of St.Giles St	1
658	HUDSON CITY	Lenawee	Meridian Rd/US-127 635' north of North St	1
659	HUDSON CITY	Lenawee	Maple Grove Ave & Hill St	1
660	HUDSON CITY	Lenawee	Maple Grove Ave 300' north of Wilcox St	1
661	HUDSON CITY	Lenawee	Maple Grove Hwy & Taney St	1
662	HUDSON CITY	Lenawee	Maple Grove Hwy 305' north of Buchanan St	1
663	HUDSON CITY	Lenawee	Maple Grove Hwy 590' north of Buchanan St	1
664	HUDSON CITY	Lenawee	Maple Grove Hwy 1185' south of Cadmus Rd	1
665	HUDSON CITY	Lenawee	Maple Grove Hwy 275' south of Cadmus Rd	1
666	ITHACA CITY	GRATIOT	516 E Center St(Bus 127) 200' east of St Johns St	1
667	ITHACA CITY	GRATIOT	E Center St(Bus 127) & N Barnes St	1
668	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Gwinner St	1
669	ITHACA CITY	GRATIOT	624 E Center St(Bus 127) 130' west of Union St	1
670	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Union St	1
671	ITHACA CITY	GRATIOT	712 E Center St(Bus 127) 175' east of Union St	1
672	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Nelson St	1
673	ITHACA CITY	GRATIOT	815 E Center St(Bus 127) 195' east of Nelson St	1
674	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Brown St	1
675	ITHACA CITY	GRATIOT	920 E Center St(Bus 127) 195' west of Catherine St	1
676	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Catherine St	1
677	ITHACA CITY	GRATIOT	1008 E Center St(Bus 127) 275' east of Catherine St	1
678	ITHACA CITY	GRATIOT	1044 E Center St(Bus 127) 255' west of Commerce Dr	1
679	ITHACA CITY	GRATIOT	E Center St (Bus 127) & Commerce Dr	1
680	ITHACA CITY	GRATIOT	1215 E Center St(Bus 127) 315' east of Commerce Dr	1
681	ITHACA CITY	GRATIOT	1420 E Center St(Bus 127) 185' west of Dilts Rd	1
682	ITHACA CITY	GRATIOT	E Center St(Bus 127) & Industrial Pkwy	1
683	ITHACA CITY	GRATIOT	1321 E Center St(Bus 127) 555' east of Industrial Pkwy	1
684	ITHACA CITY	GRATIOT	N Pine River St(Bus 127) & Barber St	1
685	ITHACA CITY	GRATIOT	707 N Pine River St(Bus 127) 155' south of Norton Gibbs Dr	1
686	ITHACA CITY	GRATIOT	825 N Pine River St(Bus 127) 570' north of Norton Gibbs Dr	1
687	ITHACA CITY	GRATIOT	N Pine River St(Bus 127) & W St Charles Rd	1
688	JEROME TWP	Midland	Wackerly Rd 500' south east of 7mi Rd @end of curve	1
689	JEROME TWP	Midland	Nielson Rd & Nine Mile Rd	1
690	JEROME TWP	Midland	799 W Saginaw Rd 330' south east of Irish St	1
691	JEROME TWP	Midland	Saginaw Rd & 11 Mile Rd	1
692	JEROME TWP	Midland	2974 Saginaw Rd 470' south east of Castor Rd	1
693	JEROME TWP	Midland	N W River Rd & Ridge Dr	1
694	JEROME TWP	Midland	M-30/Meridian Rd & Dague Rd	1
695	JEROME TWP	Midland	M-30/Meridian Rd & Mustang Ln	1
696	JEROME TWP	Midland	M-30/Meridian Rd 765' north of Retreat Dr	1
697	JEROME TWP	Midland	M-30/Meridian Rd 560' north of Retreat Dr	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
698	JEROME TWP	Midland	M-30/Meridian Rd 70' north of Retreat Dr	1
699	JEROME TWP	Midland	M-30/Meridian Rd & Barden Rd	1
700	JEROME TWP	Midland	M-30/Meridian Rd & Blakely Rd	1
701	JEROME TWP	Midland	M-30/Meridian Rd & Beamish Rd	1
702	KAWKAWLIN	BAY	Guy St & Third St	1
703	KAWKAWLIN	BAY	Telu Ct 300' south of Maroba Rd	1
704	KAWKAWLIN	BAY	1026 E Beaver Rd 300' east of Fraser Rd	1
705	KENTWOOD CITY	KENT	Kalamazoo Ave SE & Pickett St SE	1
706	KOCHVILLE TWP	Saginaw	Tittabawassee Rd & Kenora Dr	1
707	KOCHVILLE TWP	Saginaw	Liberty Rd & N Michigan Rd	1
708	LAKE TWP	Roscommon	M-55 & Old US Hwy 27	1
709	LAKETOWN TWP	Allegan	32nd St & Saunders Ave	1
710	LAKETOWN TWP	Allegan	32nd Ave 785' west of Saunders Ave	1
711	LASALLE TWP	Monroe	S Otter Creek Rd (northern) & Dixie Hwy (M-125)	1
712	LASALLE TWP	Monroe	Swartz Rd & Dixie Hwy (M-125)	1
713	LASALLE TWP	Monroe	Stein Rd (southern) & Dixie Hwy (M-125)	1
714	LASALLE TWP	Monroe	Stein Rd (northern) & Dixie Hwy (M-125)	1
715	LASALLE TWP	Monroe	Dixie Hwy (M-125) 360' south of Stein Rd	1
716	LASALLE TWP	Monroe	Dixie Hwy (M-125) & 1st St	1
717	LASALLE TWP	Monroe	Cousino Rd & S Dixie Hwy (M-125)	1
718	LASALLE TWP	Monroe	S Dixie Hwy (M-125) & Dixie Brook St	1
719	LASALLE TWP	Monroe	S Dixie Hwy (M-125) & Clayton St	1
720	LASALLE TWP	Monroe	S Dixie Hwy & Widdock St	1
721	LASALLE TWP	Monroe	Dixie Hwy (M-125) & Wood Rd	1
722	LASALLE TWP	Monroe	Dixie Hwy (M-125) & Kelly Rd	1
723	LEE TWP	ALLEGAN	Pullman Ave & Pearl St	1
724	LEE TWP	ALLEGAN	Commerce Dr & 56th St 670' north of Main St (109th Ave)	1
725	LEE TWP	ALLEGAN	5646 109th Ave 350' west of Pullman Ave	1
726	LEIGHTON TWP	Allegan	Janice St & Division St	1
727	LEIGHTON TWP	Allegan	Aster St & Violet St	1
728	LEIGHTON TWP	Allegan	Lilac St & Garden St	1
729	LENNON VLG	Shiawassee	Park and Sheridan (M-13)	1
730	LENNON VLG	Shiawassee	Sheridan (M-13), 590' north of Park	1
731	LENNON VLG	Shiawassee	Sheidan (M-13) and Orchard	1
732	LENNON VLG	Shiawassee	Lennon Rd and Reed St/Cornin St	1
733	LENNON VLG	Shiawassee	Lennon Rd 335' west of Haviland St	1
734	LENNON VLG	Shiawassee	Lennon Rd and Haviland St	1
735	LIBERTY TWP	JACKSON	Liberty Rd & S Jackson Rd	1
736	LINCOLN TWP	Osceola	Reed Rd/210th Ave & Penasha Rd/Nine Mile Rd	1
737	LITCHFIELD CITY	Hillsdale	M-49(Anderson Rd) & Herring Rd	1
738	LITCHFIELD CITY	Hillsdale	M-49(Anderson Rd) 315' north of Mill st	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
739	LITCHFIELD CITY	Hillsdale	Homer Rd/Jonesville St(M-99) & River Dr	1
740	LITCHFIELD CITY	Hillsdale	W St Joe St & Warriner Ave	1
741	LITCHFIELD CITY	Hillsdale	210 W St Joe St 235' west of Warriner Ave	1
742	LITCHFIELD CITY	Hillsdale	Williams St & West St	1
743	LITCHFIELD CITY	Hillsdale	Homer Rd/Marshall St(M-99) & Washington St	1
744	LITCHFIELD CITY	Hillsdale	453 M-99 380' north west of Washington St	1
745	LOGAN TWP	OGEMAW	Tawas Rd (M-55) & Gillings Rd	1
746	LOGAN TWP	OGEMAW	Tawas Rd (M-55) & Beach Rd	1
747	LOGAN TWP	OGEMAW	Tawas Rd (M-55) & Clark Rd	1
748	LOGAN TWP	OGEMAW	4875 M-55 1,295' west of Sage Lake Rd	1
749	LOGAN TWP	OGEMAW	Tawas Rd (M-55) & E Co Line Rd	1
750	LUDINGTON CITY	MASON	303 E Ludington Ave ( US-10 ) 100' east of Rowe St	1
751	LUDINGTON CITY	MASON	305 E Ludington Ave ( US-10 ) 120' west of Delia St	1
752	LUDINGTON CITY	MASON	US-10 (E Ludington Ave ) & Delia St	1
753	LUDINGTON CITY	MASON	410 E Ludington Ave ( US-10 ) 195' east of Delia St	1
754	LUDINGTON CITY	MASON	US-10 (E Ludington Ave) & Lavinia St	1
755	LUDINGTON CITY	MASON	508 E Ludington Ave ( US-10 ) 165' west of Emily St	1
756	LUDINGTON CITY	MASON	US-10 (Ludington Ave ) & Emily St	1
757	LUDINGTON CITY	MASON	606 E Ludington Ave ( US-10 ) 155' west of Washington Ave	1
758	LUDINGTON CITY	MASON	US-10 ( Ludington Ave ) & Washington Ave	1
759	LUDINGTON CITY	MASON	707 US-10 ( Ludington Ave ) 260' east of Washington Ave	1
760	LUDINGTON CITY	MASON	713 E Ludington Ave ( US-10 ) 275' west of Franklin St	1
761	LUDINGTON CITY	MASON	811 E Ludington Ave ( US-10 ) 200' west of Staffon St	1
762	LUDINGTON CITY	MASON	US-10 ( E Ludington Ave ) & Staffon St	1
763	LUDINGTON CITY	MASON	906 E Ludington Ave ( US-10 ) 195' east of Staffon St	1
764	LUDINGTON CITY	MASON	912 E Ludington Ave ( US-10 ) 400' east of Staffon St	1
765	LUDINGTON CITY	MASON	917 E Ludington Ave ( US-10 ) 750' west of Jackson Rd	1
766	MADISON CH TWP	Lenawee	Beecher Rd 415' west of Sand Creek Hwy	1
767	MADISON CH TWP	Lenawee	Airport Rd on curve 60' east of Elwood Dr	1
768	MADISON CH TWP	Lenawee	W Cadmus Rd & Baldwin Rd	1
769	MADISON CH TWP	Lenawee	Baldwin Rd & Thayer Rd	1
770	MADISON CH TWP	Lenawee	US-223 n/o Cadmus Rd	1
771	MADISON CH TWP	Lenawee	US-223 n/o Cadmus Rd	1
772	MADISON CH TWP	Lenawee	S Adrian Hwy/M-52 & E Carleton Rd	1
773	MADISON CH TWP	Lenawee	S Adrian Hwy/M-52 & E Gier Rd	1
774	MADISON CH TWP	Lenawee	S Adrian Hwy & E Gorman Rd	1
775	MANISTEE TWP	Manistee	US-31 & Milarch Rd	1
776	MANISTEE TWP	Manistee	US-31 & Coates Highway	1
777	MANISTEE TWP	Manistee	US-31 & Fisk Rd	1
778	MANISTEE TWP	Manistee	US-31 & Orchard Highway	1
779	MANISTEE TWP	Manistee	Orchard Highway & Dontz Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
780	MANISTEE TWP	Manistee	US-31 & River Rd	1
781	MANISTEE TWP	Manistee	US-31 & Kemmer Rd	1
782	MANISTEE TWP	Manistee	US-31, 615' south of Kemmer Rd @ Hospital entrance	1
783	MANISTEE TWP	Manistee	US-31 & Guthrie Rd	1
784	MANISTEE TWP	Manistee	US-31/E Parkdale Ave & Frost Rd	1
785	MANISTEE TWP	Manistee	US-31/E Parkdale Ave 650' west of Frost Rd	1
786	MANISTEE TWP	Manistee	US-31/E Parkdale Ave 1300' west of Frost Rd	1
787	MANISTEE TWP	Manistee	US-31/E Parkdale Ave 850' east of Perry St	1
788	MANISTEE TWP	Manistee	US-31/W Parkdale Ave & Bowerman Rd	1
789	MANISTEE TWP	Manistee	US-31/W Parkdale Ave & Hill Rd	1
790	MANISTEE TWP	Manistee	US-31/W Parkdale Ave & Park Ave	1
791	MANISTEE TWP	Manistee	US-31/W Parkdale Ave & Hahn Rd	1
792	MANISTEE TWP	Manistee	US-31/W Parkdale Rd 630' west of Hahn Rd	2
793	MANISTEE TWP	Manistee	US-31/W Parkdale Ave & M-110/Lakeshore Rd	1
794	MANISTEE TWP	Manistee	M-110/Lakeshore Dr & Gloria Lane	1
795	MANISTEE TWP	Manistee	M-55 & Eastlake Rd/Main St north of Brickyard Rd	1
796	MANISTEE TWP	Manistee	M-55 & Eastlake Rd south of Renaissance Dr	1
797	MAPLE GROVE TWP	Saginaw	Lincoln Rd 260' north of Peet Rd/M-57	1
798	MAPLE GROVE TWP	Saginaw	Peet Rd/M-57 340' west of Lincoln Rd	2
799	MAPLE GROVE TWP	Saginaw	Peet Rd/M-57 & Lincoln Rd	1
800	MAPLE GROVE TWP	Saginaw	Peet Rd/M-57 360' east of Lincoln Rd	1
801	MARION VLG	Osceola	720 Mill St (M-66) 600' north of Chadwick St	1
802	MARION VLG	Osceola	Mill St (M-66) & Water	1
803	MARION VLG	Osceola	E Main St, 470' west of Lowry St	1
804	MARION VLG	Osceola	Mill St/M-66 & Park 440' south of W 1st St	1
805	MARION VLG	Osceola	Mill St/M-66 855' south of W 1st St	1
806	MARION VLG	Osceola	Mill St/M-66 1,330' south of W 1st St	1
807	MARION VLG	Osceola	Main St & Lake St	1
808	MARKEY TWP	Roscommon	E Houghton Lake Drive, first light east of Dees	1
809	MARKEY TWP	Roscommon	E Houghton Lake Drive, sixth light east of Dees	1
810	MARKEY TWP	Roscommon	E Houghton Lake Drive, seventh light east of Dees	1
811	MARKEY TWP	Roscommon	E Houghton Lake Drive, eleventh light east of Dees	1
812	MARKEY TWP	Roscommon	E Houghton Lake Drive, 350' W of Flint	1
813	MARKEY TWP	Roscommon	E Houghton Lake Drive, first light east of Flint	1
814	MARKEY TWP	Roscommon	E Houghton Lake Drive, second light east of Flint	1
815	MARKEY TWP	Roscommon	E Houghton Lake Drive, third light east of Flint	1
816	MARKEY TWP	Roscommon	E Houghton Lake Drive, fifth light east of Flint	1
817	MARKEY TWP	Roscommon	E Houghton Lake Drive, seventh light east of Flint	1
818	MARKEY TWP	Roscommon	E Houghton Lake Drive, eighth light east of Flint	1
819	MARKEY TWP	Roscommon	E Houghton Lake Drive, 1300' W of Markey (on curve)	1
820	MARKEY TWP	Roscommon	E Houghton Lake Drive and Markey Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
821	MARKEY TWP	Roscommon	E Houghton Lake Dr and Windemere	1
822	MARKEY TWP	Roscommon	E Houghton Lake Dr and Timbers	1
823	MARKEY TWP	Roscommon	E Houghton Lake Dr and McDonald	1
824	MARKEY TWP	Roscommon	E Houghton Lake Dr and Schmidt	1
825	MCBRIDE VLG	MONTCALM	E Coral Rd & Wayne St	1
826	MECOSTA VLG	Mecosta	1201 M-20(W Main St) 1,050' north west of Gilbert St	1
827	MECOSTA VLG	Mecosta	1051 M-20(W Main St) 270' north west of Gilbert St	1
828	MECOSTA VLG	Mecosta	337 W Main St 300' (M-20) north west of James St	1
829	MECOSTA VLG	Mecosta	832 W Main St 400' (M-20) north west of Franklin St	1
830	MECOSTA VLG	Mecosta	Main St & Washington St	1
831	MECOSTA VLG	Mecosta	Main St & Penn St	1
832	MECOSTA VLG	Mecosta	Hayes St & Webber St	1
833	MECOSTA VLG	Mecosta	Cass St & Main St	1
834	MECOSTA VLG	Mecosta	Cass St/M-20 & Fern 570' south of Main St	1
835	MECOSTA VLG	Mecosta	Cass St/M-20 1,050' south of Main St	1
836	MECOSTA VLG	Mecosta	Main St & "A" St	1
837	MENTOR TWP	OSCODA	Wilson Dr & Glennie Dr	1
838	MERIDIAN TWP	INGHAM	Hamilton Rd & Montrose Ave	1
839	MERIDIAN TWP	INGHAM	Hamilton Rd & Liverance St	1
840	MERIDIAN TWP	INGHAM	2691 Skyline Ct 365' east of Dawn Ave	1
841	MERIDIAN TWP	INGHAM	Ridge St & Lee St	1
842	MERIDIAN TWP	INGHAM	Lake Dr & Milenz St	1
843	MERIDIAN TWP	INGHAM	6177 E Lake Dr 65' north west of Crane St	1
844	MERIDIAN TWP	INGHAM	Lake Dr & Partridge St	1
845	MIDLAND CITY	MIDLAND	James Savage Rd & S Saginaw Rd	1
846	MIDLAND CITY	MIDLAND	E Lyon Rd(M-20) & Bayliss St	1
847	MIDLAND CITY	MIDLAND	E Patrick Rd(M-20) & Lincoln St	1
848	MIDLAND CITY	MIDLAND	E Patrick Rd(M-20) & Jefferson Ave	1
849	MIDLAND CITY	MIDLAND	E Patrick Rd(M-20) & E Carpenter St	1
850	MIDLAND CITY	MIDLAND	603 M-20(E Patrick Rd) 455' east of Bayliss St	1
851	MIDLAND CITY	MIDLAND	Buttles St E(M-20/Bus 10) & Cronkright St	2
852	MIDLAND CITY	MIDLAND	M-20(E Isabella Rd) & N Orlo Rd	1
853	MIDLAND CITY	MIDLAND	M-20(E Isabella Rd) & S Sandow Rd	1
854	MIDLAND CITY	MIDLAND	M-20(Isabella St) & E Chippewa River Rd	1
855	MIDLAND CITY	MIDLAND	M-20(Isabella St) & Vance Rd	1
856	MIDLAND CITY	MIDLAND	3400 Isabell St(M-20) 500' east of Vance Rd	1
857	MIDLAND CITY	MIDLAND	3124 Isabella St(M-20) 310' east of Wildes St	1
858	MIDLAND CITY	MIDLAND	3007 Isabella St(M-20) 495' west of Smith Rd	1
859	MIDLAND CITY	MIDLAND	M-20(Isabella St) & Smith Rd	1
860	MIDLAND CITY	MIDLAND	M-20(Isabella St) & Rowe Ct	1
861	MIDLAND CITY	MIDLAND	2516 Isabella St(M-20) 45' west of Hutchinson Ln	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
862	MIDLAND CITY	MIDLAND	2409 Isabella St(M-20) 430' east of Hutchinson Ln	1
863	MIDLAND CITY	MIDLAND	2301 Isabella St(M-20) 435' west of Albee Ln	1
864	MIDLAND CITY	MIDLAND	M-20(Isabella St) & Albee Ln	1
865	MIDLAND CITY	MIDLAND	Buttles St W(Bus 10) & Eastman Ave	1
866	MIDLAND CITY	MIDLAND	Eastman Ave(Bus 10) & W Union St	1
867	MIDLAND CITY	MIDLAND	Haley St & Jefferson Ave	1
868	MIDLAND CITY	MIDLAND	4114 Eastman Ave(Bus 10) 235' south of Clover Ln	1
869	MIDLAND CITY	MIDLAND	Clover Ln & Eastman Ave(Bus 10)	1
870	MIDLAND CITY	MIDLAND	4424 Eastman Ave(Bus 10) 250' north of Clover Ln	1
871	MIDLAND CITY	MIDLAND	4479 US-10 BUS(Eastman Ave) 485' north of Clover Ln	1
872	MIDLAND CITY	MIDLAND	4599 US-10 BUS(Eastman Ave) 235' south of Burrell Ct	1
873	MIDLAND CITY	MIDLAND	Eastman Ave(Bus 10) & Burrell Ct	1
874	MIDLAND CITY	MIDLAND	Eastman Ave(Bus 10) & Dilloway Dr	1
875	MIDLAND CITY	MIDLAND	Wheeler St & Swede Ave	1
876	MIDLAND CITY	MIDLAND	N Saginaw Rd & Artcrest Dr/Northwood Dr	1
877	MOFFATT TWP	Arenac	M-76 and Maple Ridge Rd	1
878	MOFFATT TWP	Arenac	M-76 & Buhl St/Joy St	1
879	MOFFATT TWP	Arenac	M-76, 440' south of Buhl	1
880	MONITOR CH TWP	Bay	E Salzburg Rd 220' east of S 8 Mile Rd	1
881	MONITOR CH TWP	Bay	E Salzburg Rd 490' east of S 8 Mile Rd	1
882	MONITOR CH TWP	Bay	E Salzburg Rd 775' east of S 8 Mile Rd	1
883	MONITOR CH TWP	Bay	S 8 Mile Rd 270' south of E Salzburg Rd	1
884	MONROE CH TWP	Monroe	Telegraph Rd 95' north of Southpointe Pkwy	1
885	MONROE CH TWP	Monroe	Telegraph Rd & Drummonds Ct	1
886	MONROE CH TWP	Monroe	Telegraph Rd 590' south of Drummonds Ct	1
887	MONROE CH TWP	Monroe	Telegraph Rd 75' south of Sunny Villa Dr	1
888	MONROE CH TWP	Monroe	Telegraph Rd 640' south of Sunny Villa Dr	1
889	MONROE CH TWP	Monroe	15286 S Telegraph Rd 3,400' north of Albain Rd	1
890	MONROE CH TWP	Monroe	Telegraph Rd 2,900' north of Albain Rd	1
891	MONROE CH TWP	Monroe	15212 Telegraph Rd 2,270' north of Albain Rd	1
892	MONROE CH TWP	Monroe	15180 Telegraph Rd 1,650' north of Albain Rd	1
893	MONROE CH TWP	Monroe	15086 Telegraph Rd 1,155' north of Albain Rd	1
894	MONROE CH TWP	Monroe	15074 Telegraph Rd 615' north of Albain Rd	1
895	MONROE CH TWP	Monroe	Dixie Hwy 140' south of Dunbar Rd	1
896	MONROE CH TWP	Monroe	Dixie Hwy & Vandercook St	1
897	MONROE CH TWP	Monroe	Dixie Hwy & Roseland Ave	1
898	MONROE CH TWP	Monroe	Dixie Hwy 575' north of Dallas Rd	1
899	MONROE CH TWP	Monroe	Dixie Hwy 300' north of Dallas Rd	1
900	MONROE CH TWP	Monroe	Dixie Hwy & Dallas Rd	1
901	MONROE CH TWP	Monroe	Dixie Hwy 460' south of Dallas Rd	1
902	MONROE CH TWP	Monroe	Dixie Hwy 645' north of Forest Dr	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
903	MONROE CH TWP	Monroe	Dixie Hwy 370' north of Forest Dr	1
904	MONROE CH TWP	Monroe	Dixie Hwy & Forest Dr	1
905	MONROE CH TWP	Monroe	Dixie Hwy 290' south of Forest Dr	1
906	MONROE CH TWP	Monroe	Dixie Hwy & Vineyard Dr	1
907	MONROE CH TWP	Monroe	Dixie Hwy 165' north of Meadowlands Ct	1
908	MONROE CH TWP	Monroe	Dixie Hwy 215' south of Meadowlands Ct	1
909	MONROE CH TWP	Monroe	Dixie Hwy 130' south of Raven Pkwy	1
910	MONROE CH TWP	Monroe	Dixie Hwy 285' south of Brookshire Dr	1
911	MONROE CH TWP	Monroe	Dixie Hwy & Timber Ln	1
912	MONROE CH TWP	Monroe	Dixie Hwy & Northfield Dr	1
913	MONROE CH TWP	Monroe	Dixie Hwy & Kay Dr	1
914	MONROE CH TWP	Monroe	Dixie Hwy & Aimy Dr	1
915	MONROE CH TWP	Monroe	Dixie Hwy 265' north of Albain Rd	1
916	MONROE CH TWP	Monroe	Dixie Hwy 445' south of Albain Rd	1
917	MONROE CH TWP	Monroe	Dixie Hwy & Robinwood Dr	1
918	MONROE CH TWP	Monroe	Dixie Hwy 330' south of Robinwood Dr	1
919	MONROE CH TWP	Monroe	Dixie Hwy 690' south of Robinwood Dr	1
920	MONROE CH TWP	Monroe	Dixie Hwy 950' north of Tanager Dr	1
921	MONROE CH TWP	Monroe	Dixie Hwy 550' north of Tanager Dr	1
922	MONROE CH TWP	Monroe	Dixie Hwy 160' north of Tanager Dr	1
923	MONROE CH TWP	Monroe	Dixie Hwy 83' south of Tanger Dr	1
924	MONROE CH TWP	Monroe	Dixie Hwy 710' north of Mortar Creek Rd	1
925	MONROE CH TWP	Monroe	Dixie Hwy 470' north of Mortar Creek Rd	1
926	MONROE CH TWP	Monroe	Dixie Hwy 230' north of Mortar Creek Rd	1
927	MONROE CH TWP	Monroe	Dixie Hwy Mortar Creek Rd	1
928	MONROE CH TWP	Monroe	14275 Dixie Hwy 335' south of Mortar Creek Rd	1
929	MONROE CH TWP	Monroe	14265 Dixie Hwy 630' south of Mortar Creek Rd	1
930	MONROE CH TWP	Monroe	14259 Dixie Hwy 835' south of Mortar Creek Rd	1
931	MONROE CH TWP	Monroe	14251 Dixie Hwy 1,100' south of Mortar Creek Rd	1
932	MONROE CH TWP	Monroe	14215 Dixie Hwy 1,470' south of Mortar Creek Rd	1
933	MONROE CH TWP	Monroe	14196 Dixie Hwy 1,740' south of Mortar Creek Rd	1
934	MONTROSE CH TWP	GENESEE	Vienna Rd (M-57) & Morrish Rd	1
935	MONTROSE CH TWP	GENESEE	Vienna Rd (M-57) & Marshall Rd	1
936	MONTROSE CH TWP	GENESEE	Vienna Rd (M-57) & McKinley Rd	1
937	MONTROSE CH TWP	GENESEE	Vienna Rd & Duffield Rd	1
938	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & S Swanson Rd	1
939	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & S Moorland Rd	1
940	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & S Bossett Rd	1
941	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & S Ravenna Rd	1
942	MOORLAND TWP	Muskegon	E Apple Ave/M-46 700' east of S Ravenna Rd	1
943	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & Slocum Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
944	MOORLAND TWP	Muskegon	E Apple Ave/M-46 & E Goebel Rd	1
945	MORENCI CITY	LENAWEE	North St (M-156) & Baldwin St	1
946	MORENCI CITY	LENAWEE	North St (M-156) & Greeley St	1
947	MORENCI CITY	LENAWEE	North St (M-156) & Wilson st	1
948	MOSCOW TWP	Hillsdale	Moscow Rd 290' north of US-12	1
949	MOSCOW TWP	Hillsdale	Moscow Rd 390' south of US-12	1
950	MOSCOW TWP	Hillsdale	Moscow Rd & Kalamazoo Sq	1
951	MT MORRIS CH TWP	GENESEE	4518 Elms Rd 1,330' south of Carpenter Rd	1
952	MT MORRIS CH TWP	GENESEE	5171 Elms Rd 415' north of Carpenter Rd	1
953	MT MORRIS CH TWP	GENESEE	Hickory St & Elms Rd	1
954	MT PLEASANT CITY	ISABELLA	E High St (M-20) & S University Ave	1
955	MT PLEASANT CITY	ISABELLA	E High St (M-20) & S Franklin St	1
956	MT PLEASANT CITY	ISABELLA	E High St (M-20) & S Fancher	1
957	MT PLEASANT CITY	ISABELLA	Pickard Rd & N Main St	1
958	MUNDY TWP	GENESEE	Baldwin Rd & Fenton Rd	1
959	MUNDY TWP	GENESEE	1235 Lawnview Ct 430' south west of Bedford Ave	1
960	MUNDY TWP	GENESEE	W Maple Ave & Pilgrim Rd	1
961	MUSKEGON CITY	MUSKEGON	930 E Apple Ave(M-46) 160' west of Stevens St	1
962	MUSKEGON CITY	MUSKEGON	E Apple Ave(M-46) & Stevens St	1
963	MUSKEGON CITY	MUSKEGON	981 E Apple Ave(M-46) 195' east of Stevens St	1
964	MUSKEGON CITY	MUSKEGON	E Apple Ave(M-46) & Madison St	1
965	MUSKEGON CITY	MUSKEGON	1065 E Apple Ave(M-46) 265' west of Oak Grove St	1
966	MUSKEGON CITY	MUSKEGON	E Apple Ave(M-46) & Green St	1
967	MUSKEGON CITY	MUSKEGON	E Apple Ave(M-46) & Roberts St	1
968	MUSKEGON CITY	MUSKEGON	E Apple Ave(M-46) & Evert St	1
969	MUSKEGON CITY	MUSKEGON	1356 E Apple Ave(M-46) 305' east of Evert St	1
970	MUSKEGON CITY	MUSKEGON	1436 E Apple Ave(M-46) 275' east of Creston St	1
971	MUSKEGON CITY	MUSKEGON	Moses J Jones Pkwy(US-31 BUS) & Getty St	2
972	MUSKEGON CITY	MUSKEGON	Marquette Ave & Broadmoor St	1
973	MUSKEGON CITY	MUSKEGON	Marquette Ave & Harvey St	1
974	MUSKEGON HEIGHTS CITY	MUSKEGON	W Summit Ave & Seaway Dr (US 31 BUS North)	1
975	MUSKEGON HEIGHTS CITY	MUSKEGON	E Broadway Ave & Hoyt St	1
976	MUSKEGON HEIGHTS CITY	MUSKEGON	W Broadway Ave & 6th St	1
977	MUSKEGON HEIGHTS CITY	MUSKEGON	E Sherman Blvd & Baker St	1
978	MUSKEGON HEIGHTS CITY	MUSKEGON	W Hume Ave & Sanford St	1
979	MUSKEGON HEIGHTS CITY	MUSKEGON	W Hackley Ave & Peck St	1
980	MUSKEGON HEIGHTS CITY	MUSKEGON	E Hackley Ave & Hoyt St	1
981	NAPOLEON TWP	JACKSON	6655 Brooklyn Rd(M-50) 280' north west of Napoleon Rd	1
982	NAPOLEON TWP	JACKSON	Brooklyn Rd(M-50) & Silkworth Blvd	1
983	NAPOLEON TWP	JACKSON	Brooklyn Rd(M-50) & Wheaton Rd	1
984	NAPOLEON TWP	JACKSON	4054 Brooklyn Rd(M-50) & Miles Rd (east intersection)	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
985	NASHVILLE VLG	BARRY	M-79(Fuller St) & Sunset Ln	1
986	NASHVILLE VLG	BARRY	324 M-66(Main St) 210' north of Washington St	1
987	NEWAYGO CITY	NEWAYGO	M-37(Mason Dr) & M-82(82nd St)	2
988	NEWAYGO CITY	NEWAYGO	M-82(82nd St) & State St	1
989	NEWAYGO CITY	NEWAYGO	M-82(82nd St) & Edgewood Dr	1
990	NEWAYGO CITY	NEWAYGO	M-82(82nd St) & Greenwood Ln	1
991	NEWAYGO CITY	NEWAYGO	M-82(82nd St) & S Park St	1
992	NEWFIELD TWP	OCEANA	E Garfield Rd & M-120(Maple Island Ave)	1
993	NEWFIELD TWP	OCEANA	M-20(Hayes Rd) & S Riverview Dr	1
994	NEWFIELD TWP	OCEANA	M-20(Hayes Rd) & S 192nd Ave	1
995	NEWFIELD TWP	OCEANA	M-20(Hayes Rd) & S 164th Ave	1
996	NORMAN TWP	MANISTEE	M-55(Caberfae Hwy) & Snyder Rd	1
997	NORTH MUSKEGON CITY	Muskegon	Whitehall Rd & Ruddiman Dr	1
998	NORTON SHORES CITY	MUSKEGON	Seaway Dr(US 31 BUS) & Getty St	2
999	NOTTAWA TWP	ISABELLA	W Beal City Rd	1
1000	ONEIDA CH TWP	EATON	M-43 Hwy & Jefferson Hwy	1
1001	ONEIDA CH TWP	EATON	M-43 Hwy & Oneida Rd	1
1002	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & Van Kal St	1
1003	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & Chadds Ford Way	1
1004	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & Wickford Dr	1
1005	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 1st St	1
1006	OSHTIMO TWP	KALAMAZOO	10360 W Main St (M-43) 750' east of N 1st St	1
1007	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 2nd St	1
1008	OSHTIMO TWP	KALAMAZOO	9870 W Main St (M-43) & Big Rock Dr (west intersection)	1
1009	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & Springwood Dr	1
1010	OSHTIMO TWP	KALAMAZOO	9241 W Main St (M-43) & Big Rock Dr (east intersection)	1
1011	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 4th St	1
1012	OSHTIMO TWP	KALAMAZOO	8979 W Main St (M-43) 335' east of N 4th St	1
1013	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 5th St	1
1014	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & Almena Dr	1
1015	OSHTIMO TWP	KALAMAZOO	8431 W Main St (M-43) 470' east of Almena Dr	1
1016	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 6th St	1
1017	OSHTIMO TWP	KALAMAZOO	7275 W Main St (M-43) 860' west of N 7th St	1
1018	OSHTIMO TWP	KALAMAZOO	7258 W Main St (M-43) 425' west of N 7th St	1
1019	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 7th St	1
1020	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 8th St	1
1021	OSHTIMO TWP	KALAMAZOO	6883 W Main St (M-43) 870' west of N 9th St	1
1022	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & N 9th St	1
1023	OSHTIMO TWP	KALAMAZOO	6560 W Main St (M-43) 1,000' east of N 9th St	1
1024	OSHTIMO TWP	KALAMAZOO	6169 W Main St (M-43) 875' west of 10th St N	1
1025	OSHTIMO TWP	KALAMAZOO	6070 W Main St (M-43) 450' west of 10th St N	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1026	OSHTIMO TWP	KALAMAZOO	6025 W Main St (M-43) 265' west of 10th St N	1
1027	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & 10th St N	1
1028	OSHTIMO TWP	KALAMAZOO	M-43 (W Main St) & S.B. 131 exit ramp	1
1029	OSHTIMO TWP	KALAMAZOO	5673 W Main St (M-43) 835' west of Maple Hill Dr	1
1030	OTISCO TWP	IONIA	M-91(Storey Rd) & Ellis Rd	1
1031	OTISCO TWP	IONIA	M-44(Belding Rd) & Whites Bridge Rd	1
1032	OTISCO TWP	IONIA	Whites Bridge Rd & 6 Mile Rd	1
1033	OTISVILLE VLG	GENESEE	409 Center St 185' north of Kurtz St	1
1034	OTSEGO CITY	Allegan	Allegan St/M-89 & Grant St	1
1035	OTSEGO CITY	Allegan	Allegan St/M-89 & Sherwood St	1
1036	OTSEGO CITY	Allegan	Allegan St/M-89 360' east of Sherwood St	1
1037	OTSEGO CITY	Allegan	Allegan St/M-89 750' east of Sherwood St	1
1038	OTSEGO CITY	Allegan	Allegan St/M-89 660' west of N North St	1
1039	OTSEGO CITY	Allegan	Allegan St/M-89 275' west of N North St	1
1040	OTSEGO CITY	Allegan	Allegan St/M-89 330' east of North St	1
1041	OTSEGO CITY	Allegan	Allegan St/M-89 330' west of Kalamazoo St	1
1042	OTSEGO CITY	Allegan	Allegan St/M-89 465' west of Wilmott St	1
1043	OTSEGO CITY	Allegan	Allegan St/M-89 & Wilmott St	1
1044	OTSEGO CITY	Allegan	Allegan St/M-89 360' west of Platt St	1
1045	OTSEGO CITY	Allegan	Allegan St/M-89 & Platt St	1
1046	OTSEGO CITY	Allegan	Allegan St/M-89 260' east of Platt St	1
1047	OTSEGO CITY	Allegan	Allegan St/M-89 & Mitchell St/E Orleans St	1
1048	OTSEGO CITY	Allegan	Allegan St/M-89 & E Franklin St	1
1049	OTSEGO CITY	Allegan	Allegan St/M-89 & Brookside Dr	1
1050	OTSEGO CITY	Allegan	Farmer St & Washington St/Dix St	1
1051	OTSEGO TWP	ALLEGAN	M-89 (Allegan St) & 13th St	1
1052	OTSEGO TWP	ALLEGAN	M-89 (Lincoln Rd) & 106th Ave (W River St)	1
1053	OVID VLG	Clinton	Main St, 140' south of W Pearl St	1
1054	OVID VLG	Clinton	S Main St, 330' south of Willow St	1
1055	OWOSSO TWP	SHIAWASSEE	M-21(W Main St) & Cope Dr	1
1056	PARK TWP	OTTAWA	W Lakewood Blvd & 152nd Ave	1
1057	PENNFIELD CH TWP	CALHOUN	W Sunset Blvd & Capital Ave NE(M-66)	1
1058	PENNFIELD CH TWP	CALHOUN	Clayton Ave & Capital Ave NE(M-66)	1
1059	PENNFIELD CH TWP	CALHOUN	Milton Ave & Capital Ave NE(M-66)	1
1060	PENNFIELD CH TWP	CALHOUN	Alvena Ave & Capital Ave NE(M-66)	1
1061	PENNFIELD CH TWP	CALHOUN	8366 Capital Ave NE(M-66) 435' south of Morgan Rd	1
1062	PENNFIELD CH TWP	CALHOUN	20081 Capital Ave NE(M-66) 1,030' south of Rothwell Ln	1
1063	PENNFIELD CH TWP	CALHOUN	20185 Capital Ave NE(M-66) 580' south of Rothwell Ln	1
1064	PENNFIELD CH TWP	CALHOUN	20207 Capital Ave NE(M-66) 215' south of Rothwell Ln	1
1065	PENNFIELD CH TWP	CALHOUN	Capital Ave NE (M-66) & Primrose Tr	1
1066	PENNFIELD CH TWP	CALHOUN	20612 Capital Ave NE(M-66) 795' north of Pennfield Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1067	PENNFIELD CH TWP	CALHOUN	20652 Capital Ave NE(M-66) 1,095' north of Pennfield Rd	1
1068	PENNFIELD CH TWP	CALHOUN	20761 Capital Ave NE(M-66) 850' south of Swift Rd	1
1069	PENNFIELD CH TWP	CALHOUN	20849 Capital Ave NE(M-66) 260' south of Swift Rd	1
1070	PENNFIELD CH TWP	CALHOUN	20936 Capital Ave NE(M-66) 310' north of Swift Rd	1
1071	PENNFIELD CH TWP	CALHOUN	Capital Ave NE(M-66) 265' north of St Marys Lake Rd	1
1072	PENNFIELD CH TWP	CALHOUN	21201 9 Mile Rd(M-66) 960' north of St Marys Lake Rd	1
1073	PENNFIELD CH TWP	CALHOUN	21304 9 Mile Rd(M-66) 1,580' south of Huntington Rd	1
1074	PENNFIELD CH TWP	CALHOUN	21411 9 Mile Rd(M-66) 790' south of Huntington Rd	1
1075	PENNFIELD CH TWP	CALHOUN	21456 9 Mile Rd(M-66) 425' south of Huntington Rd	1
1076	PENNFIELD CH TWP	CALHOUN	Capital Ave NE(M-66) & Huntington Rd	1
1077	PENNFIELD CH TWP	CALHOUN	21621 Capital Ave NE(M-66) 375' north of Huntington Rd	1
1078	PENNFIELD CH TWP	CALHOUN	21655 Capital Ave NE(M-66) 740' north of Huntington Rd	1
1079	PENNFIELD CH TWP	CALHOUN	21761 Capital Ave NE(M-66) 1,475' north of Huntington Rd	1
1080	PENNFIELD CH TWP	CALHOUN	21863 Capital Ave NE(M-66) 1,570' south of T Dr N	1
1081	PENNFIELD CH TWP	CALHOUN	21886 Capital Ave NE(M-66) 905' south of T Dr N	1
1082	PENNFIELD CH TWP	CALHOUN	21990 Capital Ave NE(M-66) 580' south of T Dr N	1
1083	PENNFIELD CH TWP	CALHOUN	22135 Capital Ave NE(M-66) 300' south of T Dr N	1
1084	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & north bnd ramp US 31	1
1085	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & south bnd ramp US 31	1
1086	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & W Hesslund Rd	1
1087	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & W Conrad Rd	1
1088	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & W 6th St	1
1089	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & W 1st St	1
1090	PERE MARQUETTE CH TWP	MASON	375 S Pere Marquette Hwy(BUS 31) 545' south of Wallace Ln	1
1091	PERE MARQUETTE CH TWP	MASON	142 S Pere Marquette Hwy(BUS 31) 185' south of Wallace Ln	1
1092	PERE MARQUETTE CH TWP	MASON	S Pere Marquette Hwy(BUS 31) & Wallace Ln	1
1093	PERE MARQUETTE CH TWP	MASON	66 S Pere Marquette Hwy(BUS 31) 295' south of Ludington Ave	1
1094	PERE MARQUETTE CH TWP	MASON	5089 US-10 2,050' west of Meyers Rd	1
1095	PERE MARQUETTE CH TWP	MASON	5474 US-10 200' west of S Pere Marquette Hwy	1
1096	PERE MARQUETTE CH TWP	MASON	5673 US-10 390' west of Jebavy Dr	1
1097	PERE MARQUETTE CH TWP	MASON	5825 US-10 155' west of Nelson Rd	1
1098	PERE MARQUETTE CH TWP	MASON	5948 US-10 395' east of S Jackson Rd	1
1099	PERE MARQUETTE CH TWP	MASON	US-10 & S Jackaon Rd	1
1100	PERE MARQUETTE CH TWP	MASON	907 N Lakeshore Dr(M-116) 260' north of Bryant Rd	1
1101	PERE MARQUETTE CH TWP	MASON	N Lakeshore Dr(M-116) & Orchard Ave	1
1102	PERE MARQUETTE CH TWP	MASON	995 N Lakeshor Dr(M-116) 225' north of Orchard Ave	1
1103	PERE MARQUETTE CH TWP	MASON	N Lakeshore Dr(M-116) & Lake Ave	1
1104	PERE MARQUETTE CH TWP	MASON	N Lakeshore Dr(M-116) & Lincoln Ave (Epworth Assembly)	1
1105	PINCONNING TWP	BAY	N Huron Rd(M-13) & E Townline 16 Rd	2
1106	PINCONNING TWP	BAY	3195 N Huron Rd(M-13) 2,325' north of E Townline 16 Rd	1
1107	PINCONNING TWP	BAY	3366 N Huron Rd(M-13) 1,320' south of Neuman Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1108	PINCONNING TWP	BAY	N Huron Rd(M-13) & Neuman Rd	2
1109	PINCONNING TWP	BAY	3549 N Huron Rd(M-13) 600' north of Neuman Rd	1
1110	PINCONNING TWP	BAY	3642 N Huron Rd(M-13) 265' north of Belchak Ln	1
1111	PINCONNING TWP	BAY	N Huron Rd(M-13) & Joseph Dr	2
1112	PINCONNING TWP	BAY	E Pinconning Rd & south bound I-75 exit/on ramp	1
1113	PINCONNING TWP	BAY	4664 N Huron Rd(M-13) 1,885' north of E Cody Estey Rd	1
1114	PINCONNING TWP	BAY	N Huron Rd(M-13) & E Mt Forest Rd	1
1115	PINCONNING TWP	BAY	N Huron Rd(M-13) & E Whitefeather Rd	1
1116	PINCONNING TWP	BAY	N Huron Rd(M-13) & Rashotte Rd	1
1117	PINCONNING TWP	BAY	N Huron Rd(M-13) & Bay Arenac Rd	1
1118	PINE RIVER TWP	Gratiot	Jefferson & Luce Rd (US-27)	1
1119	PINE RIVER TWP	Gratiot	Monroe Rd, 1st light e/o Luce Rd	1
1120	PINE RIVER TWP	Gratiot	Jerome Rd s/o Hoffman Rd s/o RR Tracks	1
1121	PLAINFIELD TWP	IOSCO	Long Lake Rd & Flint Rd	1
1122	PLAINFIELD TWP	IOSCO	4874 Long Lake Rd 240' north west of Flint Rd	1
1123	PLAINFIELD TWP	IOSCO	Long Lake Rd 605' north west of Flint Rd	1
1124	PLAINFIELD TWP	IOSCO	4950 N Main St 265' south of Rose City Rd	1
1125	PLAINFIELD TWP	IOSCO	Long Lake Rd & Rose City Rd	1
1126	PLAINFIELD TWP	IOSCO	N Main St & Kokosing Rd	1
1127	PLEASANT PLAINS TWP	LAKE	7643 Michigan Ave(M-37) 2,445' south of W Wiley Ln	1
1128	PLEASANT PLAINS TWP	LAKE	7457 Michigan Ave(M-37) 1,385' south of W Wiley Ln	1
1129	PLEASANT PLAINS TWP	LAKE	7152 Michigan Ave(M-37) 105' north of W Wiley Ln	1
1130	PLEASANT PLAINS TWP	LAKE	6850 Michigan Ave(M-37) 85' south of 3rd St	1
1131	PORTAGE CITY	KALAMAZOO	Portage Rd & I-94 east bound exit/ent. Ramp	2
1132	READING CITY	Hillsdale	E Michigan St & Martin St @ R.R. tracks	1
1133	READING CITY	Hillsdale	E Michigan St 230' east of Chestnut St	1
1134	READING CITY	Hillsdale	W Elm St 245' west of S Main St	1
1135	READING CITY	Hillsdale	W Elm St & Hill St	1
1136	READING CITY	Hillsdale	W Elm St & Ridge St	1
1137	READING CITY	Hillsdale	W Elm St 415' west of 1st St	1
1138	REYNOLDS TWP	MONTCALM	Federal Rd & M-46	1
1139	RICHFIELD TWP	Roscommon	Old M-76 and Madison	1
1140	RICHFIELD TWP	Roscommon	Old M-76 and N St Helen Rd	1
1141	RICHFIELD TWP	Roscommon	N St Helen Rd, just north of Davies	1
1142	RICHFIELD TWP	Roscommon	N St Helen Rd and Davies	1
1143	RICHFIELD TWP	Roscommon	N St Helen Rd, 125' N of Lawndale	1
1144	RICHFIELD TWP	Roscommon	N St Helen Rd and Grover	1
1145	RICHFIELD TWP	Roscommon	N St Helen Rd, south of Grover	1
1146	RICHFIELD TWP	Roscommon	N St Helen Rd and Pleasant	1
1147	RICHFIELD TWP	Roscommon	N St Helen Rd and Avondale	1
1148	RICHFIELD TWP	Roscommon	N St Helen Rd and Sherwood Ct (south)	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1149	RICHFIELD TWP	Roscommon	N St Helen Rd, 260' N of Lee Ave	1
1150	RICHFIELD TWP	Roscommon	N St Helen Rd and Lee Rd	1
1151	RICHFIELD TWP	Roscommon	N St Helen Rd and Carter	1
1152	RICHFIELD TWP	Roscommon	N St Helen Rd and Poole	1
1153	RICHFIELD TWP	Roscommon	N St Helen Rd and Sutherby	1
1154	RICHFIELD TWP	Roscommon	N St Helen Rd and Pinewood	1
1155	RICHFIELD TWP	Roscommon	N St Helen Rd, between Kenewee and Hiawatha	1
1156	RICHFIELD TWP	Roscommon	N St Helen Rd and Artesia Beach	1
1157	RICHFIELD TWP	Roscommon	N St Helen Rd and Carter Lake Rd	1
1158	RICHFIELD TWP	Roscommon	Airport and Lakewood Beach	1
1159	RICHFIELD TWP	Roscommon	Airport and Muskegon	1
1160	RICHFIELD TWP	Roscommon	Airport and Otsego	1
1161	RICHFIELD TWP	Roscommon	Airport and Houghton	1
1162	RICHFIELD TWP	Roscommon	Airport and Mullet	1
1163	RICHFIELD TWP	Roscommon	Airport, 290' E of Mullet Ave	1
1164	RICHFIELD TWP	Roscommon	Madison and N St Helen	1
1165	RICHFIELD TWP	Roscommon	N St Helen, 120' N of Ford Dr	1
1166	RICHFIELD TWP	Roscommon	Tamarack and Lakeview	1
1167	RICHFIELD TWP	Roscommon	Artesia Beach and Ash	1
1168	RICHFIELD TWP	Roscommon	S St Helen Rd and West Branch Rd	1
1169	RICHFIELD TWP	Roscommon	E West Branch Rd and Maple Valley Rd	1
1170	RICHFIELD TWP	Roscommon	N St Helen Rd, north of Davies	1
1171	RICHFIELD TWP	Roscommon	N St Helen Rd and Davies	1
1172	RICHFIELD TWP	Roscommon	N St Helen Rd and Kenwood Ct (south)	1
1173	RICHFIELD TWP	Roscommon	N St Helen Rd, 400' south of Airport Rd	1
1174	RICHFIELD TWP	Roscommon	N St Helen Rd 140' south of Lee Rd	1
1175	RICHFIELD TWP	Roscommon	N St Helen Rd and Carter	1
1176	RICHFIELD TWP	Roscommon	N St Helen Rd and Glenwood Rd	1
1177	RICHFIELD TWP	Roscommon	Airport and Lakewoods Beach Dr	1
1178	RICHFIELD TWP	Roscommon	Airport and Muskegon	1
1179	RICHFIELD TWP	Roscommon	Airport and Otsego	1
1180	RICHFIELD TWP	Roscommon	Airport and Houghton	1
1181	RICHFIELD TWP	Roscommon	Airport and Mullet	1
1182	RICHFIELD TWP	Roscommon	Airport, between Mullet and Lake	1
1183	RICHFIELD TWP	Roscommon	Pleasant and Lake	1
1184	RICHFIELD TWP	Roscommon	Madison and N St Helen	1
1185	RICHFIELD TWP	Roscommon	N St Helen, between Madison and Ford	1
1186	RICHFIELD TWP	Roscommon	Tamarack and Lakeview	1
1187	RICHFIELD TWP	Roscommon	Artesia Beach Rd and Ash Ave	1
1188	RICHFIELD TWP	KALAMAZOO	M-89 & Ryan Dr	1
1189	ROCKFORD CITY	Kent	261 S Fremont St NE 835' south of Ogden St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1190	ROCKFORD CITY	Kent	245 S Fremont St NE 415' south of Ogden St	1
1191	ROCKFORD CITY	Kent	Courtland Dr NE & 11 Mile Rd	1
1192	ROCKFORD CITY	Kent	9105 Courtland Dr NE 755' south of the north Int w/ 11mi Rd	1
1193	ROCKFORD CITY	Kent	9124 Courtland Dr Ne 400' south of the north Int w/11mi Rd	1
1194	ROCKFORD CITY	Kent	Courtland Dr NE & 11 Mile Rd north intersection	1
1195	ROCKFORD CITY	Kent	Summit Ave NE & Highland Dr	1
1196	ROCKFORD CITY	Kent	Summit Ave NE & Kinross Dr NE & Riverchase Dr	1
1197	ROSCOMMON TWP	ROSCOMMON	Old US Hwy 27 & Emery Rd	1
1198	ROSCOMMON TWP	ROSCOMMON	Loxley Rd & Perry Rd	1
1199	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 335' south of Stone School Rd	1
1200	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 360' north of Stone School Rd	1
1201	ROSCOMMON TWP	ROSCOMMON	Loxley Rd 675' north of Stone School Rd	1
1202	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr between Houghton Lk Dr & Clarence St	1
1203	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Clarence St	1
1204	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Brown St	1
1205	ROSCOMMON TWP	ROSCOMMON	Grayling & Oliver Dr	1
1206	ROSCOMMON TWP	ROSCOMMON	Loxley St & Byron St	1
1207	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Dodge Ave	1
1208	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Barkman Ave	1
1209	ROSCOMMON TWP	ROSCOMMON	Heightsview Dr & Parkway Ave	1
1210	ROSEBUSH VLG	Isabella	4737 N Mission Rd	1
1211	ROSEBUSH VLG	Isabella	4634 N Mission Rd	1
1212	ROSEBUSH VLG	Isabella	4500 N Mission Rd 2,030' north of E Monroe St	1
1213	ROSEBUSH VLG	Isabella	4449 N Mission Rd 1,700' north of E Monroe St	1
1214	ROSEBUSH VLG	Isabella	4418 N Mission Rd 1,490' north of E Monroe St	1
1215	ROSEBUSH VLG	Isabella	4325 N Mission Rd 910' north of E Monroe St	1
1216	ROSEBUSH VLG	Isabella	3891 N Mission Rd 250' south of South St	1
1217	SAGINAW CH TWP	Saginaw	M-46(Gratiot Ave) 335' west of Edgewood Rd	1
1218	SAGINAW CH TWP	Saginaw	M-46(Gratiot Ave) 260' east of Golfview Dr	1
1219	SAGINAW CH TWP	Saginaw	M-46(Gratiot Ave) & Colony Dr	1
1220	SAGINAW CH TWP	Saginaw	5365 Gratiot Ave(M-46) 575' west of Colony Dr	1
1221	SAGINAW CH TWP	Saginaw	6099 Gratiot Ave(M-46) 550' west of St Andrews Rd	1
1222	SAGINAW CH TWP	Saginaw	Shattuck Rd & Hospital Rd	1
1223	SAGINAW CH TWP	Saginaw	Shattuck Rd & Hemmeter Rd	1
1224	SAGINAW CH TWP	Saginaw	Northwest Dr & Edward Pl	1
1225	SAGINAW CH TWP	Saginaw	Northwood St & Meyer Pl	1
1226	SAGINAW CH TWP	Saginaw	Locust Rd & Holly Ln	1
1227	SANFORD VLG	MIDLAND	530 W Irish St 280' west of Smith St	1
1228	SANFORD VLG	MIDLAND	W Irish St & Oak Ct	1
1229	SANFORD VLG	MIDLAND	591 W Irish St 350' east of N W River Rd	1
1230	SCOTTVILLE CITY	Mason	Reinberg Ave, 390' north of Broadway St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1231	SCOTTVILLE CITY	Mason	Broadway Ave 370' east of N Columbia Ave	1
1232	SCOTTVILLE CITY	Mason	Broadway Ave, 190' west of Main St	1
1233	SCOTTVILLE CITY	Mason	Broadway Ave, 500' west of Main St	1
1234	SCOTTVILLE CITY	Mason	State St/US-10, 330' east of Reinberg	1
1235	SCOTTVILLE CITY	Mason	Parking Lot, S of State St & E of Main	1
1236	SELMA TWP	Wexford	W M-115 & E 32 Rd	1
1237	SELMA TWP	Wexford	W M-115 & E 34 Rd/Boon Rd	1
1238	SEVILLE TWP	GRATIOT	Lincoln Rd & Lumberjack Rd	1
1239	SHEPHERD VLG	Isabella	416 S Chippewa St 455' south of North Dr	1
1240	SHERIDAN CH TWP	NEWAYGO	W 48th St (M-82) & S Green Ave	1
1241	SIMS TWP	Arenac	Huron Rd/US-23 & S Foster Rd	1
1242	SPAULDING TWP	SAGINAW	Curtis Rd & Sheridan Rd	1
1243	SPRING LAKE TWP	OTTAWA	Cleveland St(M-104) & 144th Ave	1
1244	SPRING LAKE TWP	OTTAWA	14447 Cleveland St(M-104) 290' west of 144th Ave	1
1245	SPRING LAKE TWP	OTTAWA	14510 Cleveland St(M-104) 620' west of 144th Ave	1
1246	SPRING LAKE TWP	OTTAWA	14053 M-104(Cleveland St) 875' west of 144th Ave	1
1247	SPRING LAKE TWP	OTTAWA	14520 Cleveland St(M-104) 1,155' west of 144th Ave	1
1248	SPRING LAKE TWP	OTTAWA	14599 M-104(Cleveland St) 1,250' east of 148th Ave	1
1249	SPRING LAKE TWP	OTTAWA	14718 Cleveland St(M-104) 895' east of 148th Ave	1
1250	SPRING LAKE TWP	OTTAWA	14713 Cleveland St(M-104) 575' east of 148th Ave	1
1251	SPRING LAKE TWP	OTTAWA	14747 Cleveland St(M-104) 345' east of 148th Ave	1
1252	SPRING LAKE TWP	OTTAWA	14840 Cleveland St(M-104) 280' west of 148th Ave	1
1253	SPRING LAKE TWP	OTTAWA	14903 Cleveland St(M-104) 380' east of 150th Ave	1
1254	SPRING LAKE TWP	OTTAWA	Cleveland St(M-104) & 150th Ave	1
1255	SPRING LAKE TWP	OTTAWA	14998 Cleveland St 315' west of 150th Ave	1
1256	SPRING LAKE TWP	OTTAWA	Cleveland St(M-104) & Krueger St east intersection	1
1257	SPRING LAKE TWP	OTTAWA	15154 M-104(Cleveland St) 365' north west of Krueger St*	1
1258	SPRING LAKE TWP	OTTAWA	15210 Cleveland St(M-104) 660' north west of Krueger St*	1
1259	SPRING LAKE TWP	OTTAWA	15248 Cleveland St(M-104) 355' south east of Krueger St*	1
1260	SPRING LAKE TWP	OTTAWA	Cleveland St(M-104) & Krueger St west intersection	1
1261	SPRING LAKE TWP	OTTAWA	15348 Cleveland St(M-104) 345' north west of Krueger St*	1
1262	SPRINGPORT VLG	JACKSON	279 M-99 935' south of Willow st	1
1263	SPRINGPORT VLG	JACKSON	257 Maple St(M-99) 600' south of Willow St	1
1264	SPRINGPORT VLG	JACKSON	228 Maple St(M-99) 320' south of Willow St	1
1265	SPRINGPORT VLG	JACKSON	150 E Main St (not on Main St,in Alley behind 150 E Main)	1
1266	SPRINGPORT VLG	JACKSON	448 E Main St(M-99) 380' west of Green St	1
1267	ST JOHNS CITY	Clinton	Old U.S.27 & E Sturgis St	2
1268	STANTON CITY	Montcalm	E Main/E Stanton/M-66 & S Sheridan Rd/M-66	1
1269	SWAN CREEK TWP	Saginaw	Graham/M-52 and Wahl Rd	1
1270	SWAN CREEK TWP	Saginaw	Graham/M-52 and Teft Rd	1
1271	SWAN CREEK TWP	Saginaw	Graham/M-52 and Andrews Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1272	TAWAS CITY	TAWAS	W Lake St(US-23) & N Bay Dr	1
1273	TAWAS CITY	TAWAS	Hemlock Rd(M-55) & Court St at Rail Road tracks	1
1274	TAWAS CITY	TAWAS	128 Hemlock Rd(M-55) 715' north west of Lake St(US-23)	1
1275	TAWAS CITY	TAWAS	200 M-55(Hemlock Rd) 350' south east of German St	1
1276	TAWAS CITY	TAWAS	M-55(Hemlock Rd) & German St	1
1277	TAWAS CITY	TAWAS	442 Hemlock Rd(M-55) 525' north west of German st	1
1278	TAWAS CITY	TAWAS	513 Hemlock Rd(M-55) 650' south west of N 1st Ave	1
1279	TAWAS CITY	TAWAS	661 Hemlock Rd(M-55) 150' south west of N 1st Ave	1
1280	TAWAS CITY	TAWAS	Hemlock Rd(M-55) & N 1st Ave	1
1281	TAWAS CITY	TAWAS	Hemlock Rd(M-55) & Nunn Rd	1
1282	TAWAS CITY	TAWAS	Hemlock Rd(M-55) & Victoria Ln	1
1283	TAWAS TWP	Iosco	M-55 and McArdle Rd	1
1284	TAWAS TWP	Iosco	M-55 and Lorenz Rd	1
1285	TAWAS TWP	Iosco	M-55 and Rempert Rd	1
1286	TAWAS TWP	Iosco	M-55 and Kobs Rd	1
1287	TAWAS TWP	Iosco	M-55 and Plank	1
1288	TAYMOUTH TWP	SAGINAW	8585 Saginaw St 615' south of Busch Rd	1
1289	TECUMSEH CITY	Lenawee	Russell Rd & Evans St	1
1290	TECUMSEH CITY	Lenawee	Chicago Blv/M-50 & Union St	2
1291	TECUMSEH CITY	Lenawee	Chicago Blv/M-50 & Maumee St	2
1292	TECUMSEH CITY	Lenawee	Evans St & Red Mill Dr/Burt St	1
1293	TEKONSHA VLG	CALHOUN	M-60 & Old 27 S	2
1294	TEKONSHA VLG	CALHOUN	15878 M-60 235' east of Old 27 S	1
1295	THOMAS TWP	SAGINAW	N Thomas Rd & Beamish Ln	1
1296	THOMAS TWP	SAGINAW	N Thomas Rd & Dice Rd	1
1297	UNION CH TWP	ISABELLA	Broadway & Isabella	1
1298	UNION CH TWP	ISABELLA	Lincoln & Remus (M-20)	1
1299	VIENNA TWP	Genesee	12595 Tuscola Rd 280' south of Farrand Rd	1
1300	VIENNA TWP	Genesee	Vienna Rd/M-57 & Water St	1
1301	VIENNA TWP	Genesee	11396 Saginaw Rd/M-54 960' north of Tobias Rd	1
1302	VIENNA TWP	Genesee	11399 Saginaw Rd/M-54 600' north of Tobias Rd	1
1303	VIENNA TWP	Genesee	Saginaw Rd/M-54 & Tobias Rd	1
1304	VIENNA TWP	Genesee	11299 Saginaw Rd/M-54 265' south of Tobias Rd	1
1305	WALKER CITY	KENT	Wilson Ave SW(M-11) & Burton St SW	1
1306	WALKER CITY	KENT	1890 Wilson Ave SW(M-11) 465' north of Burton St SW	1
1307	WALKER CITY	KENT	1901 Wilson Ave SW(M-11) 830' north of Burton St SW	1
1308	WALKER CITY	KENT	1846 Wilson Ave SW(M-11) 370' south of Walleye Dr SW	1
1309	WALKER CITY	KENT	1700 Wilson Ave SW(M-11) 85' north of Walleye Dr SW	1
1310	WALKER CITY	KENT	1689 Wilson Ave SW(M-11) 515' south of Riverbend Dr SW	1
1311	WALKER CITY	KENT	1530 Wilson Ave SW(M-11) 505' north of Riverbend Dr SW	1
1312	WALKER CITY	KENT	1470 Wilson Ave SW(M-11) 430' south of Ferndale Ave SW	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1313	WALKER CITY	KENT	1446 Wilson Ave SW(M-11) 215' south of Ferndale Ave SW	1
1314	WALKER CITY	KENT	Wilson Ave SW(M-11) & Ferndale Ave SW	1
1315	WALKER CITY	KENT	1313 Wilson Ave SW(M-11) 865' south of Hall St SW	1
1316	WALKER CITY	KENT	Wilson Ave SW(M-11) & Hall St SW	1
1317	WALKER CITY	KENT	890 M-11(Wilson Ave SW) 1,280' south of Drakewood Ln SW	1
1318	WALKER CITY	KENT	798 M-11(Wilson Ave SW) 890' south of Drakewood Ln SW	1
1319	WALKER CITY	KENT	656 Wilson Ave SW(M-11) 85' north of Drakewood Ln SW	1
1320	WALKER CITY	KENT	605 M-11(Wilson Ave SW) 390' north of Drakewood Ln SW	1
1321	WALKER CITY	KENT	559 Wilson Ave SW(M-11) 345' south of Fennessy St SW	1
1322	WALKER CITY	KENT	Wilson Ave SW(M-11) & Fennessy St SW	1
1323	WALKER CITY	KENT	461 Wilson Ave SW(M-11) 360' north of Fennessy St SW	1
1324	WALKER CITY	KENT	3520 Lake Michigan Dr(M-45) 440' east of Sunset Hills Ave SW	1
1325	WALKER CITY	KENT	Lake Michigan Dr(M-45) & Sunset Hills Ave SW	1
1326	WALKER CITY	KENT	Lake Michigan Dr(M-45) & Lincoln Lawns Dr NW	1
1327	WALKER CITY	KENT	3695 Lake Michigan Dr(M-45) 405' west of Lincoln Lawns Dr NW	1
1328	WALKER CITY	KENT	Lake Michigan Dr(M-45) & Manzana Dr NW	1
1329	WALKER CITY	KENT	250 Wilson Ave SW(M-11) 1,145' north of O'Brien Rd SW	1
1330	WALKER CITY	KENT	130 Wilson Ave SW(M-11) 1,845' north of O'Brien Rd SW	1
1331	WALKER CITY	KENT	64 Wilson Ave SW(M-11) 2,480' north of O'Brien Rd SW	1
1332	WALKER CITY	KENT	Lake Michigan Dr(M-45) & Lasalle Ave NW	1
1333	WALKER CITY	KENT	456 Wilson Ave NW(M-11) 285' north of Warrington St NW	1
1334	WALKER CITY	KENT	Wilson Ave NW(M-11) & Chesterfield Blvd NW	1
1335	WALKER CITY	KENT	635 Wilson Ave NW(M-11) 325' south of W Grand Blvd NW	1
1336	WALKER CITY	KENT	990 Wilson Ave NW(M-11) 295' north of Cedar Run St	1
1337	WALKER CITY	KENT	1120 Wilson Ave NW(M-11) 165' north of Appleblossom Dr NW	1
1338	WALKER CITY	KENT	1159 Wilson Ave NW(M-11) 358' south of Leonard St NW	1
1339	WALKER CITY	KENT	Wilson Ave NW(M-11) & Leonard St NW	1
1340	WALKER CITY	KENT	Leonard St NW & Remembrance Rd NW	1
1341	WALKER CITY	KENT	4020 Remembrance Rd NW 80' north west of Kinney Rd NW	1
1342	WALKER CITY	KENT	1660 Wilson Ave NW(M-11) 2,265' south of Richmond St NW	1
1343	WALKER CITY	KENT	1729 Wilson Ave NW(M-11) 1,840' south of Richmond St NW	1
1344	WALKER CITY	KENT	1780 Wilson Ave NW(M-11) 1,415' south of Richmond St NW	1
1345	WALKER CITY	KENT	1850 Wilson Ave NW(M-11) 1,080' south of Richmond St NW	1
1346	WALKER CITY	KENT	1889 Wilson Ave NW(M-11) 780' south of Richmond St NW	1
1347	WALKER CITY	KENT	1933 Wilson Ave NW(M-11) 375' south of Richmond St NW	1
1348	WALKER CITY	KENT	2054 Wilson Ave NW(M-11) 320' north of Richmond St NW	1
1349	WALKER CITY	KENT	2085 Wilson Ave NW(M-11) 625' north of Richmond St NW	1
1350	WALKER CITY	KENT	2172 Wilson Ave NW(M-11) 1,000' north of Richmond St NW	1
1351	WALKER CITY	KENT	2190 Wilson Ave NW(M-11) 1,370' north of Richmond St NW	1
1352	WALKER CITY	KENT	2270 Wilson Ave NW(M-11) 945' south of Remembrance Rd NW	1
1353	WALKER CITY	KENT	2326 Wilson Ave NW(M-11) 580' south of Remembrance Rd NW	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1354	WALKER CITY	KENT	Wilson Ave NW(M-11) 295' south of Remembrance Rd NW	1
1355	WALKER CITY	KENT	4444 Remembrance Rd NW(M-11) 555' north west of Wilson Ave NW	1
1356	WALKER CITY	KENT	4500 Remembrance Rd NW(M-11) 1,105' N.W. of Wilson Ave NW	1
1357	WALKER CITY	KENT	4572 Remembrance Rd NW(M-11) 1,995' S.E. of 3 Mile Rd NW	1
1358	WALKER CITY	KENT	4611 Remembrance Rd NW(M-11) 1,395' S.E. of 3 Mile Rd NW	1
1359	WALKER CITY	KENT	4676 Remembrance Rd NW(M-11) 860' S.E. of 3 Mile Rd NW	1
1360	WALKER CITY	KENT	Walker Ave NW & I-96 E.B. on ramp 540' north of Holton Ct NW	1
1361	WALKER CITY	KENT	890 3 Mile Rd NW 270' east of Cornelia Ave NW(see note)	1
1362	WALKER CITY	KENT	866 3 Mile Rd NW 330' east of Cornelia Ave NW(see note)	1
1363	WALKER CITY	KENT	3 Mile Rd NW & Alpine Ave NW	1
1364	WALKER CITY	KENT	Alpine Ave NW(M-37) & Coventry Dr NW	1
1365	WALKER CITY	KENT	Alpine Ave NW(M-37) & Kingsbury St NW	1
1366	WARREN TWP	Midland	W Saginaw Rd & Lewis Rd	1
1367	WAYLAND TWP	ALLEGAN	10th St & Far Hill Trail 480' north of 129th Ave	1
1368	WAYLAND TWP	ALLEGAN	2891 10th St 335' south of 129th Ave	1
1369	WAYLAND TWP	ALLEGAN	1061 129th Ave(M-179) 1,350' west of 10th St	1
1370	WAYLAND TWP	ALLEGAN	1074 129th Ave(M-179) 1,785' west of 10th St	1
1371	WAYLAND TWP	ALLEGAN	1089 129th Ave(M-179) 2,275' west of 10th St	1
1372	WAYLAND TWP	ALLEGAN	1103 129th Ave(M-179) 2,800' west of 10th St	1
1373	WAYLAND TWP	ALLEGAN	833 125th Ave 395' south & west of E Selkirk Lake Dr	1
1374	WAYLAND TWP	ALLEGAN	952 124th Ave 225' west of Pearl St	1
1375	WAYLAND TWP	ALLEGAN	124th Ave & Pearl St	1
1376	WAYLAND TWP	ALLEGAN	929 124th Ave 380' east of Pearl St	1
1377	WEBBER TWP	LAKE	US-10 & Jenks	1
1378	WEBBER TWP	LAKE	M-37 & 12th	1
1379	WEBBER TWP	LAKE	M-37 & James	1
1380	WEBBER TWP	LAKE	M-37 & 16th	1
1381	WEBBER TWP	LAKE	2225 M-37	1
1382	WEBBER TWP	LAKE	US-10 & Peacock Trail	1
1383	WEBBER TWP	LAKE	US-10 & Astor	1
1384	WEBBER TWP	LAKE	US-10, 100' W/O Princeton	1
1385	WEBBER TWP	LAKE	US-10 & M-37	1
1386	WEBBER TWP	LAKE	M-37/US-10, 100' S/O Ann	1
1387	WEBBER TWP	LAKE	M-37/US-10 & Euclid	1
1388	WEBBER TWP	LAKE	M-37/US-10 & Ferndale	1
1389	WEBBER TWP	LAKE	M-37/US-10 & Dewey	1
1390	WEBBER TWP	LAKE	M-37/US-10 & Lakewood Grove	1
1391	WEBBER TWP	LAKE	M-37/US-10 & Lawrence	1
1392	WEBBER TWP	LAKE	M-37/US-10, 350' N/O 32nd	1
1393	WEBBER TWP	LAKE	M-37/US-10 & 32nd	1
1394	WEBBER TWP	LAKE	M-37/US-10 & Ontario	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1395	WEBBER TWP	LAKE	M-37/US-10 & Springtime	1
1396	WEBBER TWP	LAKE	M-37/US-10 & Ashton	1
1397	WEBBER TWP	LAKE	M-37/US-10 & 36th	1
1398	WEBBER TWP	LAKE	M-37/US-10, 500' S/O 36th	1
1399	WEBBER TWP	LAKE	M-37/US-10, 1100' S/O 36th	1
1400	WEBBER TWP	LAKE	M-37/US-10, 900' N/O Wilmas Way	1
1401	WEBBER TWP	LAKE	M-37/US-10, 525' N/O Wilmas Way	1
1402	WEBBER TWP	LAKE	M-37/US-10 & Wonderland	1
1403	WEBBER TWP	LAKE	M-37/US-10, 1100' N/O 44th	1
1404	WEBBER TWP	LAKE	M-37/US-10 & 44th	1
1405	WHEELER TWP	Gratiot	M-46 & Ransom Rd	1
1406	WHEELER TWP	Gratiot	M-46 & Barry Rd	1
1407	WHEELER TWP	Gratiot	M-46, 420' west of Wheeler Rd	1
1408	WHEELER TWP	Gratiot	M-46, 460' east of Water St	1
1409	WHITEHALL TWP	MUSKEGON	Whitehall & White Lake	1
1410	WHITNEY TWP	ARENAC	US-23 & Bessinger Rd	1
1411	WHITNEY TWP	ARENAC	141 US-23, intersection of U.S.23 and Ely Rd	1
1412	WHITNEY TWP	ARENAC	175 US-23 90' north of Andrews St	1
1413	WHITNEY TWP	ARENAC	194 US-23 560' south of Lacca Rd	1
1414	WHITNEY TWP	ARENAC	214 US-23 225' south of Lacca Rd	1
1415	WHITNEY TWP	ARENAC	US-23 & Antonia Rd	1
1416	WHITNEY TWP	ARENAC	340 US-23 830' north of Antonia Rd	1
1417	WHITNEY TWP	ARENAC	412 US-23 at US-23 & Oak St	1
1418	WHITNEY TWP	ARENAC	US-23 & Hammell Beach Rd	1
1419	WHITNEY TWP	ARENAC	624 US-23 375' north of Vera Ln	1
1420	WHITNEY TWP	ARENAC	861 US-23(N Huron Rd) & Lake View Ln	1
1421	WHITNEY TWP	ARENAC	US-23(N Huron Rd) & Twining Rd	1
1422	WHITNEY TWP	ARENAC	1249 US-23(N Huron Rd) 2,500' south of Prescott Dr	1
1423	WHITNEY TWP	ARENAC	US-23 & Prescott Dr	1
1424	WHITNEY TWP	ARENAC	1907 N Huron Rd(US-23) 865' south of Turner Rd	1
1425	WHITNEY TWP	ARENAC	1970 N Huron Rd(US-23) 410' south of Turner Rd	1
1426	WHITNEY TWP	ARENAC	N Huron Rd(US-23) & Turner Rd	1
1427	WHITNEY TWP	ARENAC	2035 N Huron Rd(US-23) 415' north of Turner Rd	1
1428	WHITNEY TWP	ARENAC	US-23(N Huron Rd) & Park Dr	1
1429	WHITNEY TWP	ARENAC	US-23(N Huron Rd) & North Dr	1
1430	WILLIAMS CH TWP	BAY	Garfield & Midland	1
1431	WYOMING CITY	KENT	5131 Canal Ave SW 485' north of 52nd St SW	1
1432	WYOMING CITY	KENT	Canal Ave SW & 52nd St SW	1
1433	WYOMING CITY	KENT	5384 Ivanrest Ave SW 410' south of Maple Ridge Ct	1
1434	WYOMING CITY	KENT	2958 52nd St SW 700' west of Crooked Pine Dr	1
1435	WYOMING CITY	KENT	2514 38th St SW 615' east of Wedgewood Dr SW	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1436	WYOMING CITY	KENT	2452 38th St SW 230' west of Tioga Dr SW	1
1437	WYOMING CITY	KENT	Walton Ave & Crown St SW	1
1438	WYOMING CITY	KENT	Buchanan Ave & Mapelawn St SW	1
1439	WYOMING CITY	KENT	Lacrosse St SW & Wyoming Ave	1
1440	WYOMING CITY	KENT	38th St & Hubal Ave Sw	1
1441	WYOMING CITY	KENT	28th St SE(M-11) & Union Ave SE	1
1442	WYOMING CITY	KENT	3175 Union Ave Se 250' north of 32nd St Se	1
1443	WYOMING CITY	KENT	Rogers Ln Ave SW & Alson St SW	1
1444	WYOMING CITY	KENT	Newport St SW & Wyoming Ave SW	1
1445	WYOMING CITY	KENT	Wrenwood St SW & Byron Center Ave SW	1
1446	WYOMING CITY	KENT	Byron Center Ave SW & Thornwood St SW	1
1447	WYOMING CITY	KENT	Thornwood St SW & Central Ave SW	1
1448	WYOMING CITY	KENT	Elbon St SW & Camden Ave SW	1
1449	WYOMING CITY	KENT	Elbon St SW & Avon Ave SW	1
1450	WYOMING CITY	KENT	Avon Ave SW & Lee St SW	1
1451	WYOMING CITY	KENT	Ithaca St SW & Wyoming Ave SW	1
1452	WYOMING CITY	KENT	1648 Porter St SW 505' west of Burlingame Ave SW	1
1453	WYOMING CITY	KENT	Porter St SW & Dalton Ave SW	1
1454	WYOMING CITY	KENT	Porter St SW & Camden Ave SW	1
1455	WYOMING CITY	KENT	Porter St SW & Meyer Ave SW	1
1456	WYOMING CITY	KENT	Porter St SW & Berwyn Ave SW	1
1457	WYOMING CITY	KENT	Porter St SW & Avon Ave SW	1
1458	WYOMING CITY	KENT	2020 Porter St SW 265' east of Sharon Ave SW	1
1459	WYOMING CITY	KENT	Porter St SW & Sharon Ave SW	1
1460	WYOMING CITY	KENT	Porter St SW & Parkdale Ave SW	1
1461	WYOMING CITY	KENT	Porter St SW & Roys Ave SW (north of Porter)	1
1462	WYOMING CITY	KENT	2549 Glenbrook Ave SW 80' north of Lee St SW	1
1463	WYOMING CITY	KENT	2275 Roys Ave SW 885' north of Porter St SW	1
1464	WYOMING CITY	KENT	2400 Chicago Dr SW(196 BL) 525' south west of Greenfield Ave SW	1
1465	WYOMING CITY	KENT	Chicago Dr SW(196 BL) & Collingwood Ave SW	1
1466	WYOMING CITY	KENT	2043 Chicago Dr SW(196 BL) 530'north east of Jiffy Ave SW	1
1467	WYOMING CITY	KENT	2000 Chicago Dr SW(196 BL) 1,085' north east of Jiffy Ave	1
1468	WYOMING CITY	KENT	1845 Chicago Dr SW(196 BL) 1,775' north east of Jiffy Ave	1
1469	WYOMING CITY	KENT	1708 Chicago Dr SW(196 BL) 420' west of Blandford Ave SW	1
1470	GRAND BLANC CH TWP	GENESEE	Sun Valley Dr & Belsay Rd	1
1471	GRAND BLANC CH TWP	GENESEE	Sun Valley Dr & Corvette Pass	1
1472	GRAND BLANC CH TWP	GENESEE	Hill Rd & Corvette Pass	1
1473	GRAND BLANC CH TWP	GENESEE	Hill Rd & Chalfonte Pass	1
1474	GRAND BLANC CH TWP	GENESEE	Sugarloaf Dr & Rushmore Pass	1
1475	BATTLE CREEK CITY	CALHOUN	W Dickman Rd(M-96) & Armstrong Rd	1
1476	BATTLE CREEK CITY	CALHOUN	W Dickman Rd(M-96) & Fritz Keiper Blvd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1477	BATTLE CREEK CITY	CALHOUN	W Dickman Rd(M-96) & Leonard Wood Rd	1
1478	BATTLE CREEK CITY	CALHOUN	W Dickman Rd(M-96) & Brydges Dr (see notes)	1
1479	BATTLE CREEK CITY	CALHOUN	W Dickman Rd(M-96) & N Brady Rd (see notes)	1
1480	BRANCH TWP	MASON	US-10 & S Landon Rd	1
1481	BRANCH TWP	MASON	US-10 & N Taylor Rd	1
1482	BRANCH TWP	MASON	US-10 & S Maple Rd	1
1483	BRANCH TWP	MASON	US-10 & S Campbell Rd	1
1484	BRANCH TWP	MASON	6607 US-10 195' east of S Walhalla Rd	1
1485	BRANCH TWP	MASON	US-10 & S Walhalla Rd	1
1486	BRANCH TWP	MASON	6559 E US-10 300' west of Walhalla Rd	1
1487	BRANCH TWP	MASON	US-10 & N Schoenherr Rd	1
1488	COMINS TWP	OSCODA	M-72(E Miller Rd) & Shear Lake Rd	1
1489	COMINS TWP	OSCODA	M-72(E Miller Rd) & Rogers Rd	1
1490	COMINS TWP	OSCODA	2799 E Miller Rd(M-72) 3,600' east of Weaver Rd	1
1491	COMINS TWP	OSCODA	M-72(E Miller Rd) & Weaver Rd	1
1492	COMINS TWP	OSCODA	2061 Church St 500' east of M-33(N Abbe Rd)	1
1493	COMINS TWP	OSCODA	2106 Kauffman Rd 800' east of M-33(N Abbe Rd)	1
1494	COMINS TWP	OSCODA	Kauffman Rd & Troyer Rd	1
1495	COMINS TWP	OSCODA	M-33(N Abbe Rd) & Helmer Lake Rd	1
1496	COMINS TWP	OSCODA	M-33/M-72(E Miller Rd) & Knepp Rd	1
1497	COMINS TWP	OSCODA	M-33/M-72(E Miller Rd) & N Perry Creek Rd	1
1498	COMINS TWP	OSCODA	M-33/M-72(E Miller Rd) & Caldwell Rd	1
1499	COMINS TWP	OSCODA	M-33/M-72 & E Miller Rd	1
1500	COMINS TWP	OSCODA	M-33/M-72 (N Mt Tom Rd) & Kittle Rd	1
1501	COMINS TWP	OSCODA	232 N Mt Tom Rd(M-33/M-72) 2,660' south of Kittle Rd	1
1502	COMINS TWP	OSCODA	42 N Mt Tom Rd(M-33/M-72) 435' north of E Cherry Creek Rd	1
1503	FORK TWP	MECOSTA	30th Ave(M-66) & 18 Mile Rd	1
1504	FORK TWP	MECOSTA	30th Ave(M-66) & 19 Mile Rd	1
1505	FORK TWP	MECOSTA	19171 30th Ave(M-66) 645' north of 19 Mile Rd	1
1506	FORK TWP	MECOSTA	30th Ave(M-66) & Hoover Rd	1
1507	FORK TWP	MECOSTA	30th Ave(M-66) & 22 Mile Rd	1
1508	FORK TWP	MECOSTA	30th Ave(M-66) & Evergreen Rd(west of M-66)	1
1509	FORK TWP	MECOSTA	30th Ave(M-66) & Evergreen Rd(east of M-66)	1
1510	FORK TWP	MECOSTA	30th Ave(M-66) & Merrill Lake Dr	1
1511	HUDSONVILLE CITY	OTTAWA	32nd Ave & Allen St	1
1512	JONESVILLE VLG	HILLSDALE	Evans St(M-99) & Ecology Dr	1
1513	JONESVILLE VLG	HILLSDALE	503 E Chicago St(US-12) 445' south west of Concord Rd	1
1514	OMER CITY	ARENAC	707 W Huron Rd(US-23) 460' south west of Washington Rd	1
1515	OMER CITY	ARENAC	1008 W Huron Rd(US-23) 160' south west of Washington Rd	1
1516	OMER CITY	ARENAC	W Huron Rd(US-23) & Washington Rd	1
1517	OMER CITY	ARENAC	E Center St(E Huron Rd US-23) & State St	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	<u>Municipality</u>	<u>County</u>	<u>Location Description</u>	<u># of Fixtures</u>
1518	OMER CITY	ARENAC	E Center St(E Huron Rd US-23) & State St	1
1519	OMER CITY	ARENAC	732 E Center Rd(E Huron Rd/US-23) 375' east of State St	1
1520	ONONDAGA TWP	INGHAM	Kinneville Rd & Silver St	1
1521	OSCODA TWP (2 Cas)	IOSCO	East River Rd & Denise St	1
1522	OSCODA TWP (2 Cas)	IOSCO	1408 East River Dr 345' west of Harmony St	1
1523	OSCODA TWP (2 Cas)	IOSCO	E Park Ave & S Lake St	1
1524	OSCODA TWP (2 Cas)	IOSCO	222 E Park St 270' east of S Lake St	1
1525	OSCODA TWP (2 Cas)	IOSCO	E Dwight Ave & S Lake St	1
1526	OSCODA TWP (2 Cas)	IOSCO	E Bank St & N Lake St	1
1527	OSCODA TWP (2 Cas)	IOSCO	E Water Ave & N Lake St	1
1528	OSCODA TWP (2 Cas)	IOSCO	Evergreen Ave & N Lake St	1
1529	OSCODA TWP (2 Cas)	IOSCO	5358 N U.S. 23 550' north of Fullerton St	1
1530	OSCODA TWP (2 Cas)	IOSCO	5367 N U.S. 23 770' north of Fullerton St	1
1531	OSCODA TWP (2 Cas)	IOSCO	5400 N U.S. 23 995' north of Fullerton St	1
1532	OSCODA TWP (2 Cas)	IOSCO	5412 N U.S. 23 1,150' north of Fullerton St	1
1533	OSCODA TWP (2 Cas)	IOSCO	5430 N U.S. 23 1,385' north of Fullerton St	1
1534	OSCODA TWP (2 Cas)	IOSCO	5463 N U.S. 23 1,555' north of Fullerton St	1
1535	OSCODA TWP (2 Cas)	IOSCO	5473 N U.S. 23 1,755' north of Fullerton St	1
1536	OSCODA TWP (2 Cas)	IOSCO	5486 N U.S. 23 1,940' north of Fullerton St	1
1537	OSCODA TWP (2 Cas)	IOSCO	5514 N U.S. 23 2,145' north of Fullerton St	1
1538	OSCODA TWP (2 Cas)	IOSCO	5516 N U.S. 23 2,305' north of Fullerton St	1
1539	OSCODA TWP (2 Cas)	IOSCO	5538 N U.S. 23 2,485' north of Fullerton St	1
1540	OSCODA TWP (2 Cas)	IOSCO	5581 N U.S. 23 2,915' north of Fullerton St	1
1541	OSCODA TWP (2 Cas)	IOSCO	5590 N U.S. 23 2,280' south of Elk Ln	1
1542	OSCODA TWP (2 Cas)	IOSCO	5624 N U.S. 23 1,980' south of Elk Ln	1
1543	OSCODA TWP (2 Cas)	IOSCO	5709 N U.S. 23 1,325' south of Elk Ln	1
1544	OSCODA TWP (2 Cas)	IOSCO	5731 N U.S. 23 1,025' south of Elk Ln	1
1545	OSCODA TWP (2 Cas)	IOSCO	5764 N U.S. 23 660' south of Elk Ln	1
1546	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Elk Ln	1
1547	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Beech St	1
1548	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Ausable Rd	1
1549	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Oscoda St	1
1550	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Erie St	1
1551	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Huron St	1
1552	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & St Clair St	1
1553	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Arbutus Trail	1
1554	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Spruce Rd	1
1555	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Interlake Dr	1
1556	OSCODA TWP (2 Cas)	IOSCO	6504 N U.S. 23 565' south of Gaston Way (Oscoda Surfside Cottages)	1
1557	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Gaston Way	1
1558	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Nels Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1559	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Andrew Dr	1
1560	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Charles Rd	1
1561	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Joy Ave	1
1562	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Trey Dr	1
1563	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Celia Dr	1
1564	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Aaron Dr	1
1565	OSCODA TWP (2 Cas)	IOSCO	7708 N U.S. 23 380' north of Aaron Dr	1
1566	OSCODA TWP (2 Cas)	IOSCO	7720 N U.S. 23 760' north of Aaron Dr	1
1567	OSCODA TWP (2 Cas)	IOSCO	7732 N U.S. 23 735' south of Lake-To-Lake Rd	1
1568	OSCODA TWP (2 Cas)	IOSCO	7745 N U.S. 23 375' south of Lake-To-Lake Rd	1
1569	OSCODA TWP (2 Cas)	IOSCO	N U.S. 23 & Lake-To-Lake Rd	1
1570	OSCODA TWP (2 Cas)	IOSCO	5620 Cedar Lake Rd 735' north of Woodland Rd	1
1571	OSCODA TWP (2 Cas)	IOSCO	5609 Cedar Lake Rd 1,090' north of Woodland Rd	1
1572	OSCODA TWP (2 Cas)	IOSCO	5679 Cedar Lake Rd 940' south of Chalet Ct	1
1573	OSCODA TWP (2 Cas)	IOSCO	5805 Cedar Lake Rd 325' south of Beech St	1
1574	OSCODA TWP (2 Cas)	IOSCO	Cherokee Ave & Iroquois St	1
1575	OSCODA TWP (2 Cas)	IOSCO	6431 Iroquois St 515' south of Chippewa Ave	1
1576	OSCODA TWP (2 Cas)	IOSCO	Cedar Lake Rd & Chippewa Ave	1
1577	OSCODA TWP (2 Cas)	IOSCO	7888 F 41 650' south of Kings Corner Rd	1
1578	OSCODA TWP (2 Cas)	IOSCO	7793 F 41 1,340' south of Kings Corner Rd	1
1579	OSCODA TWP (2 Cas)	IOSCO	M-65 & Winn Rd	1
1580	OSCODA TWP (2 Cas)	IOSCO	M-65 400' south of Winn Rd	1
1581	OSCODA TWP (2 Cas)	IOSCO	M-65 910' south of Winn Rd	1
1582	OSCODA TWP (2 Cas)	IOSCO	6341 M-65 1,305' south of Winn Rd	1
1583	OSCODA TWP (2 Cas)	IOSCO	M-65 1,630' south of Winn Rd	1
1584	OSCODA TWP (2 Cas)	IOSCO	M-65 & Pine Acres Rd	1
1585	OSCODA TWP (2 Cas)	IOSCO	Carter Rd & Old M-65 Trail	1
1586	OSCODA TWP (2 Cas)	IOSCO	M-65 560' south of Pine Acres Rd	1
1587	OSCODA TWP (2 Cas)	IOSCO	M-65 & Loud Dam Rd	1
1588	OSCODA TWP (2 Cas)	IOSCO	M-65 950' east of Loud Dam Rd	1
1589	OSCODA TWP (2 Cas)	IOSCO	M-65 & River Rd	1
1590	PORTSMOUTH CH TWP	BAY	Cass Ave & M-15	1
1591	PORTSMOUTH CH TWP	BAY	Hale Dr & Morin Dr	1
1592	PORTSMOUTH CH TWP	BAY	Trumbull St & 25th St (west)	1
1593	PORTSMOUTH CH TWP	BAY	German Rd & M-15	1
1594	PORTSMOUTH CH TWP	BAY	Michigan Ave & Paradise Ct	1
1595	PORTSMOUTH CH TWP	BAY	Michigan Ave & Sarah Ct	1
1596	PORTSMOUTH CH TWP	BAY	Michigan Ave & Sandra Ct	1
1597	PORTSMOUTH CH TWP	BAY	Cass Ave & S. Monroe St (south)	1
1598	PORTSMOUTH CH TWP	BAY	Russell Rd & M-15	1
1599	SAGINAW CITY	SAGINAW	1901 Findley St 740' north of E Washington Rd	1

**2022 Center Suspension Streetlight Direct Replacement Projects**

	(a)	(b)	(c)	(d)
Line No.	Municipality	County	Location Description	# of Fixtures
1600	SAGINAW CITY	SAGINAW	1957 Findley St 1,440' north of E Washington Rd	1
1601	STANDISH CITY	ARENAC	W Pine St & S Court St	1
1602	STANDISH CITY	ARENAC	Church St 245' south of Cedar St	1
1603	STANDISH CITY	ARENAC	S Front St 215' south of Cedar St	1
1604	STANDISH CITY	ARENAC	Court St N 145' south of Mill St	1
1605	STANDISH CITY	ARENAC	401 N Grove St 495' north of Orchard St	1
1606	STANDISH CITY	ARENAC	N Cass St & E Beaver St	1
1607	STANDISH CITY	ARENAC	Cherry St & N Lapeer St	1
1608	VERNON TWP	SHIAWASSEE	M-71 & Goodall Rd	1
1609	VERNON TWP	SHIAWASSEE	Durand Rd & Lansing Rd	1
1610	VERNON TWP	SHIAWASSEE	Lansing Rd & N Saginaw St	1
1611	WATERTOWN CH TWP	CLINTON	I-96BL & Francis Rd	1
1612	WATERTOWN CH TWP	CLINTON	W Herbison Rd & Wacousta Rd	1
1613	WATERTOWN CH TWP	CLINTON	9195 W Herbison Rd	1
1614	WEST BRANCH TWP	OGEMAW	248 M-33 2,215' south of Peters Rd	1
1615	WEST BRANCH TWP	OGEMAW	M-33 & E State Rd	1
1616	WEST BRANCH TWP	OGEMAW	485 State Rd 330' east of S Campbell Rd	1
1617	WEST BRANCH TWP	OGEMAW	2456 State Rd 500' north east of Fairview St	1
1618	WEST BRANCH TWP	OGEMAW	2446 M-55 100' north of M-76	1
1619	WEST BRANCH TWP	OGEMAW	2394 M-55 720' north & east of M-76	1
1620	WEST BRANCH TWP	OGEMAW	M-55 & Dam Rd	1
1621	WEST BRANCH TWP	OGEMAW	1917 M-55 1,255' east of Dam Rd	1
1622	WEST BRANCH TWP	OGEMAW	M-55 & Simmons Rd	1
1623	WEST BRANCH TWP	OGEMAW	M-55 & Peach Lake Rd	1
1624	WEST BRANCH TWP	OGEMAW	M-55 & Campbell Rd	1
1625	WEST BRANCH TWP	OGEMAW	31 M-55 215' west of M-33	1
1626	WEST BRANCH TWP	OGEMAW	2355 M-33 1,440' north of W Gallagher Rd	1
1627	WEST BRANCH TWP	OGEMAW	M-76 & Airport Rd	1
1628	WEST BRANCH TWP	OGEMAW	Flowage Lake Rd & M-76	1
1629	WEST BRANCH TWP	OGEMAW	1250 M-33 4,150' south of State Rd	1
1630	WEST BRANCH TWP	OGEMAW	1998 M-33 250' north of M-55	1
1631	WEST BRANCH TWP	OGEMAW	M-76 85' east of M-55 (see notes)	1
1632	WEST BRANCH TWP	OGEMAW	2085 M-55 1,040' west of Dam Rd (see notes)	1

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**SCOTT A. HUGO**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Generating Unit Periodic Outages

January 1, 2022 Through December 31, 2022

Case No.: U-20963

Exhibit No.: A-92 (SAH-1)

Page: 1 of 1

Witness: SAHugo

Date: March 2021

**MAJOR OUTAGES: FOSSIL GENERATION AND LUDINGTON**

<u>Line</u> <u>No.</u>	(a) <u>Unit</u>	(b) <u>Planned Days in 2022</u>	(c) <u>Start</u>	(d) <u>Stop</u>
1	Ludington 1	34	1/10/2022	2/13/2022
2	Campbell 3	46	3/28/2022	5/13/2022
3	Karn 3	45	9/23/2022	11/7/2022
4	Karn 4	45	9/23/2022	11/7/2022
5	Campbell 2	42	9/29/2022	11/10/2022

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Generating Unit Availability Projections  
January 1, 2022 Through December 31, 2022

Case No.: U-20963  
Exhibit No.: A-93 (SAH-2)  
Page: 1 of 1  
Witness: SAHugo  
Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)
Line No.	Plant	Actual ROR 2015-2019	Projected ROR	Periodic Factor	Projected Availability	Actual NEV 2015-2019
1	Campbell 1	13.22%	15.50%	6.31%	79.17%	\$30,743,581
2	Campbell 2	10.67%	14.50%	31.38%	58.67%	\$26,631,530
3	Campbell 3	6.35%	5.00%	12.62%	83.01%	\$148,369,018
4	Karn 1	26.70%	21.00%	14.97%	67.17%	\$27,482,207
5	Karn 2	15.72%	16.00%	16.61%	70.05%	\$18,867,287
6	Karn 3	24.21%	16.00%	12.37%	73.61%	-\$7,867,658
7	Karn 4	32.26%	17.00%	12.36%	72.74%	-\$11,402,893
8	Ludington 1	10.41%	2.88%	17.80%	79.83%	\$11,770,845
9	Ludington 2	13.48%	2.88%	8.50%	88.86%	\$11,753,522
10	Ludington 3	9.93%	2.88%	8.50%	88.86%	\$9,815,318
11	Ludington 4	5.89%	2.88%	8.50%	88.86%	\$5,717,553
12	Ludington 5	29.42%	2.88%	8.50%	88.86%	\$467,725
13	Ludington 6	6.81%	2.88%	8.50%	88.86%	\$11,252,105
14	Hydros	7.59%	5.00%	6.85%	88.49%	\$43,293,635
15	Zeeland CC	2.73%	4.00%	6.85%	89.42%	\$111,485,197
16	Zeeland 1A	3.25%	4.00%	2.32%	93.77%	\$4,700,415
17	Zeeland 1B	4.28%	4.00%	2.31%	93.78%	\$4,536,308
18	Jackson <sup>(1)</sup>	3.20%	4.50%	3.41%	92.24%	\$50,831,553
19	Cross Winds EP <sup>(2)</sup>					\$24,640,243
20	Lake Winds EP <sup>(2)</sup>					\$6,915,264

(1) Jackson acquired in December 2015.

(2) Reflects NEV for 2019 only.

Case No.: U-20963  
Exhibit No.: A-12 (SAH-3)  
Schedule: B-5.2  
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Schedule: B-5.2  
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(a)	(b)	(c)	(d)	(e)	(f)
	<b>Historical</b>		<b>Projected Bridge Year</b>		<b>Projected Test Year</b>
Line	<b>12 Months Ended</b>	<b>12 Months Ended</b>	<b>12 Months Ending</b>	<b>24 Months Ending</b>	<b>12 Months Ending</b>
No.	<b>12/31/2019</b>	<b>12/31/2020</b>	<b>12/31/2021</b>	<b>12/31/2021</b>	<b>12/31/2022</b>
	<b>Description</b>				

[illegible]

## MICHIGAN PUBLIC SERVICE COMMISSION

## Schedule: B-5.2

Case No.: U-20963  
 Exhibit No.: A-12 (SAH-3)  
 Schedule: B-5.2  
 Page: 2 of 9  
 Witness: SAHugo  
 Date: March 2021

Consumers Energy Company  
 Summary of Actual and Projected Electric Capital Expenditures  
 For the years 2019 through 2022  
 (\$000's)

## Generation Capital Expenditures

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Line	Historical		12 Months Ended		Projected Bridge Year		24 Months Ending		Projected Test Year		
No.	Description	12/31/2019	12/31/2020	12/31/2021	12/31/2021	12/31/2022					
1	JHCampbell 1&2	\$ 7,669	\$ 23,139	\$ 18,426	\$ 41,565	\$ 3,289					
2	Contractor	\$ 3,615	\$ 17,477	\$ 13,272	\$ 30,749	\$ 2,336					
3	Labor	\$ 1,062	\$ 1,430	\$ 844	\$ 2,273	\$ 85					
4	Materials	\$ 2,748	\$ 804	\$ 2,450	\$ 3,253	\$ 530					
5	Business Expenses	\$ 5	\$ 18	\$ -	\$ 18	\$ -					
6	Contingency	\$ -	\$ -	\$ 410	\$ 410	\$ 83					
7	Other (Loadings, Chargebacks)	\$ 238	\$ 3,411	\$ 1,450	\$ 4,862	\$ 254					
8	JHCampbell 3	\$ 28,616	\$ 6,048	\$ 10,162	\$ 16,210	\$ 10,496					
9	Contractor	\$ 19,560	\$ 3,577	\$ 7,318	\$ 10,895	\$ 7,893					
10	Labor	\$ 3,922	\$ 943	\$ 449	\$ 1,392	\$ 684					
11	Materials	\$ 5,557	\$ 1,033	\$ 1,669	\$ 2,702	\$ 1,269					
12	Business Expenses	\$ 74	\$ 3	\$ -	\$ 3	\$ -					
13	Contingency	\$ 0	\$ -	\$ 410	\$ 410	\$ 327					
14	Other (Loadings, Chargebacks)	\$ (497)	\$ 493	\$ 316	\$ 809	\$ 324					
15	DEKam 1&2	\$ 5,415	\$ 2,558	\$ 2,913	\$ 5,472	\$ 2,093					
16	Contractor	\$ 2,845	\$ (52)	\$ 1,472	\$ 1,420	\$ 1,090					
17	Labor	\$ 1,214	\$ 1,828	\$ 1,020	\$ 2,849	\$ 669					
18	Materials	\$ 1,106	\$ 647	\$ 228	\$ 875	\$ 218					
19	Business Expenses	\$ (2)	\$ 1	\$ -	\$ 1	\$ -					
20	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
21	Other (Loadings, Chargebacks)	\$ 253	\$ 134	\$ 194	\$ 328	\$ 116					
22	DEKam 3&4	\$ 11,553	\$ 6,749	\$ 13,391	\$ 20,140	\$ 23,662					
23	Contractor	\$ 6,996	\$ 5,035	\$ 6,161	\$ 11,196	\$ 11,852					
24	Labor	\$ 1,875	\$ 656	\$ 420	\$ 1,076	\$ 476					
25	Materials	\$ 1,749	\$ 213	\$ 4,572	\$ 4,785	\$ 8,277					
26	Business Expenses	\$ 14	\$ 38	\$ -	\$ 38	\$ -					
27	Contingency	\$ -	\$ -	\$ 250	\$ 250	\$ 728					
28	Other (Loadings, Chargebacks)	\$ 919	\$ 806	\$ 1,988	\$ 2,794	\$ 2,329					
29	Zeeland	\$ 12,040	\$ 12,578	\$ 21,444	\$ 34,022	\$ 10,027					
30	Contractor	\$ 8,628	\$ 9,700	\$ 15,013	\$ 24,714	\$ 9,762					
31	Labor	\$ 840	\$ 432	\$ 40	\$ 472	\$ 75					
32	Materials	\$ 2,297	\$ 1,490	\$ 5,000	\$ 6,490	\$ -					
33	Business Expenses	\$ 4	\$ 2	\$ -	\$ 2	\$ -					
34	Contingency	\$ -	\$ -	\$ 175	\$ 175	\$ 16					
35	Other (Loadings, Chargebacks)	\$ 271	\$ 954	\$ 1,215	\$ 2,169	\$ 174					
36	Jackson Generating Station	\$ 26,235	\$ 26,030	\$ 22,187	\$ 48,217	\$ 11,436					
37	Contractor	\$ 20,202	\$ 19,161	\$ 19,937	\$ 39,099	\$ 10,587					
38	Labor	\$ 1,423	\$ 918	\$ 15	\$ 933	\$ 100					
39	Materials	\$ 1,878	\$ 1,910	\$ 286	\$ 2,196	\$ 100					
40	Business Expenses	\$ 34	\$ 49	\$ -	\$ 49	\$ -					
41	Contingency	\$ -	\$ -	\$ 266	\$ 266	\$ 32					
42	Other (Loadings, Chargebacks)	\$ 2,698	\$ 3,992	\$ 1,682	\$ 5,674	\$ 617					
43	CTs	\$ 4	\$ -	\$ -	\$ -	\$ -					
44	Contractor	\$ -	\$ -	\$ -	\$ -	\$ -					
45	Labor	\$ 3	\$ -	\$ -	\$ -	\$ -					
46	Materials	\$ -	\$ -	\$ -	\$ -	\$ -					
47	Business Expenses	\$ 0	\$ -	\$ -	\$ -	\$ -					
48	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
49	Other (Loadings, Chargebacks)	\$ 1	\$ -	\$ -	\$ -	\$ -					
50	Solar	\$ -	\$ 582	\$ 122,435	\$ 123,017	\$ 286,624					
51	Contractor	\$ -	\$ -	\$ 107,959	\$ 107,959	\$ 249,363					
52	Labor	\$ -	\$ 42	\$ 320	\$ 362	\$ 860					
53	Materials	\$ -	\$ -	\$ -	\$ -	\$ -					
54	Business Expenses	\$ -	\$ -	\$ -	\$ -	\$ -					
55	Contingency	\$ -	\$ -	\$ 4,626	\$ 4,626	\$ 13,471					
56	Other (Loadings, Chargebacks)	\$ -	\$ 540	\$ 9,530	\$ 10,070	\$ 22,930					

## MICHIGAN PUBLIC SERVICE COMMISSION

## Schedule: B-5.2

Case No.: U-20963  
 Exhibit No.: A-12 (SAH-3)  
 Schedule: B-5.2  
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 Witness: SAHugo  
 Date: March 2021

Consumers Energy Company  
 Summary of Actual and Projected Electric Capital Expenditures  
 For the years 2018 through 2021  
 (\$000's)

## Generation Capital Expenditures

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Line	Historical		12 Months Ended		Projected Bridge Year		24 Months Ending		Projected Test Year		
No.	Description	12/31/2019	12/31/2020	12/31/2021	12/31/2021	12/31/2022					
57	Classic 7	\$ 566	\$ 47	\$ 400	\$ 447	\$ -					
58	Contractor	\$ 487	\$ 0	\$ 320	\$ 320	\$ -					
59	Labor	\$ 62	\$ 4	\$ -	\$ 4	\$ -					
60	Materials	\$ -	\$ 34	\$ -	\$ 34	\$ -					
61	Business Expenses	\$ 0	\$ -	\$ -	\$ -	\$ -					
62	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
63	Other (Loadings, Chargebacks)	\$ 17	\$ 9	\$ 80	\$ 89	\$ -					
64	Hydros	\$ 28,756	\$ 19,603	\$ 34,878	\$ 54,481	\$ 59,937					
65	Contractor	\$ 21,481	\$ 13,534	\$ 28,489	\$ 42,023	\$ 48,436					
66	Labor	\$ 4,236	\$ 1,920	\$ 65	\$ 1,985	\$ 345					
67	Materials	\$ 1,576	\$ 1,311	\$ -	\$ 1,311	\$ -					
68	Business Expenses	\$ 136	\$ 78	\$ -	\$ 78	\$ -					
69	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
70	Other (Loadings, Chargebacks)	\$ 1,327	\$ 2,760	\$ 6,324	\$ 9,084	\$ 11,156					
71	Ludington	\$ 35,785	\$ 17,912	\$ 32,988	\$ 50,900	\$ 9,208					
72	Contractor	\$ 52,788	\$ 15,544	\$ 46,779	\$ 62,323	\$ 15,053					
73	Labor	\$ 5,255	\$ 2,911	\$ 700	\$ 3,611	\$ 540					
74	Materials	\$ 3,134	\$ 989	\$ 1,328	\$ 2,317	\$ -					
75	Business Expenses	\$ 248	\$ 61	\$ -	\$ 61	\$ -					
76	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
77	Other (Loadings, Chargebacks)	\$ (25,640)	\$ (1,593)	\$ (15,819)	\$ (17,413)	\$ (6,385)					
78	Admin and Other	\$ 5,338	\$ 3,513	\$ 4,813	\$ 8,326	\$ 695					
79	Contractor	\$ 3,950	\$ 1,645	\$ 695	\$ 2,340	\$ 695					
80	Labor	\$ 560	\$ 475	\$ -	\$ 475	\$ -					
81	Materials	\$ 562	\$ 973	\$ -	\$ 973	\$ -					
82	Business Expenses	\$ 10	\$ 0	\$ -	\$ 0	\$ -					
83	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
84	Other (Loadings, Chargebacks)	\$ 256	\$ 421	\$ 4,118	\$ 4,538	\$ -					
85	Air Quality	\$ 6,904	\$ 6,337	\$ 8,315	\$ 14,652	\$ 9,408					
86	Contractor	\$ 5,092	\$ 3,020	\$ 6,873	\$ 9,893	\$ 813					
87	Labor	\$ 867	\$ 375	\$ 274	\$ 649	\$ 449					
88	Materials	\$ 948	\$ 2,217	\$ 750	\$ 2,967	\$ 7,127					
89	Business Expenses	\$ 9	\$ 2	\$ -	\$ 2	\$ -					
90	Contingency	\$ -	\$ -	\$ -	\$ -	\$ 800					
91	Other (Loadings, Chargebacks)	\$ (12)	\$ 724	\$ 418	\$ 1,141	\$ 220					
92	RCRA	\$ 245	\$ 100	\$ -	\$ 100	\$ -					
93	Contractor	\$ 102	\$ 71	\$ -	\$ 71	\$ -					
94	Labor	\$ 77	\$ 14	\$ -	\$ 14	\$ -					
95	Materials	\$ 51	\$ -	\$ -	\$ -	\$ -					
96	Business Expenses	\$ -	\$ 0	\$ -	\$ 0	\$ -					
97	Contingency	\$ 0	\$ -	\$ -	\$ -	\$ -					
98	Other (Loadings, Chargebacks)	\$ 15	\$ 15	\$ -	\$ 15	\$ -					
99	316b	\$ -	\$ -	\$ -	\$ -	\$ 500					
100	Contractor	\$ -	\$ -	\$ -	\$ -	\$ 465					
101	Labor	\$ -	\$ -	\$ -	\$ -	\$ -					
102	Materials	\$ -	\$ -	\$ -	\$ -	\$ -					
103	Business Expenses	\$ -	\$ -	\$ -	\$ -	\$ -					
104	Contingency	\$ -	\$ -	\$ -	\$ -	\$ -					
105	Other (Loadings, Chargebacks)	\$ -	\$ -	\$ -	\$ -	\$ 35					
106	SEEG	\$ 1	\$ 76	\$ 1,929	\$ 2,005	\$ 15,421					
107	Contractor	\$ (1)	\$ 48	\$ 323	\$ 371	\$ 10,117					
108	Labor	\$ 0	\$ 12	\$ 47	\$ 59	\$ 21					
109	Materials	\$ 2	\$ -	\$ 659	\$ 659	\$ 1,293					
110	Business Expenses	\$ -	\$ 0	\$ 448	\$ 448	\$ 607					
111	Contingency	\$ 0	\$ -	\$ 72	\$ 72	\$ 602					
112	Other (Loadings, Chargebacks)	\$ 0	\$ 16	\$ 380	\$ 396	\$ 2,781					
113	All Other Environmental	\$ 506	\$ 4,266	\$ 3,658	\$ 7,924	\$ 918					
114	Contractor	\$ 285	\$ 2,567	\$ 3,380	\$ 5,947	\$ 847					
115	Labor	\$ 125	\$ 301	\$ -	\$ 301	\$ -					
116	Materials	\$ 78	\$ 941	\$ -	\$ 941	\$ -					
117	Business Expenses	\$ 1	\$ 2	\$ -	\$ 2	\$ -					
118	Contingency	\$ 0	\$ -	\$ -	\$ -	\$ -					
119	Other (Loadings, Chargebacks)	\$ 16	\$ 455	\$ 278	\$ 733	\$ 71					
120	<b>Total Capital</b>	<b>\$ 169,632</b>	<b>\$ 169,632</b>	<b>\$ 129,539</b>	<b>\$ 129,539</b>	<b>\$ 297,938</b>	<b>\$ 297,938</b>	<b>\$ 427,477</b>	<b>\$ 427,477</b>	<b>\$ 443,716</b>	<b>\$ 443,716</b>

**MICHIGAN PUBLIC SERVICE COMMISSION****Schedule: B-5.2**

Case No.: U-20963  
Exhibit No.: A-12 (SAH-3)  
Schedule: B-5.2  
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Witness: SAHugo  
Date: March 2021

Consumers Energy Company

## Summary of Actual and Projected Electric Capital Expenditures

For the years 2019 through 2022

(\$000's)

**Generation Capital Expenditures**

Line No.	Description	(a)		(b)		(c)		(d)		(e)		(f)	
		Historical		Projected Bridge Year		Projected Test Year		12 Months Ending		24 Months Ending		12 Months Ending	
		12/31/2019		12/31/2020		12/31/2021		12/31/2021		12/31/2021		12/31/2022	
1	Contractor	\$	146,029	\$	91,326	\$	257,992	\$	349,318	\$	369,309		
2	Labor	\$	21,521	\$	12,261	\$	4,194	\$	16,455	\$	4,304		
3	Materials	\$	21,686	\$	12,562	\$	16,941	\$	29,504	\$	18,814		
4	Business Expenses	\$	533	\$	253	\$	448	\$	700	\$	607		
5	Contingency	\$	0	\$	-	\$	6,209	\$	6,209	\$	16,059		
6	Other (Loadings, Chargebacks)	\$	(20,138)	\$	13,137	\$	12,153	\$	25,290	\$	34,622		
	Total	\$	169,632	\$	129,539	\$	297,938	\$	427,477	\$	443,716		

**MICHIGAN PUBLIC SERVICE COMMISSION**

**Schedule: B-5.2**

Case No.: U-20963  
Exhibit No.: A-12 (SAH-3)  
Schedule: B-5.2  
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Witness: SAHugo  
Date: March 2021

Consumers Energy Company  
Summary of Projected Electric Capital Expenditures  
For the year 2022  
(\$000's)

**Generation Capital Expenditures**

Line No.	Description	(a) (b) (c) (d) (e) (f)					
		Projected Bridge Year 12 Months Ending 12/31/2021		Projected Test Year 12 Months Ending 12/31/2022		Reference	
1	Campbell 1&2 Non-Environmental	\$	18,426	\$	3,289	\$	9,449
2	Campbell 1&2 "All Other Environmental"						
3	Campbell 3 Non-Environmental	\$	10,162	\$	10,496	\$	16,798
4	Campbell 3 "All Other Environmental"						
5	Karn 1&2 Non-Environmental	\$	2,913	\$	2,093	\$	-
6	Karn 1&2 "All Other Environmental"						
7	<b>Total Other Environmental</b>	\$	13,902	\$	26,247	\$	26,247

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of Actual and Projected Electric Capital Expenditures  
For the years 2019 through 2022  
Generation Capital Projects greater than \$1M  
(\$000's)

**Schedule: B-5.2**

Case No.: U-20963  
Exhibit No.: A-12 (SAH-3)  
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**Generation Capital Expenditures**

Line No.	(a) Calendar Year	(b) Tier 1 Portfolio	(c) Tier 2 Portfolio	(d) Project Type	(e) Project Classification	(f) Work Item Description	(g) Projected Contingency	(h) Projected Amount	(i) Actual Amount
1	2019	Coal Generation	Campbell 1	Routine	Reliability	Distributed Control System and Simulator Upgrade	\$ 103	\$ 1,031	\$ 1,356
2	2019	Coal Generation	Campbell 3	Routine	Environmental	Selective Catalytic Reduction Catalyst Management	\$ 552	\$ 5,524	\$ 2,187
3	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	7A High Pressure Heater Replacement	\$	\$ 3,007	\$ 3,176
4	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	8 Bank 6 9kV Non-Seg Bus Insulators	\$ 115	\$ 1,150	\$ 2,271
5	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	Control Room HVAC	\$	\$ 2,037	\$ 2,079
6	2019	Coal Generation	Campbell 3	Non-routine	Reliability	Install Cross-Tie Between 8-1 and 8-2 AQCS Start-Up Transformers	\$	\$ 2,314	\$ 2,499
7	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	Replace primary air economizer outlet and SCR bypass gas expansion joints	\$ 144	\$ 1,440	\$ 1,329
8	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	Replace Burner Primary Air Tubes	\$ 124	\$ 1,237	\$ 3,541
9	2019	Coal Generation	Campbell 3	Non-routine	Environmental	Replace Closed Loop Cooling Heat Exchangers	\$ 105	\$ 1,050	\$ 2,003
10	2019	Coal Generation	Campbell 3	Non-routine	Condition-based	Replace Forced Draft Fan Lube-Hydraulic Oil Skids	\$ 105	\$ 1,177	\$ 1,093
11	2019	Coal Generation	Campbell 3	Routine	Reliability	Distributed Control System and Simulator Upgrade	\$	\$ 1,782	\$ 1,782
12	2019	Coal Generation	Campbell Site Commons	Non-routine	Environmental	Potable Water System	\$ 193	\$ 1,929	\$ 1,071
13	2019	Coal Generation	Campbell Site Commons	Non-routine	Condition-based	Locomotive	\$	\$	\$ 1,849
14	2019	Coal Generation	Karn 1	Routine	Environmental	Selective Catalytic Reduction 2nd Layer Catalyst Replacement	\$	\$ 1,773	\$ 1,611
15	2019	Coal Generation	Karn 2	Routine	Reliability	Distributed Control System Upgrade (Evergreen)	\$	\$ 1,278	\$ 1,141
16	2019	Gas/Oil Generation	Karn 3	Non-routine	Reliability	Distributed Control System and Simulator Upgrade	\$ 400	\$ 4,000	\$ 2,353
17	2019	Gas/Oil Generation	Karn 4	Non-routine	Condition-based	Cooling Tower Internal Structure Replacement	\$ 265	\$ 2,650	\$ 3,592
18	2019	Gas/Oil Generation	Karn 4	Non-routine	Economic	Electro hydraulic Control System Retrofit	\$ 290	\$ 2,900	\$ 3,383
19	2019	Gas Generation	Jackson Site Commons	Non-routine	Economic	Reverse Osmosis Water Makeup Expansion	\$	\$ 1,352	\$ 1,360
20	2019	Gas Generation	Jackson Site Commons	Non-routine	Reliability	Turbine Distributed Control System Replacement	\$ 300	\$ 3,000	\$ 3,495
21	2019	Gas Generation	Jackson Site Commons	Routine	Condition-based	GE Long Term Service Agreement Historical Extra Work Expected	\$ 100	\$ 1,000	\$ 3,982
22	2019	Gas Generation	Jackson Site Commons	Routine	Condition-based	Long Term Service Agreement	\$ 780	\$ 7,800	\$ 12,740
23	2019	Gas Generation	Zeeland Site Commons	Routine	Condition-based	Long Term Service Agreement / GE	\$ 803	\$ 8,026	\$ 4,347
24	2019	Hydro Generation	Alcona	Non-routine	Regulatory	Emergency Spillway	\$ 138	\$ 1,376	\$ 2,404
25	2019	Hydro Generation	Cooke	Non-routine	Condition-based	Unit 2 Wicket Gates	\$	\$ 1,385	\$ 1,973
26	2019	Hydro Generation	Croton	Non-routine	Regulatory	Right Abutment Remediation	\$	\$ 4,277	\$ 4,446
27	2019	Hydro Generation	Croton	Non-routine	Condition-based	Rebuild Unit 4	\$	\$ 1,557	\$ 1,323
28	2019	Hydro Generation	Hardy	Non-routine	Regulatory	Auxiliary Spillway	\$ 198	\$ 1,822	\$ 1,592
29	2019	Hydro Generation	Hardy	Non-routine	Regulatory	Spill Tube Modifications	\$	\$ 1,978	\$ 1,489
30	2019	Hydro Generation	Loud	Non-routine	Condition-based	Trash Rack Ergonomics	\$	\$	\$ 1,129
31	2019	Hydro Generation	Rogers	Non-routine	Condition-based	Governor Replacement	\$	\$ 1,594	\$ 1,455
32	2019	Hydro Generation	Rogers	Non-routine	Safety	Electrical Safety Project	\$ 170	\$ 1,699	\$ 3,467
33	2019	Hydro Generation	Ludington Site Commons	Non-routine	Condition-based	Ludington Generator Stepup Transformer Replacement	\$ 558	\$ 5,584	\$ 5,828
34	2019	Hydro Generation	Ludington Site Commons	Non-routine	Condition-based	Ludington Overhaul	\$ -	\$ 32,658	\$ 26,301
35	2019	Common Support	ERBS	Non-routine	Project Mgmt	EPMO Transformation - Enterprise Project Management Information System	\$ 160	\$ 1,600	\$ 1,195
36	Total 2019 Projects						\$ 5,497	\$ 111,207	\$ 116,843

Note:

(1) Projected amounts were taken from Exhibit No. A-12 (SAH-3) page 7 in Case No. U-20697

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Consumers Energy Company  
Summary of Actual and Projected Electric Capital Expenditures  
For the years 2019 through 2022  
Generation Capital Projects greater than \$1M  
(\$000's)

**Generation Capital Expenditures**

Line No.	(a) Calendar Year	(b) Tier 1 Portfolio	(c) Tier 2 Portfolio	(d) Project Type	(e) Project Classification	(f) Work Item Description	(g) Projected Contingency	(h) Projected Amount	(i) Projected Amount
1	2020	Coal Generation	Campbell 1	Non-routine	Condition-based	High Pressure Turbine Blading Replacement	\$ -	\$ 1,301	\$ 10,459
2	2020	Coal Generation	Campbell 1	Non-routine	Condition-based	Low Pressure Turbine blade replacement, row L-0	\$ 214	\$ 4,274	\$ 5,585
3	2020	Coal Generation	Campbell 2	Routine	Environmental	Catalyst Management	\$ 150	\$ 1,500	\$ 1,800
4	2020	Coal Generation	Campbell 2	Routine	Compliance	Distributed Control System and Simulator Replacement	\$ -	\$ 1,333	\$ 1,363
5	2020	Coal Generation	Campbell 3	Non-routine	Condition-based	Sootblowing Air Compressor Overhaul	\$ -	\$ -	\$ 1,183
6	2020	Coal Generation	Campbell Site Commons	Non-routine	Compliance	Bottom Ash Tanks Chemical Treatment System	\$ 60	\$ 1,193	\$ 1,619
7	2020	Coal Generation	Karn 1&2 Commons	Non-routine	Other	Karn Retention Program	\$ -	\$ -	\$ 1,691
8	2020	Coal Generation	Karn 2	Routine	Environmental	Selective Catalytic Reduction Catalyst Replacement	\$ 50	\$ 1,000	\$ 1,058
9	2020	Coal Generation	Karn 2	Routine	Environmental	Pulse Jet Fabric Filter Bag Replacement	\$ -	\$ -	\$ 1,831
10	2020	Gas/Oil Generation	Karn 4	Routine	Condition-based	Replace Cooling Tower Internal Structure	\$ 200	\$ 2,000	\$ 1,487
11	2020	Gas/Oil Generation	Karn 4	Non-routine	Economic	Electro-Hydraulic Control System Replacement	\$ 115	\$ 2,300	\$ 3,428
12	2020	Gas Generation	Jackson Site Commons	Routine	Condition-based	Jackson GE Long Term Service Agreement FFH	\$ -	\$ 10,600	\$ 8,620
13	2020	Gas Generation	Jackson Site Commons	Non-routine	Compliance	Jackson Turbine Control System Replacement	\$ 163	\$ 3,265	\$ 3,918
14	2020	Gas Generation	Jackson Site Commons	Routine	Condition-based	Jackson GE Long Term Service Agreement Historical Extra Work Expedited	\$ -	\$ 1,200	\$ 1,300
15	2020	Gas Generation	Jackson Site Commons	Non-routine	Economic	Jackson Increase Stack Height	\$ 75	\$ 1,500	\$ 1,004
16	2020	Gas Generation	Jackson Site Commons	Non-routine	Infrastructure	Jackson Warehouse for Jackson Generating Station	\$ 220	\$ 4,400	\$ 4,814
17	2020	Gas Generation	Jackson Site Commons	Non-routine	Economic	Jackson Site Generating Water	\$ -	\$ 7,557	\$ 2,467
18	2020	Gas Generation	Zeeland Site Commons	Routine	Condition-based	Zeeland Long Term Service Agreement - Running Capital Contract	\$ 95	\$ 1,890	\$ 5,927
19	2020	Hydro Generation	Alcona	Non-routine	Compliance	Emergency Spillway	\$ 82	\$ 1,631	\$ 1,890
20	2020	Hydro Generation	Alcona	Non-routine	Condition-based	Electrical Safety Project	\$ 100	\$ 1,000	\$ 2,191
21	2020	Hydro Generation	Hardy	Non-routine	Compliance	Auxiliary Spillway	\$ 230	\$ 2,300	\$ 3,200
22	2020	Hydro Generation	Webbar	Non-routine	Compliance	Downstream Training Wall	\$ -	\$ -	\$ 2,603
23	2020	Hydro Generation	Ludington Site	Non-routine	Economic	Ludington Overhaul	\$ 3,177	\$ 12,707	\$ 9,494
24	2020	Hydro Generation	Ludington Site	Non-routine	Condition-based	Ludington 16-424 HVAC Replacement	\$ 219	\$ 4,371	\$ 3,607
25	2020	Common Support	ERBS	Non-routine	Project Mgmt	EPMO Transformation - Enterprise Project Management Information System	\$ -	\$ 1,910	\$ 2,856
26	Total 2020 Projects						\$ 5,148	\$ 69,832	\$ 85,394

(1) Projected amounts were taken from Exhibit No. A-12 (SAH-3) pages 8-9 in Case No. U-20697

(2) Projected amounts based upon 9+3 forecast

**MICHIGAN PUBLIC SERVICE COMMISSION**

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Consumers Energy Company  
Summary of Actual and Projected Electric Capital Expenditures  
For the years 2019 through 2022  
Generation Capital Projects greater than \$1M  
(\$000's)

**Generation Capital Expenditures**

Line No.	(a) Calendar Year	(b) Tier 1 Portfolio	(c) Tier 2 Portfolio	(d) Project Type	(e) Project Classification	(f) Work Item Description	(g) Contingency Amount	(h) Projected Amount
1	2021	Coal Generation	Campbell 1	Routine	Condition-based	Air Preheater Baskets and Seals	\$ 100	\$ 1,902
2	2021	Coal Generation	Campbell 2	Routine	Condition-based	SAH Baskets and Seals	\$ 100	\$ 2,735
3	2021	Coal Generation	Campbell 2	Routine	Environmental	Pulse Jet Fabric Filter Bag Replacement	\$ -	\$ 1,884
4	2021	Coal Generation	Campbell 2	Routine	Condition-based	Generator Overhaul and Rewedge	\$ 150	\$ 1,462
5	2021	Coal Generation	Campbell 2	Non-routine	Condition-based	LP Turbine Blade Replacement	\$ -	\$ 7,260
6	2021	Coal Generation	Campbell 3	Non-routine	Condition-based	Reheater Sootblower	\$ -	\$ 1,350
7	2021	Coal Generation	Campbell 3	Routine	Condition-based	House Service Air Compressor Replacement	\$ 267	\$ 1,423
8	2021	Coal Generation	Campbell 3	Routine	Condition-based	Mill Complete Overhauls	\$ -	\$ 1,335
9	2021	Coal Generation	Campbell 3	Routine	Condition-based	Coal Fleet Fuel Handling Dozer Rebuilds	\$ 110	\$ 1,116
10	2021	Coal Generation	Campbell Site Commons	Non-routine	Environmental	SEEG - Compliance - Closed Loop W/ Recirc.	\$ 72	\$ 1,928
11	2021	Coal Generation	Campbell Site Commons	Routine	Environmental	Dry Ash Landfill Cell Construction & Permitting	\$ -	\$ 5,483
12	2021	Gas/Oil Generation	Karn 3&4 Commons	Non-routine	Asset Separation	Unit Separation	\$ 250	\$ 6,420
13	2021	Gas/Oil Generation	Karn 3&4 Commons	Non-routine	Economic	Startup Optimization	\$ -	\$ 1,250
14	2021	Gas/Oil Generation	Karn 4	Routine	Condition-based	4B ID Fan Replacement	\$ -	\$ 3,166
15	2021	Gas Generation	Jackson Site Commons	Non-routine	Economic	New Water Source Installation	\$ 210	\$ 5,925
16	2021	Gas Generation	Jackson Site Commons	Routine	Condition-based	GE LTSA Historical Extra Work Expected	\$ -	\$ 1,850
17	2021	Gas Generation	Jackson Site Commons	Routine	Condition-based	GE Long Term Service Agreement FFH	\$ -	\$ 10,600
18	2021	Gas Generation	Zeeland Site Commons	Routine	Infrastructure	Storage Building	\$ -	\$ 5,400
19	2021	Gas Generation	Zeeland Site Commons	Routine	Condition-based	Long Term Service Agreement - Running Capital Contract	\$ -	\$ 8,000
20	2021	Hydro Generation	Albana	Non-routine	Regulatory	Emergency Spillway	\$ -	\$ 1,090
21	2021	Hydro Generation	Five Channels	Non-routine	Regulatory	Five Channels Corewall Remediation	\$ 150	\$ 3,230
22	2021	Hydro Generation	Hardy	Routine	Infrastructure	New Headquarters Building (previously was Croton HQ)	\$ 100	\$ 2,500
23	2021	Hydro Generation	Hardy	Non-routine	Regulatory	Auxiliary Spillway Remediation	\$ 300	\$ 8,000
24	2021	Hydro Generation	Hodenpyl	Non-routine	Safety	Spillway Hoist Replacement	\$ -	\$ 1,520
25	2021	Hydro Generation	Loud	Non-routine	Regulatory	Training Wall Replacement Project	\$ -	\$ 2,800
26	2021	Hydro Generation	Webber	Non-routine	Condition-based	Unit 1 Overhaul & Generator Rewind	\$ 150	\$ 3,270
27	2021	Hydro Generation	Ludington Site Commons	Routine	Condition-based	16-424 HVAC Replacement	\$ -	\$ 1,275
28	2021	Hydro Generation	Ludington Site Commons	Non-routine	Economic	Upgrade and Overhaul	\$ -	\$ 13,780
29	2021	Hydro Generation	Ludington Site Commons	Non-routine	Regulatory	Design & Install Net Barrier Net (AMP)	\$ 100	\$ 1,305
30	2021	Hydro Generation	Ludington Site Commons	Non-routine	Condition-based	Reservoir Liner Replacement	\$ 600	\$ 6,610
31	2021	Hydro Generation	Ludington Site Commons	Non-routine	Condition-based	Replacement of LPS DAC 1 & 2	\$ 275	\$ 1,153
32	2021	Hydro Generation	Ludington Site Commons	Non-routine	Condition-based	Replace Lower Penstock Expansion Joint Chamber Waterstop	\$ 200	\$ 2,170
33	2021	Common Support	ERBS	Non-routine	Project Mgmt	EPMO Transformation - Enterprise Project Management Information System	\$ -	\$ 1,118
34	2021	Renewables	Solar Commons	Non-Routine	New Generation	2019 Bid Event (150 MW)	\$ 3,939	\$ 83,812
35	2021	Renewables	Solar Commons	Non-Routine	New Generation	2020 Bid Event (150 MW)	\$ 687	\$ 14,623
36	2021	Renewables	Solar Commons	Non-Routine	New Generation	Development & Land Acquisition	\$ -	\$ 24,000
37	<b>Total 2021 Projects</b>						<b>\$ 7,760</b>	<b>\$ 242,754</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**

**Schedule: B-5.2**

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Consumers Energy Company  
Summary of Actual and Projected Electric Capital Expenditures  
For the years 2019 through 2022  
Generation Capital Projects greater than \$1M  
(\$000's)

**Generation Capital Expenditures**

Line No.	(a) Calendar Year	(b) Tier 1 Portfolio	(c) Tier 2 Portfolio	(d) Project Type	(e) Project Classification	(f) Work Item Description	(g) Contingency Amount	(h) Projected Amount
1	2022	Coal Generation	Campbell 1	Routine	Environmental	Pulse Jet Fabric Filter Bag Replacement	100	1,578
2	2022	Coal Generation	Campbell 3	Non-Routine	Environmental	Design and Install new Large Particle Ash Screen	-	1,485
3	2022	Coal Generation	Campbell 3	Routine	Environmental	Pulse Jet Fabric Filter Bag & Cleaning Air Manifold Replacement	200	3,995
4	2022	Coal Generation	Campbell 3	Routine	Environmental	Selective Catalytic Reduction Catalyst Management	500	1,960
5	2022	Coal Generation	Campbell 3	Routine	Infrastructure	Boiler Roof Replacement	150	2,606
6	2022	Coal Generation	Campbell 3	Routine	Condition-based	Mill Complete Overhauls	-	1,265
7	2022	Coal Generation	Campbell Fuel Handling	Routine	Condition-based	Coal Fleet Fuel Handling Dozer Rebuilds	110	1,130
8	2022	Coal Generation	Campbell Site Commons	Non-Routine	Environmental	SEEG - Compliance - Closed Loop W/ Recirc.	602	15,421
9	2022	Gas/Oil Generation	Karn 3	Non-Routine	Condition-based	Ductwork Expansion Joint Replacement - ID Fans to Stack	75	2,750
10	2022	Gas/Oil Generation	Karn 3	Non-Routine	Condition-based	Cooling Tower Rebuild	-	2,500
11	2022	Gas/Oil Generation	Karn 3&4 Commons	Non-Routine	Asset Separation	Unit Separation	250	9,477
12	2022	Gas/Oil Generation	Karn 3&4 Commons	Routine	Condition-based	Tank Farm Storage Tank Healing Line Replacement	-	1,350
13	2022	Gas/Oil Generation	Karn 3&4 Commons	Non-Routine	Condition-based	Sync Wire Replacement	130	1,320
14	2022	Gas/Oil Generation	Karn 3&4 Commons	Routine	Infrastructure	Parking Lot Replacement	-	1,000
15	2022	Gas Generation	Jackson Site Commons	Routine	Condition-based	GE Long Term Service Agreement FFH	-	8,200
16	2022	Gas Generation	Zeeland Site Commons	Routine	Condition-based	Long Term Service Agreement - Running Capital Contract	-	8,000
17	2022	Hydro Generation	Croton	Routine	Condition-based	Croton 1 Wicket Gate	100	2,150
18	2022	Hydro Generation	Croton	Routine	Condition-based	Croton 2 Wicket Gate	100	2,150
19	2022	Hydro Generation	Croton	Routine	Infrastructure	New Headquarters Building	200	4,885
20	2022	Hydro Generation	Hardy	Routine	Safety	Replace powerhouse roof	100	1,575
21	2022	Hydro Generation	Hardy	Non-Routine	Regulatory	Right Embankment Toe Drain Header Replacement	170	1,710
22	2022	Hydro Generation	Hardy	Non-Routine	Regulatory	Auxiliary Spillway Remediation	600	19,850
23	2022	Hydro Generation	Hodenpyl	Non-Routine	Condition-based	Hodenpyl 1 Generator Rewind	100	1,579
24	2022	Hydro Generation	Hodenpyl	Non-Routine	Condition-based	Transformer Foundation	250	2,336
25	2022	Hydro Generation	Hodenpyl	Routine	Safety	Electrical Safety Project	-	2,363
26	2022	Hydro Generation	Mlo	Non-Routine	Regulatory	Left Retaining Wall Replacement	-	3,400
27	2022	Hydro Generation	Mlo	Routine	Safety	Electrical Safety Project	190	2,400
28	2022	Hydro Generation	Webber	Non-Routine	Condition-based	Unit 1 Overhaul & Generator Rewind	200	4,650
29	2022	Hydro Generation	Ludington Site Commons	Non-Routine	Safety	Powerhouse Roof Wearing Surface and Weather Proofing Replacement	200	3,065
30	2022	Hydro Generation	Ludington Site Commons	Non-Routine	Safety	Replace Lower Penstock Expansion Joint Chamber Waterstop	200	2,226
31	2022	Renewables	Solar Commons	Non-Routine	New Generation	2019 Bid Event (150 MW)	7,849	167,000
32	2022	Renewables	Solar Commons	Non-Routine	New Generation	2020 Bid Event (150 MW)	5,622	119,624
33	<b>Total 2022 Projects</b>						<b>\$ 17,998</b>	<b>\$ 404,990</b>

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Projected Electric Capital Expenditures  
For the projected test year 2022

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Exhibit No.: A-94 (SAH-4)

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Date: March 2021

**Generation Capital Expenditures**  
**AVOIDABLE & INCREMENTAL UNDER CAMPBELL 1 & 2 EARLY RETIREMENT MAY 31, 2024**  
**(\$000's)**

Line No.	(a) Description	(b) Non-Environmental	(c) Environmental
<b>Campbell 1 retirement scenario</b>			
1	JHCampbell 1		
2	Unavoidable	\$ 1,279	\$ 4,714
3	Avoidable	\$ 452	\$ 210
4	Incremental	\$ -	\$ -
<b>Campbell 2 retirement scenario</b>			
5	JHCampbell 2		
6	Unavoidable	\$ 1,558	\$ 4,235
7	Avoidable	\$ -	\$ 290
8	Incremental	\$ -	\$ -
<b>Campbell 1 and 2 retirement scenario</b>			
9	JHCampbell 1		
10	Unavoidable	\$ 1,279	\$ 4,714
11	Avoidable	\$ 452	\$ 210
12	Incremental	\$ -	\$ -
13	JHCampbell 2		
14	Unavoidable	\$ 1,558	\$ 4,235
15	Avoidable	\$ -	\$ 290
16	Incremental	\$ -	\$ -
17	JHCampbell 3		
18	Unavoidable	\$ 10,496	\$ 16,798
19	Avoidable	\$ -	\$ -
20	Incremental	\$ 4,000	\$ -

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Consumers Energy Company  
Summary of Projected Electric Capital Expenditures  
For the projected test year 2022

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**Generation Capital Expenditures**  
**AVOIDABLE & INCREMENTAL UNDER CAMPBELL 1 & 2 EARLY RETIREMENT MAY 31, 2025**  
**(\$000's)**

Line No.	(a) Description	(b) Non-Environmental	(c) Environmental
<b>Campbell 1 retirement scenario</b>			
1	JHCampbell 1		
2	Unavoidable	\$ 1,279	\$ 4,714
3	Avoidable	\$ 452	\$ 210
4	Incremental	\$ -	\$ -
<b>Campbell 2 retirement scenario</b>			
5	JHCampbell 2		
6	Unavoidable	\$ 1,558	\$ 4,235
7	Avoidable	\$ -	\$ 290
8	Incremental	\$ -	\$ -
<b>Campbell 1 and 2 retirement scenario</b>			
9	JHCampbell 1		
10	Unavoidable	\$ 1,279	\$ 4,714
11	Avoidable	\$ 452	\$ 210
12	Incremental	\$ -	\$ -
13	JHCampbell 2		
14	Unavoidable	\$ 1,558	\$ 4,235
15	Avoidable	\$ -	\$ 290
16	Incremental	\$ -	\$ -
17	JHCampbell 3		
18	Unavoidable	\$ 10,496	\$ 16,798
19	Avoidable	\$ -	\$ -
20	Incremental	\$ 4,000	\$ -

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of the Generation O&M Expense  
For the Years 2019 through 2022  
(\$000's)

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**GENERATION OPERATION AND MAINTENANCE EXPENSES**

Line No.	(a) Description	(b) Historical			(c) Projected Bridge Year		(d) Projected Test Year		(e)
		12 Months Ended 12/31/2019	12 Months Ended 12/31/2020	12 Months Ending 12/31/2021	12 Months Ending 12/31/2021	12 Months Ending 12/31/2022	12 Months Ending 12/31/2022	12 Months Ending 12/31/2022	
1	<b>BASE O&amp;M</b>	\$ 96,804	\$ 98,335	\$ 109,119	\$ 109,119	\$ 119,321			
2	<b>ADJUSTED O&amp;M</b>								
3	Environmental Operations	\$ 10,485	\$ 9,071	\$ 8,649	\$ 8,649	\$ 8,798			
4	Major Maintenance	\$ 19,804	\$ 24,783	\$ 32,667	\$ 32,667	\$ 28,544			
5	Karn Retention & Separation	\$ 5,921	\$ 12,345	\$ 7,440	\$ 7,440	\$ 5,137			
6	<b>TOTAL O&amp;M</b>	<b>\$ 133,015</b>	<b>\$ 144,534</b>	<b>\$ 150,434</b>	<b>\$ 150,434</b>	<b>\$ 156,662</b>			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of the Generation O&M Expense  
For the Years 2019 through 2022  
(\$000's)

Case No.: U-20963  
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**GENERATION OPERATION AND MAINTENANCE EXPENSES**

Line No.	Description	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)								
		2019 Actual	Base O&M for Inflation	Inflation	Inflation	Base O&M for Inflation	Inflation for the	Other Adjustments	Projected O&M	12 Mos Ending	Dec 31, 2022								
			12 Mos Ended	12 Mos Ended	12 Mos Ended	12 Mos Ending	12 Mos Ending												
			Dec 31, 2019	Dec 31, 2020	Dec 31, 2020	Dec 31, 2021	Dec 31, 2021	Dec 31, 2021	Dec 31, 2022										
				(c) * Inflation Rate	(e) * Inflation Rate			(g) * Inflation Rate			(b) + (d) + (f) + (h) + (i)								
1	Labor	\$	90,248	\$	71,315	\$	2,282	\$	73,597	\$	2,355	\$	75,952	\$	2,430	\$	8,045	\$	105,361
2	Material	\$	9,206	\$	9,206	\$	110	\$	9,316	\$	233	\$	9,549	\$	220	\$	(3,208)	\$	6,561
3	Contractor	\$	10,269	\$	10,269	\$	123	\$	10,392	\$	260	\$	10,652	\$	245	\$	9,842	\$	20,738
4	Non-Labor Other	\$	23,293	\$	23,293	\$	280	\$	23,572	\$	589	\$	24,161	\$	556	\$	(715)	\$	24,002
5	Total	\$	133,015	\$	114,082	\$	2,795	\$	116,877	\$	3,437	\$	120,315	\$	3,451	\$	13,964	\$	156,662

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of the Generation Major Maintenance O&M Expense  
For the Years 2019 through 2022  
(\$000's)

Case No.: U-20963  
Exhibit No.: A-95 (SAH-5)  
Page: 3 of 3  
Witness: SAHugo  
Date: March 2021

**GENERATION MAJOR MAINTENANCE EXPENSES**

Line No.	(a) Description	(b) Historical				(c) Projected Bridge Year		(d) 12 Months Ending		(e) Projected Test Year	
		12 Months Ended		12 Months Ended		12 Months Ended		12 Months Ending		12 Months Ending	
		12/31/2019		12/31/2020		12/31/2021		12/31/2021		12/31/2022	
1	<b>Major Maintenance</b>										
2	Campbell 1&2	\$	2,092	\$	6,700	\$	8,754	\$	3,462		
3	Campbell 3	\$	2,466	\$	1,422	\$	6,006	\$	4,375		
4	Karn 1&2	\$	2,269	\$	2,015	\$	2,996	\$	2,955		
5	Karn 3&4	\$	685	\$	405	\$	500	\$	1,658		
6	Classic 7	\$	181	\$	75	\$	230	\$	220		
7	Zeeland Generating Station	\$	2,831	\$	2,815	\$	4,377	\$	4,706		
8	Jackson Generating Station	\$	2,716	\$	4,555	\$	2,749	\$	2,563		
9	Ludington	\$	2,865	\$	2,904	\$	2,923	\$	2,884		
10	Hydros	\$	3,700	\$	3,893	\$	3,871	\$	5,488		
11	Admin & Other	\$	-	\$	-	\$	262	\$	234		
12	<b>TOTAL Major Maintenance</b>	\$	<b>19,804</b>	\$	<b>24,783</b>	\$	<b>32,667</b>	\$	<b>28,544</b>		

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Projected Electric O&M Major Maintenance Expenses

For the projected test year 2022

(\$000's)

Case No.: U-20963

Exhibit No.: A-96 (SAH-6)

Page: 1 of 2

Witness: SAHugo

Date: March 2021

**Generation O&M Major Maintenance Expenses  
AVOIDABLE UNDER CAMPBELL 1 & 2 EARLY RETIREMENT MAY 31, 2024**

Line No.	(a) Description	(b) Non-Environmental	(c) Environmental
<b>Campbell 1 retirement scenario</b>			
1	JHCampbell 1		
2	Unavoidable	\$ 1,764	\$ 249
3	Avoidable	\$ -	\$ -
<b>Campbell 2 retirement scenario</b>			
4	JHCampbell 2		
5	Unavoidable	\$ 1,476	\$ 381
6	Avoidable	\$ -	\$ -
<b>Campbell 1 and 2 retirement scenario</b>			
7	JHCampbell 1		
8	Unavoidable	\$ 1,764	\$ 249
9	Avoidable	\$ -	\$ -
10	JHCampbell 2		
11	Unavoidable	\$ 1,476	\$ 381
12	Avoidable	\$ -	\$ -
13	JHCampbell 3		
14	Unavoidable	\$ 3,727	\$ 647
15	Avoidable	\$ -	\$ -

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company  
Summary of Projected Electric O&M Major Maintenance Expenses  
For the projected test year 2022

Case No.: U-20963  
Exhibit No.: A-96 (SAH-6)  
Page: 2 of 2  
Witness: SAHugo  
Date: March 2021

**Generation O&M Major Maintenance Expenses  
AVOIDABLE UNDER CAMPBELL 1 & 2 EARLY RETIREMENT MAY 31, 2025  
(\$000's)**

Line No.	(a) Description		(b) Non-Environmental		(c) Environmental
<b>Campbell 1 retirement scenario</b>					
1	JHCampbell 1				
2	Unavoidable	\$	1,764	\$	249
3	Avoidable	\$	-	\$	-
<b>Campbell 2 retirement scenario</b>					
4	JHCampbell 2				
5	Unavoidable	\$	1,476	\$	381
6	Avoidable	\$	-	\$	-
<b>Campbell 1 and 2 retirement scenario</b>					
7	JHCampbell 1				
8	Unavoidable	\$	1,764	\$	249
9	Avoidable	\$	-	\$	-
10	JHCampbell 2				
11	Unavoidable	\$	1,476	\$	381
12	Avoidable	\$	-	\$	-
13	JHCampbell 3				
14	Unavoidable	\$	3,727	\$	647
15	Avoidable	\$	-	\$	-

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**PRIYA D. MACHI**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Actual and Projected Capital Expenditures  
 Home Battery Pilot  
 (\$000)

**Schedule B-5.4**

Case No.: U-20963  
 Exhibit No.: A-12 (PDM-1)  
 Schedule: B-5.4  
 Page: 1 of 1  
 Witness: PDMachi  
 Date: March 2021

Line No	( a )  Cost Category	( b )	( c )	( d )	( e )	( f )
		Historical Year 12 Mos Ended 12/31/2019	Projected Bridge Year			Projected Test Year 12 Mos Ending 12/31/2022
		12 Mos Ending 12/31/2020	12 Mos Ending 12/31/2021	24 Mos Ending 12/31/2021		
1	Home Battery Pilot	-	-	-	-	3,200
2	Contractor	-	-	-	-	3,200
3	Labor	-	-	-	-	-
4	Materials	-	-	-	-	-
5	Business Expenses	-	-	-	-	-
6	Contingency	-	-	-	-	-
7	Other (Loadings, Chargebacks)	-	-	-	-	-
8	Total Capital	-	-	-	-	3,200

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Deferred Cost Proposal  
Home Battery Pilot  
(\$000)

Case No.: U-20963  
Exhibit No.: A-98 (PDM-2)  
Page: 1 of 1  
Witness: PDMachi  
Date: March 2021

( a )

( b )

Line No.	Description	12 Mos Ending Dec-31-2022 Projected
1	<b>Home Battery Pilot (Utility-Owned)</b>	<b>203</b>
2	Labor	150
3	Material	0
4	Contractor	53
5	Non-Labor Overheads	0
6	Non-Labor Other	0
7	<b>Home Battery Pilot (BYOD)</b>	<b>2,178</b>
8	Labor	150
9	Material	0
10	Contractor	253
11	Non-Labor Overheads	0
12	Non-Labor Other	1,775
13	<b>Total Home Battery Pilot Cost Deferral</b>	<b>\$ 2,380</b>
14	Labor	300
15	Material	0
16	Contractor	305
17	Non-Labor Overheads	0
18	Non-Labor Other	1,775

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
**OF**  
**HUBERT W. MILLER, III**  
**ON BEHALF OF**  
**CONSUMERS ENERGY COMPANY**

March 2021

## Schedule F-2.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

Summary of Present and Proposed Pro Forma Revenues by Rate Schedule

Total Revenues

Case No.: U-20963

Exhibit No.: A-16 (HWM-1)

Schedule: F-2.0

Page: 1 of 3

Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )	( g )
Line				Revenue		Net Increase / (Decrease)	
No.	Description	Customers	Sales	Present	Proposed	Revenue	Percent
		Mthly	MWh	\$000	\$000	\$000	%
<b>BUNDLED SERVICE</b>							
<u>Residential Class</u>							
1	Summer On-peak RSP	1,602,108	12,395,968	\$ 2,115,758	\$ 2,302,741	\$ 186,984	8.8
2	Smart Hours RSH	3,426	61,751	10,155	11,076	920	9.1
3	Night Time Savers RPM	661	7,781	1,244	1,359	115	9.2
4	Non-Transmitting Meters RSM	21,468	155,848	27,809	30,157	2,348	8.4
5	Total Residential Class	1,627,664	12,621,349	\$ 2,154,966	\$ 2,345,333	\$ 190,367	8.8
<u>Secondary Class</u>							
6	Energy-only GS	196,245	3,830,222	\$ 583,108	\$ 572,520	\$ (10,589)	(1.8)
7	Time-of-Use GSTU	130	9,437	1,409	1,328	(81)	(5.7)
8	Demand GSD	19,658	3,125,108	390,478	400,009	9,531	2.4
9	Total Secondary	216,033	6,964,767	\$ 974,995	\$ 973,856	\$ (1,139)	(0.1)
<u>Primary Class</u>							
10	Energy-only GP	1,545	831,038	\$ 85,185	\$ 87,746	\$ 2,561	3.0
11	Demand GPD	882	4,265,719	333,190	361,393	28,203	8.5
12	Time-of-Use GPTU	1,238	4,967,400	454,153	458,890	4,737	1.0
13	Energy Intensive EIP	18	457,385	27,942	30,484	2,542	9.1
14	Total Primary	3,683	10,521,542	\$ 900,470	\$ 938,513	\$ 38,043	4.2
<u>Lighting &amp; Unmetered Class</u>							
15	Metered Lighting GML	359	13,118	\$ 1,442	\$ 1,324	\$ (118)	(8.2)
16	Universal Unmetered Lighting UUL	4,532	81,654	27,334	23,131	(4,203)	(15.4)
17	Unmetered GU	476	100,655	9,651	10,180	529	5.5
18	Total Lighting & Unmetered	5,367	195,427	\$ 38,427	\$ 34,635	\$ (3,792)	(9.9)
<u>Self-generation Class</u>							
19	Small Self-generation GSG-1	-	-	\$ -	\$ -	\$ -	NA
20	Large Self-generation GSG-2	15	72,150	5,065	5,158	93	1.8
21	Total Self-generation	15	72,150	\$ 5,065	\$ 5,158	\$ 93	1.8
22	Total Bundled Service	1,852,762	30,375,234	\$ 4,073,923	\$ 4,297,496	\$ 223,572	5.5
<b>ROA SERVICE</b>							
<u>Secondary Class</u>							
23	Energy-only GS	105	23,110	\$ 1,118	\$ 1,019	\$ (99)	(8.8)
24	Demand GSD	469	181,202	6,584	6,710	126	1.9
25	Total Secondary	574	204,312	\$ 7,702	\$ 7,729	\$ 28	0.4
<u>Primary Class</u>							
26	Energy-only GP	60	74,933	\$ 1,179	\$ 1,108	\$ (71)	(6.0)
27	Demand GPD	345	3,318,766	19,089	21,010	1,922	10.1
28	Total Primary	405	3,393,699	\$ 20,267	\$ 22,118	\$ 1,851	9.1
29	Total ROA Service	979	3,598,011	\$ 27,969	\$ 29,848	\$ 1,879	6.7
30	Total Jurisdictional Service	1,853,741	33,973,245	\$ 4,101,892	\$ 4,327,343	\$ 225,451	5.5
31	Less: PSCR Factor Revenues			17,229	17,229	0	
32	Less: GSG-2 and GI-2 PSCR Revenues			5,582	5,871	288	
33	Total Jurisdictional Base Revenues			\$ 4,079,081	\$ 4,304,243	\$ 225,162	
34	Rounding				(62)	(62)	
35	Total Jurisdictional Base Revenues				\$ 4,304,181	\$ 225,101	

**Schedule F-2.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Present and Proposed Pro Forma Revenues by Rate Schedule

Production & Transmission Revenues

Case No.: U-20963

Exhibit No.: A-16 (HWM-1)

Schedule: F-2.0

Page: 2 of 3

Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )
Line			Revenue		Net Increase / (Decrease)	
No.	Description	Sales	Present	Proposed	Revenue	Percent
		MWh	\$000	\$000	\$000	%
<b>BUNDLED SERVICE</b>						
<u>Residential Class</u>						
1	Summer On-peak RSP	12,395,968	\$ 1,292,142	\$ 1,314,321	\$ 22,179	1.7
2	Smart Hours RSH	61,751	6,419	6,518	99	1.5
3	Night Time Savers RPM	7,781	747	758	11	1.5
4	Non-Transmitting Meters RSM	155,848	16,512	16,788	276	1.7
5	Total Residential Class	12,621,349	\$ 1,315,820	\$ 1,338,386	\$ 22,566	1.7
<u>Secondary Class</u>						
6	Energy-only GS	3,830,222	\$ 353,048	\$ 358,867	\$ 5,818	1.6
7	Time-of-Use GSTU	9,437	926	886	(41)	(4.4)
8	Demand GSD	3,125,108	272,177	279,453	7,276	2.7
9	Total Secondary	6,964,767	\$ 626,152	\$ 639,206	\$ 13,054	2.1
<u>Primary Class</u>						
10	Energy-only GP	831,038	\$ 70,907	\$ 74,283	\$ 3,376	4.8
11	Demand GPD	4,265,719	301,629	326,034	24,404	8.1
12	Time-of-Use GPTU	4,967,400	401,930	398,783	(3,147)	(0.8)
13	Energy Intensive EIP	457,385	26,131	28,624	2,492	9.5
14	Total Primary	10,521,542	\$ 800,598	\$ 827,723	\$ 27,126	3.4
<u>Lighting &amp; Unmetered Class</u>						
15	Metered Lighting GML	13,118	\$ 653	\$ 682	\$ 29	4.5
16	Universal Unmetered Lighting UUL	81,654	4,032	4,155	122	3.0
17	Unmetered GU	100,655	7,525	7,658	133	1.8
18	Total Lighting & Unmetered	195,427	\$ 12,210	\$ 12,494	\$ 284	2.3
<u>Self-generation Class</u>						
19	Small Self-generation GSG-1	-	\$ -	\$ -	\$ -	NA
20	Large Self-generation GSG-2	72,150	3,655	3,655	-	-
21	Total Self-generation	72,150	\$ 3,655	\$ 3,655	\$ -	-
22	Total Bundled Service	30,375,234	\$ 2,758,434	\$ 2,821,464	\$ 63,030	2.3
<b>ROA SERVICE</b>						
<u>Secondary Class</u>						
23	Energy-only GS	-	\$ -	\$ -	\$ -	NA
24	Demand GSD	-	-	-	-	NA
25	Total Secondary	-	\$ -	\$ -	\$ -	NA
<u>Primary Class</u>						
26	Energy-only GP	-	\$ -	\$ -	\$ -	NA
27	Demand GPD	-	-	-	-	NA
28	Total Primary	-	\$ -	\$ -	\$ -	NA
29	Total ROA Service	-	\$ -	\$ -	\$ -	NA
30	Total Jurisdictional Service	30,375,234	\$ 2,758,434	\$ 2,821,464	\$ 63,030	2.3
31	Less: PSCR Factor Revenues		17,229	17,229	0	
32	Less: GSG-2 and GI-2 PSCR Revenues		5,582	5,871	288	
33	Total Jurisdictional Base Revenues		\$ 2,735,622	\$ 2,798,364	\$ 62,741	
34	Rounding			(19)	(19)	
35	Total Jurisdictional Base Revenues			\$ 2,798,345	\$ 62,723	

**Schedule F-2.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Present and Proposed Pro Forma Revenues by Rate Schedule

Delivery Revenues

Case No.: U-20963  
Exhibit No.: A-16 (HWM-1)  
Schedule: F-2.0  
Page: 3 of 3  
Witness: HWMiller  
Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )
Line			Revenue		Net Increase / (Decrease)	
No.	Description	Sales	Present	Proposed	Revenue	Percent
		MWh	\$000	\$000	\$000	%
<b>BUNDLED SERVICE</b>						
<u>Residential Class</u>						
1	Summer On-peak RSP	12,395,968	\$ 823,616	\$ 988,420	\$ 164,804	20.0
2	Smart Hours RSH	61,751	3,736	4,557	821	22.0
3	Night Time Savers RPM	7,781	498	601	103	20.8
4	Non-Transmitting Meters RSM	155,848	11,297	13,369	2,072	18.3
5	Total Residential Class	12,621,349	\$ 839,146	\$ 1,006,947	\$ 167,801	20.0
<u>Secondary Class</u>						
6	Energy-only GS	3,830,222	\$ 230,060	\$ 213,653	\$ (16,407)	(7.1)
7	Time-of-Use GSTU	9,437	482	442	(40)	(8.4)
8	Demand GSD	3,125,108	118,301	120,556	2,254	1.9
9	Total Secondary	6,964,767	\$ 348,843	\$ 334,650	\$ (14,193)	(4.1)
<u>Primary Class</u>						
10	Energy-only GP	831,038	\$ 14,277	\$ 13,463	\$ (815)	(5.7)
11	Demand GPD	4,265,719	31,561	35,360	3,798	12.0
12	Time-of-Use GPTU	4,967,400	52,223	60,108	7,884	15.1
13	Energy Intensive EIP	457,385	1,811	1,860	49	2.7
14	Total Primary	10,521,542	\$ 99,873	\$ 110,790	\$ 10,918	10.9
<u>Lighting &amp; Unmetered Class</u>						
15	Metered Lighting GML	13,118	\$ 789	\$ 642	\$ (147)	(18.6)
16	Universal Unmetered Lighting UUL	81,654	23,302	18,977	(4,326)	(18.6)
17	Unmetered GU	100,655	2,125	2,522	396	18.6
18	Total Lighting & Unmetered	195,427	\$ 26,217	\$ 22,141	\$ (4,076)	(15.5)
<u>Self-generation Class</u>						
19	Small Self-generation GSG-1	-	\$ -	\$ -	\$ -	NA
20	Large Self-generation GSG-2	72,150	1,410	1,503	93	6.6
21	Total Self-generation	72,150	\$ 1,410	\$ 1,503	\$ 93	6.6
22	Total Bundled Service	30,375,234	\$ 1,315,489	\$ 1,476,032	\$ 160,543	12.2
<b>ROA SERVICE</b>						
<u>Secondary Class</u>						
23	Energy-only GS	23,110	\$ 1,118	\$ 1,019	\$ (99)	(8.8)
24	Demand GSD	181,202	6,584	6,710	126	1.9
25	Total Secondary	204,312	\$ 7,702	\$ 7,729	\$ 28	0.4
<u>Primary Class</u>						
26	Energy-only GP	74,933	\$ 1,179	\$ 1,108	\$ (71)	(6.0)
27	Demand GPD	3,318,766	19,089	21,010	1,922	10.1
28	Total Primary	3,393,699	\$ 20,267	\$ 22,118	\$ 1,851	9.1
29	Total ROA Service	3,598,011	\$ 27,969	\$ 29,848	\$ 1,879	6.7
30	Total Jurisdictional Service	33,973,245	\$ 1,343,458	\$ 1,505,880	\$ 162,421	12.1
31	Rounding			(43)	(43)	
32	Total Jurisdictional Base Revenues			\$ 1,505,836	\$ 162,378	

Schedule F-2.1

Line No.	Description	Jurisdictional	Secondary Class		Primary Class			Lighting & Unmetered Class			Self Gen. Class		Source	
			Residential	GS	GSD	GP	GPD	GPTU	EIP	GML	UUL	GU		GSG-1
<b>Production</b>														
1	Capacity (SRM)	\$ 1,388,492	\$ 750,666	\$ 174,752	\$ 129,520	\$ 34,007	\$ 119,908	\$ 175,322	\$ -	\$ -	\$ -	\$ 2,795	\$ -	\$ 1,521
<u>Capacity Adjustments<sup>1</sup></u>														
2	DR Credits	(0)	(1,439)	543	(137)	106	373	545	-	-	-	9	-	-
3	DR Program Funding	(46,762)	(24,032)	(5,954)	(4,524)	(1,177)	(4,436)	(6,321)	(171)	(5)	(33)	(111)	-	-
4	Energy Intensive	0	(2,061)	(480)	(356)	(93)	(329)	(481)	3,808	-	-	(8)	-	-
5	Self Generation	-	823	192	142	37	131	192	-	-	-	3	-	(1,521)
6	Total Adjustments	(46,762)	(26,708)	(5,699)	(4,875)	(1,127)	(4,261)	(6,064)	3,637	(5)	(33)	(107)	-	(1,521)
7	Capacity (SRM) Design Target	\$ 1,341,730	\$ 723,958	\$ 169,054	\$ 124,645	\$ 32,880	\$ 115,648	\$ 169,258	\$ 3,637	\$ (5)	\$ (33)	\$ 2,688	\$ -	\$ -
<b>Energy<sup>2</sup></b>														
8	Energy <sup>2</sup>	\$ 916,471	\$ 345,046	\$ 121,030	\$ 101,895	\$ 27,140	\$ 135,608	\$ 160,557	\$ 18,549	\$ 545	\$ 3,303	\$ 3,615	\$ -	\$ (817)
<u>Energy Adjustments<sup>1</sup></u>														
9	Self Generation	\$ -	\$ (307)	\$ (108)	\$ (91)	\$ (24)	\$ (121)	\$ (143)	\$ (17)	\$ (0)	\$ (3)	\$ (3)	\$ -	\$ 817
10	Crossing Point	-	-	-	-	-	10,000	(10,000)	-	-	-	-	-	-
11	Total Adjustments	(307)	(108)	(91)	(24)	(24)	9,879	(10,143)	(17)	(0)	(3)	(3)	-	817
12	Energy Design Target	\$ 916,471	\$ 344,738	\$ 120,922	\$ 101,804	\$ 27,116	\$ 145,487	\$ 150,414	\$ 18,533	\$ 544	\$ 3,300	\$ 3,612	\$ -	\$ -
13	Total Production	\$ 2,258,201	\$ 1,068,696	\$ 289,976	\$ 226,449	\$ 59,996	\$ 261,135	\$ 319,672	\$ 22,170	\$ 539	\$ 3,267	\$ 6,300	\$ -	\$ -
<b>Transmission</b>														
14	Transmission	493,382	238,116	61,542	46,578	12,618	55,799	69,852	6,014	130	807	1,188	-	739
15	Self Generation	-	357	92	70	19	84	105	9	0	1	2	-	(739)
17	Transmission Design Target	\$ 493,382	\$ 238,473	\$ 61,634	\$ 46,648	\$ 12,637	\$ 55,882	\$ 69,957	\$ 6,023	\$ 130	\$ 808	\$ 1,190	\$ -	\$ -
<b>Delivery</b>														
18	Distribution	\$ 1,288,396	\$ 852,390	\$ 174,102	\$ 118,811	\$ 11,764	\$ 57,708	\$ 51,844	\$ 747	\$ 176	\$ 18,197	\$ 2,407	\$ -	\$ 250
19	Customer	217,441	163,549	37,842	6,217	2,350	3,326	2,882	89	38	1,054	60	-	33
20	Subtotal Delivery	1,505,836	1,015,940	211,944	125,028	14,114	61,034	54,726	836	214	19,251	2,467	-	283
<u>Credit Adjustments<sup>3</sup></u>														
21	Substation Credits	\$ (0)	\$ 1,108	\$ 226	\$ 154	\$ 2	\$ (470)	\$ (515)	\$ (397)	\$ 0	\$ 24	\$ 3	\$ -	\$ (136)
22	Metered Streetlighting	-	-	-	-	-	-	-	-	424	(424)	-	-	-
23	Life Line Credits	(0)	(10,096)	2,943	2,084	454	1,925	2,381	131	5	121	52	-	-
24	Total Adjustments	(0)	(8,988)	3,169	2,238	456	1,455	1,865	(265)	429	(279)	55	-	(136)
25	Total Delivery Design Target	\$ 1,505,836	\$ 1,006,952	\$ 215,113	\$ 127,266	\$ 14,570	\$ 62,490	\$ 56,591	\$ 570	\$ 642	\$ 18,972	\$ 2,522	\$ -	\$ 148
26	Total Rate Design Target	\$ 4,257,419	\$ 2,314,122	\$ 566,724	\$ 400,363	\$ 87,203	\$ 379,507	\$ 446,220	\$ 28,763	\$ 1,311	\$ 23,047	\$ 10,012	\$ -	\$ 148
27	DR Surcharge	\$ 46,762	\$ 24,032	\$ 5,954	\$ 4,524	\$ 1,177	\$ 4,436	\$ 6,321	\$ 171	\$ 5	\$ 33	\$ 111	\$ -	\$ -
28	Total Revenue Requirement	\$ 4,304,181	\$ 2,338,154	\$ 572,677	\$ 404,888	\$ 88,380	\$ 383,943	\$ 452,540	\$ 28,934	\$ 1,317	\$ 23,079	\$ 10,123	\$ -	\$ 148

Notes

1 Capacity and energy production costs adjusted to capture elements occurring outside the Cost-of-Service Study

2 Includes Non-SRM Capacity related costs.

3 Credit adjustments approved in Case No. U-20697.

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

## Present and Proposed Revenue Detail

## Residential Summer On-peak (RSP)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

Page: 1 of 25

Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
BUNDLED SERVICE									
Production									
Summer (June - Sept.)									
Non-capacity									
1	On-peak kWh	871,737	MWh	@	0.051915	\$ 45,256	0.036818	\$ 32,096	\$ (13,161)
2	Off-peak kWh	3,620,017	MWh	@	0.034955	126,538	0.024590	89,016	(37,521)
Capacity									
3	On-peak kWh	871,737	MWh	@	0.067740	59,051	0.083881	73,122	14,071
4	Off-peak kWh	3,620,017	MWh	@	0.045530	164,819	0.056379	204,093	39,274
Winter (Oct. - May)									
5	Non-capacity All kWh	7,903,864	MWh	@	0.040130	317,182	0.027486	217,246	(99,936)
6	Capacity All kWh	7,903,864	MWh	@	0.044655	352,947	0.055324	437,273	84,326
Provisions									
Device Cycling									
7	AC Cycling	328,178	Bills	@	(8.00)	(2,625)	(6.00)	(1,969)	656
8	Back-Up Generator Pilot	6,000	Bills	@	-	-	(11.20)	(67)	(67)
9	Electric Water Tank Pilot	24,000	Bills	@	-	-	(1.60)	(38)	(38)
10	Peak Time Rewards	1,347	MWh	@	(1.00)	(1,347)	(1.00)	(1,347)	-
Critical Peak Pricing									
11	Critical-peak Charge	350	MWh	@	1.00	350	1.00	350	-
12	Non-critical Credits	22,987	MWh	@	(0.018259)	(420)	(0.015226)	(350)	70
13	Annual PSCR Factor	12,395,968	MWh	@	0.000570	7,066	0.000570	7,066	-
14	Total Production					\$ 1,068,817		\$ 1,056,490	\$ (12,327)
Transmission									
Summer (June - Sept.)									
15	On-peak kWh	871,737	MWh	@	0.030001	\$ 26,153	0.031465	\$ 27,429	\$ 1,276
16	Off-peak kWh	3,620,017	MWh	@	0.020164	72,994	0.021149	76,560	3,566
Winter (Oct. - May)									
17	All kWh	7,903,864	MWh	@	0.015711	124,178	0.016478	130,240	6,062
18	Total Transmission					\$ 223,325		\$ 234,229	\$ 10,904
Delivery									
19	System Access	19,225,297	Bills	@	8.00	\$ 153,802	8.00	\$ 153,802	\$ -
20	Distribution	12,395,968	MWh	@	0.055826	692,017	0.069121	856,822	164,804
Provisions									
21	Senior Citizen (RSC)	3,426,766	Bills	@	(4.00)	(13,707)	(4.00)	(13,707)	-
22	Low Income Credit (LIAC)	50,400	Bills	@	(30.00)	(1,512)	(30.00)	(1,512)	-
23	Income Assistance (RIA)	873,136	Bills	@	(8.00)	(6,985)	(8.00)	(6,985)	-
24	Total Delivery					\$ 823,616		\$ 988,420	\$ 164,804
25	Total Bundled Service					\$ 2,115,758		\$ 2,279,139	\$ 163,381
ROA SERVICE									
Delivery									
26	System Access	-	Bills	@	8.00	\$ -	8.00	\$ -	\$ -
27	Distribution	-	MWh	@	0.055826	-	0.069121	-	-
Provisions									
28	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
29	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
30	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
31	Total Delivery					\$ -		\$ -	\$ -
32	Total Bundled & ROA Service					\$ 2,115,758		\$ 2,279,139	\$ 163,381

## Schedule F-3.0

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
 Present and Proposed Revenue Detail

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
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 Witness: HWMiller  
 Date: March 2021

Residential Smart Hours (RSH)

	(a)	(b)	(c)		(d)	(e)	(f)	(g)	(h)
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kWh	4,073	MWh	@	0.051915	\$ 211	0.036818	\$ 150	\$ (61)
2	Off-peak kWh	15,996	MWh	@	0.034955	559	0.024590	393	(166)
	Capacity								
3	On-peak kWh	4,073	MWh	@	0.067740	276	0.083881	342	66
4	Off-peak kWh	15,996	MWh	@	0.045530	728	0.056379	902	174
	Winter (Oct. - May)								
	Non-capacity								
5	On-peak kWh	7,394	MWh	@	0.041718	308	0.028831	213	(95)
6	Off-peak kWh	34,287	MWh	@	0.039440	1,352	0.027128	930	(422)
	Capacity								
7	On-peak kWh	7,394	MWh	@	0.049013	362	0.060661	449	86
8	Off-peak kWh	34,287	MWh	@	0.043086	1,477	0.053326	1,828	351
	Provisions								
	Device Cycling								
9	AC Cycling	24	Bills	@	(8.00)	(0)	(6.00)	(0)	0
10	Back-Up Generator Pilot	-	Bills	@	-	-	(11.20)	-	-
11	Electric Water Tank Pilot	-	Bills	@	-	-	(1.60)	-	-
12	Peak Time Rewards	1	MWh	@	(1.00)	(1)	(1.00)	(1)	-
	Critical Peak Pricing								
13	Critical-peak Charge	-	MWh	@	1.00	-	1.00	-	-
14	Non-critical Credits	17	MWh	@	(0.018259)	(0)	(0.015226)	(0)	0
15	Annual PSQR Factor	61,751	MWh	@	0.000570	35	0.000570	35	-
16	Total Production					\$ 5,309		\$ 5,241	\$ (68)
	Transmission								
	Summer (June - Sept.)								
17	On-peak kWh	4,073	MWh	@	0.030001	\$ 122	0.031465	\$ 128	\$ 6
18	Off-peak kWh	15,996	MWh	@	0.020164	323	0.021149	338	16
	Winter (Oct. - May)								
19	On-peak kWh	7,394	MWh	@	0.017722	131	0.018467	137	6
20	Off-peak kWh	34,287	MWh	@	0.015579	534	0.016234	557	22
21	Total Transmission					\$ 1,110		\$ 1,160	\$ 50
	Delivery								
22	System Access	41,117	Bills	@	8.00	\$ 329	8.00	\$ 329	\$ -
23	Distribution	61,751	MWh	@	0.055826	3,447	0.069121	4,268	821
	Provisions								
24	Senior Citizen (RSC)	7,895	Bills	@	(4.00)	(32)	(4.00)	(32)	-
25	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
26	Income Assistance (RIA)	1,032	Bills	@	(8.00)	(8)	(8.00)	(8)	-
27	Total Delivery					\$ 3,736		\$ 4,557	\$ 821
28	Total Bundled Service					\$ 10,155		\$ 10,958	\$ 803
	ROA SERVICE								
	Delivery								
29	System Access	-	Bills	@	8.00	\$ -	8.00	\$ -	\$ -
30	Distribution	-	MWh	@	0.055826	-	0.069121	-	-
	Provisions								
31	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
32	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
33	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
34	Total Delivery					\$ -		\$ -	\$ -
35	Total Bundled & ROA Service					\$ 10,155		\$ 10,958	\$ 803

## Schedule F-3.0

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Present and Proposed Revenue Detail  
 Residential Nighttime Savers (RPM)

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
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 Witness: HWMiller  
 Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kWh	438	MWh	@	0.051915	\$ 23	0.036818	\$ 16	\$ (7)
2	Off-peak kWh	1,048	MWh	@	0.043044	45	0.030234	32	(13)
3	Super Off-peak kWh	1,429	MWh	@	0.029226	42	0.020278	29	(13)
	Capacity								
4	On-peak kWh	438	MWh	@	0.067740	30	0.083881	37	7
5	Off-peak kWh	1,048	MWh	@	0.049800	52	0.060293	63	11
6	Super Off-peak kWh	1,429	MWh	@	0.030317	43	0.036705	52	9
	Winter (Oct. - May)								
	Non-capacity								
7	On-peak kWh	834	MWh	@	0.041718	35	0.028831	24	(11)
8	Off-peak kWh	1,666	MWh	@	0.046265	77	0.032006	53	(24)
9	Super Off-peak kWh	2,366	MWh	@	0.035654	84	0.024675	58	(26)
	Capacity								
10	On-peak kWh	834	MWh	@	0.049013	41	0.060661	51	10
11	Off-peak kWh	1,666	MWh	@	0.043846	73	0.057316	95	22
12	Super Off-peak kWh	2,366	MWh	@	0.031447	74	0.041108	97	23
	Provisions								
	Device Cycling								
13	AC Cycling	-	Bills	@	(8.00)	-	(6.00)	-	-
14	Back-Up Generator Pilot	-	Bills	@	-	-	(11.20)	-	-
15	Electric Water Tank Pilot	-	Bills	@	-	-	(1.60)	-	-
16	Peak Time Rewards	-	MWh	@	(1.00)	-	(1.00)	-	-
	Critical Peak Pricing								
17	Critical-peak Charge	-	MWh	@	1.00	-	1.00	-	-
18	Non-critical Credits	-	MWh	@	(0.018259)	-	(0.015226)	-	-
19	Annual PSCR Factor	7,781	MWh	@	0.000570	4	0.000570	4	-
20	Total Production					\$ 624		\$ 613	\$ (11)
	Transmission								
	Summer (June - Sept.)								
21	On-peak kWh	438	MWh	@	0.030001	\$ 13	0.031465	\$ 14	\$ 1
22	Off-peak kWh	1,048	MWh	@	0.021589	23	0.023042	24	2
23	Super Off-peak kWh	1,429	MWh	@	0.013143	19	0.014027	20	1
	Winter (Oct. - May)								
24	On-peak kWh	834	MWh	@	0.017722	15	0.018467	15	1
25	Off-peak kWh	1,666	MWh	@	0.015875	26	0.016943	28	2
26	Super Off-peak kWh	2,366	MWh	@	0.011386	27	0.012152	29	2
27	Total Transmission					\$ 123		\$ 130	\$ 8
	Delivery								
28	System Access	7,938	Bills	@	8.00	\$ 64	8.00	\$ 64	\$ -
29	Distribution	7,781	MWh	@	0.055826	434	0.069121	538	103
	Provisions								
30	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
31	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
32	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
33	Total Delivery					\$ 498		\$ 601	\$ 103
34	Total Bundled Service					\$ 1,244		\$ 1,344	\$ 100
	ROA SERVICE								
	Delivery								
35	System Access	-	Bills	@	8.00	\$ -	8.00	\$ -	\$ -
36	Distribution	-	MWh	@	0.055826	-	0.069121	-	-
	Provisions								
37	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
38	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
39	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
40	Total Delivery					\$ -		\$ -	\$ -
41	Total Bundled & ROA Service					\$ 1,244		\$ 1,344	\$ 100

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Present and Proposed Revenue Detail

Residential Non-Transmitting Meters (RSM)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

		( a )	( b )	( c )	( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	<b>BUNDLED SERVICE</b>								
	<b>Production</b>								
	<u>Summer (June - Sept.)</u>								
	Non-capacity								
1	First 600 kWh	36,313	MWh	@	0.040130	\$ 1,457	0.027486	\$ 998	\$ (459)
2	Excess kWh	20,407	MWh	@	0.051915	1,059	0.036818	751	(308)
	Capacity								
3	First 600 kWh	36,313	MWh	@	0.044655	1,622	0.055324	2,009	387
4	Excess kWh	20,407	MWh	@	0.053239	1,086	0.072513	1,480	393
	<u>Winter (Oct. - May)</u>								
5	Non-capacity All kWh	99,128	MWh	@	0.040130	3,978	0.027486	2,725	(1,253)
6	Capacity All kWh	99,128	MWh	@	0.044655	4,427	0.055324	5,484	1,058
7	Annual PSCR Factor	155,848	MWh	@	0.000570	89	0.000570	89	-
8	Total Production					\$ 13,718		\$ 13,536	\$ (182)
	<b>Transmission</b>								
	<u>Summer (June - Sept.)</u>								
9	First 600 kWh	36,313	MWh	@	0.020394	\$ 741	0.020968	\$ 761	\$ 21
10	Excess kWh	20,407	MWh	@	0.024314	496	0.027483	561	65
	<u>Winter (Oct. - May)</u>								
11	All kWh	99,128	MWh	@	0.015711	1,557	0.016478	1,633	76
12	Total Transmission					\$ 2,794		\$ 2,956	\$ 162
	<b>Delivery</b>								
13	System Access	257,616	Bills	@	8.00	\$ 2,061	8.00	\$ 2,061	\$ -
14	Opt-out Fee	178,416	Bills	@	3.00	535	3.00	535	-
15	Distribution	155,848	MWh	@	0.055826	8,700	0.069121	10,772	2,072
	<u>Provisions</u>								
16	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
17	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
18	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
19	Total Delivery					\$ 11,297		\$ 13,369	\$ 2,072
20	Total Bundled Service					\$ 27,809		\$ 29,860	\$ 2,051
	<b>ROA SERVICE</b>								
	<b>Delivery</b>								
21	System Access	-	Bills	@	8.00	\$ -	8.00	\$ -	\$ -
22	Opt-out Fee	-	Bills	@	3.00	-	3.00	-	-
23	Distribution	-	MWh	@	0.055826	-	0.069121	-	-
	<u>Provisions</u>								
24	Senior Citizen (RSC)	-	Bills	@	(4.00)	-	(4.00)	-	-
25	Low Income Credit (LIAC)	-	Bills	@	(30.00)	-	(30.00)	-	-
26	Income Assistance (RIA)	-	Bills	@	(8.00)	-	(8.00)	-	-
27	Total Delivery					\$ -		\$ -	\$ -
28	Total Bundled & ROA Service					\$ 27,809		\$ 29,860	\$ 2,051

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Present and Proposed Revenue Detail

Case No.: U-20963  
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Secondary Energy-only (GS)

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
1	Non-capacity All kWh	1,398,364	MWh	@	0.040820	\$ 57,081	0.031238	\$ 43,682	\$ (13,399)
2	Capacity All kWh	1,398,364	MWh	@	0.036610	51,194	0.042934	60,037	8,843
	Winter (Oct. - May)								
3	Non-capacity All kWh	2,431,858	MWh	@	0.037714	91,715	0.031640	76,944	(14,771)
4	Capacity All kWh	2,431,858	MWh	@	0.038079	92,603	0.044657	108,599	15,997
5	Annual PSCR Factor	3,830,222	MWh	@	0.000570	2,183	0.000570	2,183	-
6	Total Production					\$ 294,776		\$ 291,446	\$ (3,330)
	Transmission								
	Summer (June - Sept.)								
7	All kWh	1,398,364	MWh	@	0.014836	\$ 20,746	0.015653	\$ 21,889	\$ 1,142
	Winter (Oct. - May)								
8	All kWh	2,431,858	MWh	@	0.015431	37,526	0.016281	39,593	2,067
9	Total Transmission					\$ 58,272		\$ 61,482	\$ 3,210
	Delivery								
10	System Access	2,354,940	Bills	@	20.00	\$ 47,099	20.00	\$ 47,099	\$ -
11	Distribution	3,830,222	MWh	@	0.047786	183,031	0.043502	166,622	(16,409)
	Provisions								
12	Education GEI	89,373	MWh	@	(0.000782)	(70)	(0.000764)	(68)	2
13	Total Delivery					\$ 230,060		\$ 213,653	\$ (16,407)
14	Total Bundled Service					\$ 583,108		\$ 566,581	\$ (16,528)
	ROA SERVICE								
	Delivery								
15	System Access	1,260	Bills	@	20.00	\$ 25	20.00	\$ 25	\$ -
16	Distribution	23,110	MWh	@	0.047786	1,104	0.043502	1,005	(99)
	Provisions								
17	Education GEI	14,582	MWh	@	(0.000782)	(11)	(0.000764)	(11)	0
18	Total Delivery					\$ 1,118		\$ 1,019	\$ (99)
19	Total Bundled & ROA Service					\$ 584,227		\$ 567,600	\$ (16,626)

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Present and Proposed Revenue Detail

Case No.: U-20963  
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 Date: March 2021

Secondary Time-of-Use (GSTU)

	(a)	(b)	(c)		(d)	(e)	(f)	(g)	(h)
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kWh	1,357	MWh	@	0.055616	\$ 75	0.042791	\$ 58	\$ (17)
2	Mid-peak kWh	1,098	MWh	@	0.042363	47	0.032352	36	(11)
3	Off-peak kWh	389	MWh	@	0.028957	11	0.021833	8	(3)
	Capacity								
4	On-peak kWh	1,357	MWh	@	0.051753	70	0.049279	67	(3)
5	Mid-peak kWh	1,098	MWh	@	0.043000	47	0.040943	45	(2)
6	Off-peak kWh	389	MWh	@	0.027750	11	0.026423	10	(1)
	Winter (Oct. - May)								
	Non-capacity								
7	On-peak kWh	3,089	MWh	@	0.043870	136	0.033036	102	(33)
8	Off-peak kWh	3,504	MWh	@	0.035392	124	0.026630	93	(31)
	Capacity								
9	On-peak kWh	3,089	MWh	@	0.043392	134	0.051591	159	25
10	Off-peak kWh	3,504	MWh	@	0.032419	114	0.038544	135	21
	Provisions								
11	Interruptible (GSI)	-	MWh		(0.017518)	-	(0.017094)	-	-
12	Annual PSCR Factor	9,437	MWh	@	0.000570	5	0.000570	5	-
13	Total Production					\$ 774		\$ 719	\$ (55)
	Transmission								
	Summer (June - Sept.)								
14	On-peak kWh	1,357	MWh	@	0.020972	\$ 28	0.017965	\$ 24	\$ (4)
15	Mid-peak kWh	1,098	MWh	@	0.017425	19	0.014927	16	(3)
16	Off-peak kWh	389	MWh	@	0.011245	4	0.009633	4	(1)
	Winter (Oct. - May)								
17	On-peak kWh	3,089	MWh	@	0.017585	54	0.018808	58	4
18	Off-peak kWh	3,504	MWh	@	0.013138	46	0.014052	49	3
19	Total Transmission					\$ 152		\$ 152	\$ (0)
	Delivery								
20	System Access	1,560	Bills	@	20.00	\$ 31	20.00	\$ 31	\$ -
21	Distribution	9,437	MWh	@	0.047786	451	0.043502	411	(40)
	Provisions								
22	Education GEI	-	MWh	@	(0.000782)	-	(0.000764)	-	-
23	Total Delivery					\$ 482		\$ 442	\$ (40)
24	Total Bundled Service					\$ 1,409		\$ 1,313	\$ (96)

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

## Present and Proposed Revenue Detail

## Secondary Demand (GSD)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Line	Billing Determinants		Present		Proposed		Net Increase	
No.	Description	Quantity	Units	Rate	Revenue	Rate	Revenue	/(Decrease)
				\$/unit	\$000	\$/unit	\$000	\$000
<b>BUNDLED SERVICE</b>								
<b>Production</b>								
<u>Summer (June - Sept.)</u>								
Non-capacity								
1	Peak kW	2,995	MW	@ 2.54	\$ 7,607	2.90	\$ 8,686	\$ 1,078
2	All kWh	1,115,416	MWh	@ 0.036126	40,296	0.027586	30,770	(9,526)
Capacity								
3	Peak kW	2,995	MW	@ 13.58	40,672	16.02	47,980	7,308
4	All kWh	1,115,416	MWh	@ -	-	-	-	-
<u>Winter (Oct. - May)</u>								
Non-capacity								
5	Peak kW	5,414	MW	@ 1.06	5,739	1.15	6,226	487
6	All kWh	2,009,692	MWh	@ 0.033377	67,077	0.027941	56,153	(10,925)
Capacity								
7	Peak kW	5,414	MW	@ 12.10	65,509	14.27	77,258	11,748
8	All kWh	2,009,692	MWh	@ -	-	-	-	-
9	Power Factor Adjustment				(35)		(67)	(32)
<u>Provisions</u>								
10	Interruptible (GSI)-Summer	30	MW	@ (7.00)	(210)	(7.00)	(210)	-
11	Interruptible (GSI)-Winter	55	MW	@ (6.00)	(330)	(6.00)	(330)	-
12	Annual PSCR Factor	3,125,108	MWh	@ 0.000570	1,781	0.000570	1,781	-
13	Total Production				\$ 228,107		\$ 228,246	\$ 140
<b>Transmission</b>								
<u>Summer (June - Sept.)</u>								
14	Peak kW	2,995	MW	@ 5.64	\$ 16,892	5.97	\$ 17,880	\$ 988
<u>Winter (Oct. - May)</u>								
15	Peak kW	5,414	MW	@ 5.02	27,178	5.32	28,802	1,624
16	Total Transmission				\$ 44,070		\$ 46,683	\$ 2,613
<b>Delivery</b>								
17	System Access	235,896	Bills	@ 30.00	\$ 7,077	30.00	\$ 7,077	\$ -
18	Peak kW	8,409	MW	@ 0.22	1,850	1.15	9,670	7,820
19	Distribution	3,125,108	MWh	@ 0.035027	109,462	0.033256	103,930	(5,533)
20	Power Factor Adjustment				(1)		(34)	(33)
<u>Provisions</u>								
21	Education GEI	139,134	MWh	@ (0.000628)	(87)	(0.000630)	(88)	(0)
22	Total Delivery				\$ 118,301		\$ 120,556	\$ 2,254
23	Total Bundled Service				\$ 390,478		\$ 395,485	\$ 5,007
<b>ROA SERVICE</b>								
<b>Delivery</b>								
24	System Access	5,628	Bills	@ 30.00	\$ 169	30.00	\$ 169	\$ -
25	Peak kW	481	MW	@ 0.22	106	1.15	553	447
26	Distribution	181,202	MWh	@ 0.035027	6,347	0.033256	6,026	(321)
27	Power Factor Adjustment				-		-	-
<u>Provisions</u>								
28	Education GEI	60,369	MWh	@ (0.000628)	(38)	(0.000630)	(38)	(0)
29	Total Delivery				\$ 6,584		\$ 6,710	\$ 126
30	Total Bundled & ROA Service				\$ 397,062		\$ 402,195	\$ 5,133

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Energy-only Voltage Level 1 (GP VL 1)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	<b>BUNDLED SERVICE</b>								
	<b>Production</b>								
	<u>Summer (June - Sept.)</u>								
1	Non-capacity All kWh	7,577	MWh	@	0.035230	\$ 267	0.031299	\$ 237	\$ (30)
2	Capacity All kWh	7,577	MWh	@	0.032495	246	0.037055	281	35
	<u>Winter (Oct. - May)</u>								
3	Non-capacity All kWh	9,768	MWh	@	0.032550	318	0.031702	310	(8)
4	Capacity All kWh	9,768	MWh	@	0.033782	330	0.038522	376	46
5	Power Factor Adjustment					16		16	1
6	Annual PSQR Factor	17,345	MWh	@	0.000570	10	0.000570	10	-
7	Total Production					\$ 1,187		\$ 1,230	\$ 43
	<b>Transmission</b>								
	<u>Summer (June - Sept.)</u>								
8	All kWh	7,577	MWh	@	0.013815	\$ 105	0.014432	\$ 109	\$ 5
	<u>Winter (Oct. - May)</u>								
9	All kWh	9,768	MWh	@	0.014363	140	0.015005	147	6
10	Total Transmission					\$ 245		\$ 256	\$ 11
	<b>Delivery</b>								
11	System Access	96	Bills	@	100.00	\$ 10	100.00	\$ 10	\$ -
12	Distribution	17,345	MWh	@	0.006039	105	0.002645	46	(59)
13	Substation Ownership Credit	1,428	MWh	@	(0.000785)	(1)	(0.001113)	(2)	(0)
14	Power Factor Adjustment					1		1	(1)
	<u>Provisions</u>								
15	Education GEI	-	MWh	@	(0.000495)	-	(0.000501)	-	-
16	Total Delivery					\$ 115		\$ 54	\$ (60)
17	Total Bundled Service					\$ 1,546		\$ 1,540	\$ (6)
	<b>ROA SERVICE</b>								
	<b>Delivery</b>								
18	System Access	-	Bills	@	100.00	\$ -	100.00	\$ -	\$ -
19	Distribution	-	MWh	@	0.006039	-	0.002645	-	-
20	Substation Ownership Credit	-	MWh	@	(0.000785)	-	(0.001113)	-	-
21	Power Factor Adjustment					-		-	-
	<u>Provisions</u>								
22	Education GEI	-	MWh	@	(0.000495)	-	(0.000501)	-	-
23	Total Delivery					\$ -		\$ -	\$ -
24	Total Bundled & ROA Service					\$ 1,546		\$ 1,540	\$ (6)

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Energy-only Voltage Level 2 (GP VL 2)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
1	Non-capacity All kWh	12,480	MWh	@	0.035663	\$ 445	0.031693	\$ 396	\$ (50)
2	Capacity All kWh	12,480	MWh	@	0.033015	412	0.037629	470	58
	Winter (Oct. - May)								
3	Non-capacity All kWh	28,277	MWh	@	0.032950	932	0.032101	908	(24)
4	Capacity All kWh	28,277	MWh	@	0.034323	971	0.039119	1,106	136
5	Power Factor Adjustment					62		64	3
6	Annual PSQR Factor	40,757	MWh	@	0.000570	23	0.000570	23	-
7	Total Production					\$ 2,844		\$ 2,967	\$ 122
	Transmission								
	Summer (June - Sept.)								
8	All kWh	12,480	MWh	@	0.014036	\$ 175	0.014656	\$ 183	\$ 8
	Winter (Oct. - May)								
9	All kWh	28,277	MWh	@	0.014593	413	0.015238	431	18
10	Total Transmission					\$ 588		\$ 614	\$ 26
	Delivery								
11	System Access	523	Bills	@	100.00	\$ 52	100.00	\$ 52	\$ -
12	Distribution	40,757	MWh	@	0.010098	412	0.006845	279	(133)
13	Substation Ownership Credit	8,029	MWh	@	(0.002230)	(18)	(0.001445)	(12)	6
14	Power Factor Adjustment					9		6	(3)
	Provisions								
15	Education GEI	-	MWh	@	(0.000495)	-	(0.000501)	-	-
16	Total Delivery					\$ 455		\$ 326	\$ (129)
17	Total Bundled Service					\$ 3,887		\$ 3,906	\$ 19
	ROA SERVICE								
	Delivery								
18	System Access	36	Bills	@	100.00	\$ 4	100.00	\$ 4	\$ -
19	Distribution	4,369	MWh	@	0.010098	44	0.006845	30	(14)
20	Substation Ownership Credit	-	MWh	@	(0.002230)	-	(0.001445)	-	-
21	Power Factor Adjustment					-		-	-
	Provisions								
22	Education GEI	-	MWh	@	(0.000495)	-	(0.000501)	-	-
23	Total Delivery					\$ 48		\$ 34	\$ (14)
24	Total Bundled & ROA Service					\$ 3,935		\$ 3,940	\$ 5

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Energy-only Voltage Level 3 (GP VL 3)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
1	Non-capacity All kWh	265,548	MWh	@	0.036364	\$ 9,656	0.031953	\$ 8,485	\$ (1,171)
2	Capacity All kWh	265,548	MWh	@	0.033805	8,977	0.038096	10,116	1,139
	Winter (Oct. - May)								
3	Non-capacity All kWh	507,388	MWh	@	0.033598	17,047	0.032365	16,422	(626)
4	Capacity All kWh	507,388	MWh	@	0.035143	17,831	0.039604	20,095	2,263
5	Power Factor Adjustment					694		715	21
6	Annual PSQR Factor	772,936	MWh	@	0.000570	441	0.000570	441	-
7	Total Production					\$ 54,646		\$ 56,273	\$ 1,627
	Transmission								
	Summer (June - Sept.)								
8	All kWh	265,548	MWh	@	0.014372	\$ 3,816	0.014838	\$ 3,940	\$ 124
	Winter (Oct. - May)								
9	All kWh	507,388	MWh	@	0.014942	7,581	0.015427	7,827	246
10	Total Transmission					\$ 11,398		\$ 11,768	\$ 370
	Delivery								
11	System Access	17,923	Bills	@	100.00	\$ 1,792	100.00	\$ 1,792	\$ -
12	Distribution	772,936	MWh	@	0.015276	11,807	0.014478	11,191	(617)
13	Power Factor Adjustment					153		145	(8)
	Provisions								
14	Education GEI	90,489	MWh	@	(0.000495)	(45)	(0.000501)	(45)	(1)
15	Total Delivery					\$ 13,708		\$ 13,083	\$ (625)
16	Total Bundled Service					\$ 79,752		\$ 81,123	\$ 1,371
	ROA SERVICE								
	Delivery								
17	System Access	684	Bills	@	100.00	\$ 68	100.00	\$ 68	\$ -
18	Distribution	70,564	MWh	@	0.015276	1,078	0.014478	1,022	(56)
19	Power Factor Adjustment					1		1	(0)
	Provisions								
20	Education GEI	33,925	MWh	@	(0.000495)	(17)	(0.000501)	(17)	(0)
21	Total Delivery					\$ 1,131		\$ 1,074	\$ (57)
22	Total Bundled & ROA Service					\$ 80,883		\$ 82,197	\$ 1,315

## Schedule F-3.0

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Present and Proposed Revenue Detail

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
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Primary Demand Voltage Level 1 (GPD VL 1)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/(Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kW	474	MW	@	6.28	\$ 2,977	6.44	\$ 3,053	\$ 76
2	On-peak kWh	86,266	MWh	@	0.030103	2,597	0.031510	2,718	121
3	Off-peak kWh	191,706	MWh	@	0.019387	3,717	0.020076	3,849	132
4	Capacity On-peak kW	474	MW	@	13.63	6,461	15.66	7,423	962
	Winter (Oct. - May)								
	Non-capacity								
5	On-peak kW	1,133	MW	@	5.33	6,039	5.33	6,039	-
6	On-peak kWh	199,914	MWh	@	0.024654	4,929	0.025403	5,078	150
7	Off-peak kWh	473,580	MWh	@	0.022925	10,857	0.023499	11,129	272
8	Capacity On-peak kW	1,133	MW	@	12.68	14,366	14.55	16,485	2,119
	Provisions								
	Interruptible GI								
9	Summer On-peak kW	186	MW	@	(7.00)	(1,302)	(7.00)	(1,302)	-
10	Winter On-peak kW	371	MW	@	(6.00)	(2,226)	(6.00)	(2,226)	-
	Interruptible GI-2								
11	Summer Capacity & Transmission	25,343	MWh	@	0.023745	602	0.027403	694	93
12	Winter Capacity & Transmission	51,308	MWh	@	0.022748	1,167	0.025991	1,334	166
13	LMP	76,651	MWh	@	0.030908	2,369	0.030908	2,369	-
14	Power Factor Adjustment					(199)		(214)	(15)
15	Annual PSCR Factor	951,466	MWh	@	0.000570	542	0.000570	542	-
16	Total Production					\$ 52,895		\$ 56,971	\$ 4,075
	Transmission								
	Summer (June - Sept.)								
17	On-peak kW	474	MW	@	7.03	\$ 3,332	7.41	\$ 3,512	\$ 180
	Winter (Oct. - May)								
18	On-peak kW	1,133	MW	@	6.55	7,421	6.90	7,818	397
19	Total Transmission					\$ 10,753		\$ 11,330	\$ 577
	Delivery								
20	System Access	228	Bills	@	200.00	\$ 46	200.00	\$ 46	\$ -
21	Maximum kW	2,456	MW	@	0.61	1,498	0.62	1,523	25
22	Substation Ownership	287	MW	@	(0.35)	(100)	(0.45)	(129)	(29)
23	Joint Substation Ownership	-	MW	@	(0.24)	-	-	-	-
24	Distribution	1,028,117	MWh	@	-	-	-	-	-
25	Power Factor Adjustment					(5)		(5)	0
	Provisions								
26	Education GEI	-	MWh	@	(0.000253)	-	(0.000254)	-	-
27	Total Delivery					\$ 1,438		\$ 1,434	\$ (4)
28	Total Bundled Service					\$ 65,087		\$ 69,735	\$ 4,648
	ROA SERVICE								
	Delivery								
29	System Access	156	Bills	@	200.00	\$ 31	200.00	\$ 31	\$ -
30	Maximum kW	2,090	MW	@	0.61	1,275	0.62	1,296	21
31	Substation Ownership	223	MW	@	(0.35)	(78)	(0.45)	(100)	(22)
32	Distribution	1,063,347	MWh	@	-	-	-	-	-
33	Power Factor Adjustment					(3)		(3)	0
	Provisions								
34	Education GEI	2,504	MWh	@	(0.000253)	(1)	(0.000254)	(1)	(0)
35	Total Delivery					\$ 1,224		\$ 1,223	\$ (1)
36	Total Bundled & ROA Service					\$ 66,311		\$ 70,958	\$ 4,647

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Demand Voltage Level 2 (GPD VL 2)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kW	729	MW	@	6.36	\$ 4,634	6.52	\$ 4,754	\$ 119
2	On-peak kWh	98,934	MWh	@	0.030473	3,015	0.031907	3,157	142
3	Off-peak kWh	292,767	MWh	@	0.019625	5,746	0.020329	5,952	206
4	Capacity On-peak kW	729	MW	@	13.85	10,097	15.90	11,591	1,494
	Winter (Oct. - May)								
	Non-capacity								
5	On-peak kW	1,347	MW	@	5.40	7,268	5.40	7,270	2
6	On-peak kWh	180,993	MWh	@	0.024957	4,517	0.025723	4,656	139
7	Off-peak kWh	542,000	MWh	@	0.023207	12,578	0.023795	12,897	319
8	Capacity On-peak kW	1,347	MW	@	12.88	17,349	14.78	19,909	2,559
	Provisions								
	Interruptible GI								
9	Summer On-peak kW	36	MW	@	(7.00)	(252)	(7.00)	(252)	-
10	Winter On-peak kW	71	MW	@	(6.00)	(426)	(6.00)	(426)	-
	Interruptible GI-2								
11	Summer Capacity & Transmission	-	MWh	@	0.025518	-	0.030559	-	-
12	Winter Capacity & Transmission	-	MWh	@	0.024578	-	0.029418	-	-
13	LMP	-	MWh	@	-	-	-	-	-
14	Power Factor Adjustment					(109)		(117)	(8)
15	Annual PSCR Factor	1,114,694	MWh	@	0.000570	635	0.000570	635	-
16	Total Production					\$ 65,053		\$ 70,025	\$ 4,972
	Transmission								
	Summer (June - Sept.)								
17	On-peak kW	729	MW	@	7.14	\$ 5,205	7.52	\$ 5,482	\$ 277
	Winter (Oct. - May)								
18	On-peak kW	1,347	MW	@	6.65	8,958	7.01	9,442	485
19	Total Transmission					\$ 14,163		\$ 14,925	\$ 762
	Delivery								
20	System Access	619	Bills	@	200.00	\$ 124	200.00	\$ 124	\$ -
21	Maximum kW	2,616	MW	@	2.40	6,278	2.37	6,200	(78)
22	Substation Ownership	190	MW	@	(0.98)	(186)	(0.60)	(114)	72
23	Distribution	1,114,694	MWh	@	-	-	-	-	-
24	Power Factor Adjustment					(10)		(10)	0
	Provisions								
25	Education GEI	17,941	MWh	@	(0.000253)	(5)	(0.000254)	(5)	(0)
26	Total Delivery					\$ 6,201		\$ 6,195	\$ (6)
27	Total Bundled Service					\$ 85,416		\$ 91,144	\$ 5,728
	ROA SERVICE								
	Delivery								
28	System Access	468	Bills	@	200.00	\$ 94	200.00	\$ 94	\$ -
29	Maximum kW	2,745	MW	@	2.40	6,588	2.37	6,506	(82)
30	Substation Ownership	336	MW	@	(0.98)	(329)	(0.60)	(202)	128
31	Distribution	1,287,915	MWh	@	-	-	-	-	-
32	Power Factor Adjustment					18		18	0
	Provisions								
33	Education GEI	68,388	MWh	@	(0.000253)	(17)	(0.000254)	(17)	(0)
34	Total Delivery					\$ 6,353		\$ 6,398	\$ 45
35	Total Bundled & ROA Service					\$ 91,769		\$ 97,543	\$ 5,773

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

## Present and Proposed Revenue Detail

Primary Demand Voltage Level 3 (GPD VL 3)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	On-peak kW	1,462	MW	@	6.48	\$ 9,477	6.57	\$ 9,612	\$ 135
2	On-peak kWh	189,551	MWh	@	0.031072	5,890	0.032169	6,098	208
3	Off-peak kWh	572,054	MWh	@	0.020011	11,447	0.020496	11,725	277
4	Capacity On-peak kW	1,462	MW	@	14.18	20,731	16.10	23,538	2,807
	Winter (Oct. - May)								
	Non-capacity								
5	On-peak kW	2,605	MW	@	5.50	14,332	5.44	14,175	(157)
6	On-peak kWh	404,584	MWh	@	0.025448	10,296	0.025934	10,492	197
7	Off-peak kWh	956,719	MWh	@	0.023663	22,639	0.023990	22,952	313
8	Capacity On-peak kW	2,605	MW	@	13.19	34,360	14.96	38,971	4,611
	Provisions								
	Interruptible GI								
9	Summer On-peak kW	9	MW	@	(7.00)	(63)	(7.00)	(63)	-
10	Winter On-peak kW	19	MW	@	(6.00)	(114)	(6.00)	(114)	-
	Interruptible GI-2								
11	Summer Capacity & Transmission	-	MWh	@	0.029140	-	0.032096	-	-
12	Winter Capacity & Transmission	-	MWh	@	0.029175	-	0.031728	-	-
13	LMP	-	MWh	@	-	-	-	-	-
14	Power Factor Adjustment					133		142	9
15	Annual PSCR Factor	2,122,908	MWh	@	0.000570	1,210	0.000570	1,210	-
16	Total Production					\$ 130,338		\$ 138,738	\$ 8,400
	Transmission								
	Summer (June - Sept.)								
17	On-peak kW	1,462	MW	@	7.31	\$ 10,687	7.62	\$ 11,140	\$ 453
	Winter (Oct. - May)								
18	On-peak kW	2,605	MW	@	6.81	17,740	7.09	18,469	729
19	Total Transmission					\$ 28,427		\$ 29,610	\$ 1,183
	Delivery								
20	System Access	9,739	Bills	@	200.00	\$ 1,948	200.00	\$ 1,948	-
21	Maximum kW	5,359	MW	@	4.10	21,972	4.81	25,777	3,805
22	Distribution	2,122,908	MWh	@	-	-	-	-	-
23	Power Factor Adjustment					23		27	4
	Provisions								
24	Education GEI	81,110	MWh	@	(0.000253)	(21)	(0.000254)	(21)	(0)
25	Total Delivery					\$ 23,922		\$ 27,731	\$ 3,809
26	Total Bundled Service					\$ 182,687		\$ 196,078	\$ 13,391
	ROA SERVICE								
	Delivery								
27	System Access	3,516	Bills	@	200.00	\$ 703	200.00	\$ 703	-
28	Maximum kW	2,641	MW	@	4.10	10,828	4.81	12,703	1,875
29	Distribution	967,504	MWh	@	-	-	-	-	-
30	Power Factor Adjustment					16		19	3
	Provisions								
31	Education GEI	141,942	MWh	@	(0.000253)	(36)	(0.000254)	(36)	(0)
32	Total Delivery					\$ 11,512		\$ 13,389	\$ 1,878
33	Total Bundled & ROA Service					\$ 194,199		\$ 209,467	\$ 15,269

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

## Present and Proposed Revenue Detail

Primary Time-of-Use Voltage Level 1 (GPTU VL 1)

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
 Page: 14 of 25  
 Witness: HWMiller  
 Date: March 2021

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	High-peak kWh	16,122	MWh	@	0.052613	\$ 848	0.043840	\$ 707	\$ (141)
2	Mid-peak kWh	21,874	MWh	@	0.045743	1,001	0.038222	836	(165)
3	Low-peak kWh	45,131	MWh	@	0.035565	1,605	0.029502	1,331	(274)
4	Off-peak kWh	85,114	MWh	@	0.025934	2,207	0.021291	1,812	(395)
	Capacity								
5	High-peak kWh	16,122	MWh	@	0.050750	818	0.059194	954	136
6	Mid-peak kWh	21,874	MWh	@	0.048447	1,060	0.056508	1,236	176
7	Low-peak kWh	45,131	MWh	@	0.038909	1,756	0.045383	2,048	292
8	Off-peak kWh	85,114	MWh	@	0.026282	2,237	0.030655	2,609	372
	Winter (Oct. - May)								
	Non-capacity								
9	High-peak kWh	28,806	MWh	@	0.041317	1,190	0.033952	978	(212)
10	Mid-peak kWh	39,268	MWh	@	0.039058	1,534	0.031907	1,253	(281)
11	Off-peak kWh	193,058	MWh	@	0.036275	7,003	0.029702	5,734	(1,269)
	Capacity								
12	High-peak kWh	28,806	MWh	@	0.027435	790	0.031999	922	131
13	Mid-peak kWh	39,268	MWh	@	0.027423	1,077	0.031985	1,256	179
14	Off-peak kWh	193,058	MWh	@	0.023602	4,557	0.027528	5,315	758
15	Power Factor Adjustment					111		109	(3)
15	Annual PSCR Factor	429,373	MWh	@	0.000570	245	0.000570	245	-
16	Total Production					\$ 28,039		\$ 27,345	\$ (694)
	Transmission								
	Summer (June - Sept.)								
17	High-peak kWh	16,122	MWh	@	0.023693	\$ 382	0.024498	\$ 395	\$ 13
18	Mid-peak kWh	21,874	MWh	@	0.022618	495	0.023387	512	17
19	Low-peak kWh	45,131	MWh	@	0.018165	820	0.018783	848	28
20	Off-peak kWh	85,114	MWh	@	0.012270	1,044	0.012687	1,080	35
21	Winter (Oct. - May)								
22	High-peak kWh	28,806	MWh	@	0.012809	369	0.013242	381	12
23	Mid-peak kWh	39,268	MWh	@	0.012803	503	0.013236	520	17
24	Off-peak kWh	193,058	MWh	@	0.011019	2,127	0.011392	2,199	72
25	Total Transmission					\$ 5,740		\$ 5,935	\$ 195
	Delivery								
26	System Access	264	Bills	@	200.00	\$ 53	200.00	\$ 53	\$ -
27	Maximum kW	1,208	MW	@	0.61	737	0.62	749	12
28	Substation Ownership	-	MW	@	(0.35)	-	(0.45)	-	-
29	Distribution	429,373	MWh	@	-	-	-	-	-
30	Power Factor Adjustment					3		3	0
	Provisions								
31	Education GEI	-	MWh	@	(0.000253)	-	(0.000254)	-	-
32	Total Delivery					\$ 793		\$ 805	\$ 12
33	Total Bundled Service					\$ 34,572		\$ 34,084	\$ (487)

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Time-of-Use Voltage Level 2 (GPTU VL 2)

Case No.: U-20963  
Exhibit No.: A-16 (HWM-3)  
Schedule: F-3.0  
Page: 15 of 25  
Witness: HWMiller  
Date: March 2021

	( a )	( b )	( c )		( d )	( e )	( f )	( g )	( h )
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	High-peak kWh	29,634	MWh	@	0.053260	\$ 1,578	0.044392	\$ 1,316	\$ (263)
2	Mid-peak kWh	39,720	MWh	@	0.046306	1,839	0.038704	1,537	(302)
3	Low-peak kWh	94,873	MWh	@	0.036002	3,416	0.029874	2,834	(581)
4	Off-peak kWh	151,267	MWh	@	0.026253	3,971	0.021559	3,261	(710)
	Capacity								
5	High-peak kWh	29,634	MWh	@	0.051562	1,528	0.060112	1,781	253
6	Mid-peak kWh	39,720	MWh	@	0.049222	1,955	0.057384	2,279	324
7	Low-peak kWh	94,873	MWh	@	0.039532	3,751	0.046086	4,372	622
8	Off-peak kWh	151,267	MWh	@	0.026703	4,039	0.031130	4,709	670
	Winter (Oct. - May)								
	Non-capacity								
9	High-peak kWh	60,352	MWh	@	0.041825	2,524	0.034380	2,075	(449)
10	Mid-peak kWh	81,250	MWh	@	0.039538	3,212	0.032309	2,625	(587)
11	Off-peak kWh	463,354	MWh	@	0.036721	17,015	0.030076	13,936	(3,079)
	Capacity								
12	High-peak kWh	60,352	MWh	@	0.027874	1,682	0.032495	1,961	279
13	Mid-peak kWh	81,250	MWh	@	0.027862	2,264	0.032481	2,639	375
14	Off-peak kWh	463,354	MWh	@	0.023980	11,111	0.027955	12,953	1,842
15	Power Factor Adjustment					(34)		(33)	1
16	Annual PSCR Factor	920,450	MWh	@	0.000570	525	0.000570	525	-
17	Total Production					\$ 60,377		\$ 58,771	\$ (1,606)
	Transmission								
	Summer (June - Sept.)								
18	High-peak kWh	29,634	MWh	@	0.024072	\$ 713	0.024878	\$ 737	\$ 24
19	Mid-peak kWh	39,720	MWh	@	0.022980	913	0.023749	943	31
20	Low-peak kWh	94,873	MWh	@	0.018456	1,751	0.019074	1,810	59
21	Off-peak kWh	151,267	MWh	@	0.012466	1,886	0.012884	1,949	63
	Winter (Oct. - May)								
22	High-peak kWh	60,352	MWh	@	0.013014	785	0.013447	812	26
23	Mid-peak kWh	81,250	MWh	@	0.013008	1,057	0.013441	1,092	35
24	Off-peak kWh	463,354	MWh	@	0.011195	5,187	0.011569	5,361	173
25	Total Transmission					\$ 12,292		\$ 12,703	\$ 411
	Delivery								
26	System Access	876	Bills	@	200.00	\$ 175	200.00	\$ 175	\$ -
27	Maximum kW	2,386	MW	@	2.40	5,726	2.37	5,655	(72)
28	Substation Ownership	972	MW	@	(0.98)	(953)	(0.60)	(583)	369
29	Distribution	920,450	MWh	@	-	-	-	-	-
30	Power Factor Adjustment					(3)		(3)	(0)
	Provisions								
31	Education GEI	-	MWh	@	(0.000253)	-	(0.000254)	-	-
32	Total Delivery					\$ 4,946		\$ 5,244	\$ 298
33	Total Bundled Service					\$ 77,616		\$ 76,718	\$ (897)

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Time-of-Use Voltage Level 3 (GPTU VL 3)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	High-peak kWh	133,904	MWh	@	0.054307	\$ 7,272	0.044756	\$ 5,993	\$ (1,279)
2	Mid-peak kWh	176,218	MWh	@	0.047216	8,320	0.039021	6,876	(1,444)
3	Low-peak kWh	412,343	MWh	@	0.036710	15,137	0.030119	12,419	(2,718)
4	Off-peak kWh	568,109	MWh	@	0.026769	15,208	0.021736	12,348	(2,859)
	Capacity								
5	High-peak kWh	133,904	MWh	@	0.052795	7,069	0.060857	8,149	1,080
6	Mid-peak kWh	176,218	MWh	@	0.050399	8,881	0.058096	10,238	1,356
7	Low-peak kWh	412,343	MWh	@	0.040477	16,690	0.046658	19,239	2,549
8	Off-peak kWh	568,109	MWh	@	0.027341	15,533	0.031516	17,905	2,372
	Winter (Oct. - May)								
	Non-capacity								
9	High-peak kWh	241,000	MWh	@	0.042647	10,278	0.034662	8,354	(1,924)
10	Mid-peak kWh	328,524	MWh	@	0.040316	13,245	0.032574	10,701	(2,543)
11	Off-peak kWh	1,757,479	MWh	@	0.037443	65,805	0.030323	53,292	(12,513)
	Capacity								
12	High-peak kWh	241,000	MWh	@	0.028541	6,878	0.032898	7,928	1,050
13	Mid-peak kWh	328,524	MWh	@	0.028528	9,372	0.032884	10,803	1,431
14	Off-peak kWh	1,757,479	MWh	@	0.024553	43,151	0.028302	49,740	6,589
15	Power Factor Adjustment					355		342	(13)
16	Annual PSQR Factor	3,617,577	MWh	@	0.000570	2,062	0.000570	2,062	-
17	Total Production					\$ 245,258		\$ 236,390	\$ (8,868)
	Transmission								
	Summer (June - Sept.)								
18	High-peak kWh	133,904	MWh	@	0.024648	\$ 3,300	0.025186	\$ 3,373	\$ 72
19	Mid-peak kWh	176,218	MWh	@	0.023530	4,146	0.024044	4,237	91
20	Low-peak kWh	412,343	MWh	@	0.018897	7,792	0.019311	7,963	171
21	Off-peak kWh	568,109	MWh	@	0.012764	7,251	0.013044	7,410	159
	Winter (Oct. - May)								
22	High-peak kWh	241,000	MWh	@	0.013325	3,211	0.013614	3,281	70
23	Mid-peak kWh	328,524	MWh	@	0.013319	4,376	0.013608	4,471	95
24	Off-peak kWh	1,757,479	MWh	@	0.011463	20,146	0.011712	20,584	438
25	Total Transmission					\$ 50,223		\$ 51,318	\$ 1,095
	Delivery								
26	System Access	13,716	Bills	@	200.00	\$ 2,743	200.00	\$ 2,743	\$ -
27	Maximum kW	10,653	MW	@	4.10	43,677	4.81	51,241	7,564
28	Distribution	3,617,577	MWh	@	-	-	-	-	-
29	Power Factor Adjustment					64		75	11
	Provisions								
30	Education GEI	-	MWh	@	(0.000253)	-	(0.000254)	-	-
31	Total Delivery					\$ 46,484		\$ 54,059	\$ 7,575
32	Total Bundled Service					\$ 341,966		\$ 341,767	\$ (198)

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

## Consumers Energy Company

## Present and Proposed Revenue Detail

## Primary Energy Intensive Level 1 (EIP VL 1)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)		(d)	(e)	(f)	(g)	(h)
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	Critical-peak kWh	226	MWh	@	0.080325	\$ 18	0.091680	\$ 21	\$ 3
2	High-peak kWh	7,860	MWh	@	0.053550	421	0.061120	480	60
3	Mid-peak kWh	8,355	MWh	@	0.047365	396	0.054248	453	58
4	Low-peak kWh	55,085	MWh	@	0.037774	2,081	0.042807	2,358	277
5	Off-peak kWh	52,094	MWh	@	0.025796	1,344	0.028927	1,507	163
	Capacity								
6	Critical-peak kWh	226	MWh	@	0.023060	5	0.022628	5	(0)
7	High-peak kWh	7,860	MWh	@	0.015373	121	0.015085	119	(2)
8	Mid-peak kWh	8,355	MWh	@	0.015027	126	0.014745	123	(2)
9	Low-peak kWh	55,085	MWh	@	0.012359	681	0.012128	668	(13)
10	Off-peak kWh	52,094	MWh	@	0.007909	412	0.007761	404	(8)
	Winter (Oct. - May)								
	Non-capacity								
11	Critical-peak kWh	301	MWh	@	0.064445	19	0.072446	22	2
12	High-peak kWh	17,033	MWh	@	0.042963	732	0.048297	823	91
13	Mid-peak kWh	17,162	MWh	@	0.040913	702	0.045600	783	80
14	Off-peak kWh	225,552	MWh	@	0.036210	8,167	0.040503	9,136	968
	Capacity								
15	Critical-peak kWh	301	MWh	@	0.011564	3	0.011348	3	(0)
16	High-peak kWh	17,033	MWh	@	0.007709	131	0.007565	129	(2)
17	Mid-peak kWh	17,162	MWh	@	0.007606	131	0.007463	128	(2)
18	Off-peak kWh	225,552	MWh	@	0.006665	1,503	0.006540	1,475	(28)
19	Power Factor Adjustment					(30)		(33)	(3)
20	Annual PSCR Factor	383,669	MWh	@	0.000570	219	0.000570	219	-
21	Total Production					\$ 17,182		\$ 18,822	\$ 1,641
	Transmission								
	Summer (June - Sept.)								
22	Critical-peak kWh	226	MWh	@	0.035072	\$ 8	0.037389	\$ 8	\$ 1
23	High-peak kWh	7,860	MWh	@	0.023381	184	0.024926	196	12
24	Mid-peak kWh	8,355	MWh	@	0.022854	191	0.024365	204	13
25	Low-peak kWh	55,085	MWh	@	0.018797	1,035	0.020039	1,104	68
26	Off-peak kWh	52,094	MWh	@	0.012029	627	0.012824	668	41
	Winter (Oct. - May)								
27	Critical-peak kWh	301	MWh	@	0.017586	5	0.018750	6	0
28	High-peak kWh	17,033	MWh	@	0.011724	200	0.012500	213	13
29	Mid-peak kWh	17,162	MWh	@	0.011567	199	0.012332	212	13
30	Off-peak kWh	225,552	MWh	@	0.010136	2,286	0.010807	2,438	151
31	Total Transmission					\$ 4,734		\$ 5,048	\$ 313
	Delivery								
32	System Access	79	Bills	@	200.00	\$ 16	200.00	\$ 16	\$ -
33	Maximum kW	1,457	MW	@	0.61	889	0.62	903	15
34	Substation Ownership	646	MW	@	(0.35)	(226)	(0.45)	(291)	(65)
35	Power Factor Adjustment					(1)		(1)	0
36	Distribution	383,669	MWh	@	-	-	-	-	-
37	Total Delivery					\$ 677		\$ 627	\$ (50)
38	Total Bundled Service					\$ 22,593		\$ 24,497	\$ 1,904

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Energy Intensive Level 2 (EIP VL 2)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )	( g )	( h )
Line	Billing Determinants		Present		Proposed		Net Increase	
No.	Description	Quantity	Units	Rate	Revenue	Rate	Revenue	/ (Decrease)
				\$/unit	\$000	\$/unit	\$000	\$000
<b>BUNDLED SERVICE</b>								
<b>Production</b>								
<u>Summer (June - Sept.)</u>								
Non-capacity								
1	Critical-peak kWh	25	MWh @	0.081313	\$ 2	0.092835	\$ 2	\$ 0
2	High-peak kWh	1,092	MWh @	0.054209	59	0.061890	68	8
3	Mid-peak kWh	1,138	MWh @	0.047948	55	0.054932	63	8
4	Low-peak kWh	8,400	MWh @	0.038239	321	0.043346	364	43
5	Off-peak kWh	10,450	MWh @	0.026113	273	0.029291	306	33
Capacity								
6	Critical-peak kWh	25	MWh @	0.023429	1	0.022979	1	(0)
7	High-peak kWh	1,092	MWh @	0.015619	17	0.015319	17	(0)
8	Mid-peak kWh	1,138	MWh @	0.015267	17	0.014974	17	(0)
9	Low-peak kWh	8,400	MWh @	0.012557	105	0.012316	103	(2)
10	Off-peak kWh	10,450	MWh @	0.008036	84	0.007881	82	(2)
<u>Winter (Oct. - May)</u>								
Non-capacity								
11	Critical-peak kWh	27	MWh @	0.065238	2	0.073359	2	0
12	High-peak kWh	1,902	MWh @	0.043491	83	0.048906	93	10
13	Mid-peak kWh	2,163	MWh @	0.041416	90	0.046175	100	10
14	Off-peak kWh	39,131	MWh @	0.036655	1,434	0.041013	1,605	171
Capacity								
15	Critical-peak kWh	27	MWh @	0.011749	0	0.011524	0	(0)
16	High-peak kWh	1,902	MWh @	0.007832	15	0.007682	15	(0)
17	Mid-peak kWh	2,163	MWh @	0.007728	17	0.007579	16	(0)
18	Off-peak kWh	39,131	MWh @	0.006772	265	0.006641	260	(5)
19	Power Factor Adjustment				(13)		(15)	(1)
20	Annual PSCR Factor	64,327	MWh @	0.000570	37	0.000570	37	-
21	Total Production				\$ 2,863		\$ 3,136	\$ 273
<b>Transmission</b>								
<u>Summer (June - Sept.)</u>								
22	Critical-peak kWh	25	MWh @	0.035633	\$ 1	0.037969	\$ 1	\$ 0
23	High-peak kWh	1,092	MWh @	0.023755	26	0.025312	28	2
24	Mid-peak kWh	1,138	MWh @	0.023220	26	0.024743	28	2
25	Low-peak kWh	8,400	MWh @	0.019098	160	0.020350	171	11
26	Off-peak kWh	10,450	MWh @	0.012221	128	0.013023	136	8
<u>Winter (Oct. - May)</u>								
27	Critical-peak kWh	27	MWh @	0.017867	0	0.019041	1	0
28	High-peak kWh	1,902	MWh @	0.011912	23	0.012694	24	1
29	Mid-peak kWh	2,163	MWh @	0.011752	25	0.012523	27	2
30	Off-peak kWh	39,131	MWh @	0.010298	403	0.010975	429	26
31	Total Transmission				\$ 793		\$ 845	\$ 52
<b>Delivery</b>								
32	System Access	79	Bills @	200.00	\$ 16	200.00	\$ 16	\$ -
33	Maximum kW	430	MW @	2.40	1,033	2.37	1,020	(13)
34	Substation Ownership	180	MW @	(0.98)	(176)	(0.60)	(108)	68
35	Power Factor Adjustment				(4)		(4)	(0)
36	Distribution	64,327	MWh @	-	-	-	-	-
37	Total Delivery				\$ 868		\$ 923	\$ 55
38	Total Bundled Service				\$ 4,524		\$ 4,904	\$ 380

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Present and Proposed Revenue Detail

Primary Energy Intensive Level 3 (EIP VL 3)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Line		Billing Determinants			Present		Proposed		Net Increase
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	/ (Decrease)
					\$/unit	\$000	\$/unit	\$000	\$000
	BUNDLED SERVICE								
	Production								
	Summer (June - Sept.)								
	Non-capacity								
1	Critical-peak kWh	2	MWh	@	0.082911	\$ 0	0.093596	\$ 0	\$ 0
2	High-peak kWh	145	MWh	@	0.055274	8	0.062397	9	1
3	Mid-peak kWh	185	MWh	@	0.048890	9	0.055382	10	1
4	Low-peak kWh	1,973	MWh	@	0.038990	77	0.043702	86	9
5	Off-peak kWh	919	MWh	@	0.026627	24	0.029532	27	3
	Capacity								
6	Critical-peak kWh	2	MWh	@	0.023989	0	0.023264	0	(0)
7	High-peak kWh	145	MWh	@	0.015993	2	0.015509	2	(0)
8	Mid-peak kWh	185	MWh	@	0.015633	3	0.015159	3	(0)
9	Low-peak kWh	1,973	MWh	@	0.012857	25	0.012469	25	(1)
10	Off-peak kWh	919	MWh	@	0.008228	8	0.007979	7	(0)
	Winter (Oct. - May)								
	Non-capacity								
11	Critical-peak kWh	2	MWh	@	0.066520	0	0.073960	0	0
12	High-peak kWh	137	MWh	@	0.044346	6	0.049306	7	1
13	Mid-peak kWh	207	MWh	@	0.042230	9	0.046553	10	1
14	Off-peak kWh	5,817	MWh	@	0.037376	217	0.041350	241	23
	Capacity								
15	Critical-peak kWh	2	MWh	@	0.012030	0	0.011667	0	(0)
16	High-peak kWh	137	MWh	@	0.008020	1	0.007778	1	(0)
17	Mid-peak kWh	207	MWh	@	0.007913	2	0.007673	2	(0)
18	Off-peak kWh	5,817	MWh	@	0.006934	40	0.006724	39	(1)
19	Power Factor Adjustment					(2)		(2)	(0)
20	Annual PSCR Factor	9,389	MWh	@	0.000570	5	0.000570	5	-
21	Total Production					\$ 436		\$ 472	\$ 36
	Transmission								
	Summer (June - Sept.)								
22	Critical-peak kWh	2	MWh	@	0.036485	\$ 0	0.038440	\$ 0	\$ 0
23	High-peak kWh	145	MWh	@	0.024323	4	0.025626	4	0
24	Mid-peak kWh	185	MWh	@	0.023775	4	0.025050	5	0
25	Low-peak kWh	1,973	MWh	@	0.019555	39	0.020602	41	2
26	Off-peak kWh	919	MWh	@	0.012514	12	0.013184	12	1
	Winter (Oct. - May)								
27	Critical-peak kWh	2	MWh	@	0.018295	0	0.019277	0	0
28	High-peak kWh	137	MWh	@	0.012196	2	0.012851	2	0
29	Mid-peak kWh	207	MWh	@	0.012033	2	0.012679	3	0
30	Off-peak kWh	5,817	MWh	@	0.010544	61	0.011111	65	3
31	Total Transmission					\$ 124		\$ 130	\$ 7
	Delivery								
32	System Access	55	Bills	@	200.00	\$ 11	200.00	\$ 11	\$ -
33	Maximum kW	62	MW	@	4.10	255	4.81	300	44
34	Power Factor Adjustment					(1)		(1)	(0)
35	Distribution	9,389	MWh	@	-	-	-	-	-
36	Total Delivery					\$ 265		\$ 309	\$ 44
37	Total Bundled Service					\$ 825		\$ 912	\$ 87

## Schedule F-3.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Present and Proposed Revenue Detail

Metered Lighting (GML)

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
 Page: 20 of 25  
 Witness: HWMiller  
 Date: March 2021

( a )		( b )		( c )		( d )		( e )		( f )		( g )		( h )	
Line		Billing Determinants				Present		Proposed		Net Increase					
No.	Description	Quantity	Units		Rate	Revenue	Rate	Revenue	Rate	Revenue	/ (Decrease)				
					\$/unit	\$000	\$/unit	\$000	\$/unit	\$000	\$000				
	BUNDLED SERVICE														
	Production														
1	Secondary All kWh	12,491	MWh	@	0.039221	\$ 490	0.042135	\$ 526	\$			\$	36		
2	Primary All kWh	627	MWh	@	0.019248	12	0.020678	13					1		
3	Annual PSCR Factor	13,118	MWh	@	0.000570	7	0.000570	7					-		
4	Total Production					\$ 509		\$ 547	\$			\$	37		
	Transmission														
5	Secondary All kWh	12,491	MWh	@	0.011191	140	0.010141	127					(13)		
6	Primary All kWh	627	MWh	@	0.005492	3	0.004977	3					(0)		
7	Total Transmission	13,118				143		130					(13)		
	Delivery														
	Secondary														
8	System Access	4,248	Bills	@	10.00	\$ 42	10.00	\$ 42	\$			\$	-		
9	Distribution	12,491	MWh	@	0.057472	718	0.046162	577					(141)		
	Primary														
10	System Access	60	Bills	@	20.00	\$ 1	20.00	\$ 1	\$			\$	-		
11	Distribution	627	MWh	@	0.043798	27	0.035179	22					(5)		
12	Total Delivery					\$ 789		\$ 642	\$			\$	(147)		
13	Total Bundled Service					\$ 1,442		\$ 1,319	\$			\$	(123)		

## Schedule F-3.0

MICHIGAN PUBLIC SERVICE COMMISSION  
 Consumers Energy Company  
 Present and Proposed Revenue Detail

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
 Page: 21 of 25  
 Witness: HWMiller  
 Date: March 2021

Unmetered Lighting (GUL)  
 Transitional Tariff

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
Line	Billing Determinants						Present			Proposed			Net Increase
No.	Description	Customer	Company	Units	Watts	MWh	Rate		Revenue \$000	Rate		Revenue \$000	/ (Decrease) \$000
							Service \$/unit	Fixture \$/unit		Service \$/unit	Fixture \$/unit		
	Mercury Vapor												
1	3,500 Lumens	-	37	Lights	128	2 @	10.39	5.00	\$ 1	7.57	3.00	\$ 0	\$ (0)
2	7,500 Lumens	36	138	Lights	209	13 @	16.96	5.00	4	10.52	3.00	2	(1)
3	10,000 Lumens	432	243	Lights	281	66 @	22.80	5.00	17	13.14	3.00	10	(7)
4	20,000 Lumens	828	87	Lights	458	147 @	37.16	5.00	34	19.58	3.00	18	(16)
5	35,000 Lumens	-	-	Lights	770	- @	62.48	5.00	-	30.94	3.00	-	-
6	50,000 Lumens	-	-	Lights	1,080	- @	87.64	5.00	-	42.23	3.00	-	-
		1,296	504			227			\$ 55			\$ 30	\$ (25)
	High-Pressure Sodium												
7	5,000 Lumens	72	82	Lights	83	4 @	6.74	5.00	\$ 1	5.93	3.00	\$ 1	\$ (0)
8	8,500 Lumens	804	894,179	Lights	117	36,650 @	9.49	5.00	12,964	7.17	3.00	9,100	(3,865)
9	14,000 Lumens	1,404	101,265	Lights	171	6,145 @	13.88	5.00	1,931	9.13	3.00	1,241	(690)
10	20,000 Lumens	60	320	Lights	247	33 @	20.04	5.00	9	11.90	3.00	5	(4)
11	24,000 Lumens	540	98,643	Lights	318	11,039 @	25.80	5.00	3,052	14.48	3.00	1,732	(1,320)
12	45,000 Lumens	180	45,384	Lights	480	7,655 @	38.95	5.00	2,002	20.39	3.00	1,065	(936)
		3,060	1,139,873			61,525			\$ 19,960			\$ 13,145	\$ (6,815)
	Incandescent												
13	2,500 Lumens	-	96	Lights	202	7 @	16.39	5.00	\$ 2	10.26	3.00	\$ 1	\$ (1)
14	4,000 Lumens	108	-	Lights	305	12 @	24.75	5.00	3	14.01	3.00	2	(1)
15	6,000 Lumens	24	24	Lights	405	7 @	32.86	5.00	2	17.66	3.00	1	(1)
16	10,000 Lumens	-	-	Lights	690	- @	55.99	5.00	-	28.03	3.00	-	-
		132	120			25			\$ 6			\$ 4	\$ (3)
	Fluorescent												
17	20,000 Lumens	-	-	Lights	470	- @	38.14	5.00	\$ -	20.02	3.00	\$ -	\$ -
	Metal Halide												
18	9,750 Lumens	-	530	Lights	170	32 @	13.79	5.00	\$ 10	9.10	3.00	\$ 6	\$ (4)
19	10,500 Lumens	468	4,240	Lights	210	346 @	17.04	5.00	101	10.55	3.00	62	(39)
20	15,500 Lumens	12	1,380	Lights	290	141 @	23.53	5.00	40	13.47	3.00	23	(17)
21	24,000 Lumens	24	530	Lights	460	89 @	37.33	5.00	23	19.65	3.00	12	(11)
		504	6,679			608			\$ 174			\$ 104	\$ (70)
22	Annual PSCR Factor					62,386	0.000570		\$ 36	0.000570		\$ 36	\$ -
23	Total Unmetered Lighting GUL	4,992	1,147,176			62,386			\$ 20,232			\$ 13,318	\$ (6,913)

Schedule F-3.0

Line	Billing Determinants										Present				Proposed				Net Increase /(Decrease) \$000
	No.	Description	Customer	Company	Units	Watts	Customer MWh	Company MWh	(g)	Customer Owned		Company Owned		Revenue \$000	Customer Owned		Company Owned		Revenue \$000
										Production \$/Light	Delivery \$/Light	Production \$/Light	Delivery \$/Light		Production \$/Light	Delivery \$/Light	Production \$/Light	Delivery \$/Light	
1	15 - 24 Watts		12	-	Lights	20	0	-	@	0.34	3.46	0.34	5.08	0	0.34	4.93	0.34	7.93	0
2	25 - 34 Watts		-	-	Lights	30	-	-	@	0.51	3.86	0.51	5.62	-	0.51	5.54	0.51	8.54	-
3	35 - 44 Watts		1,524	-	Lights	40	21	-	@	0.67	4.26	0.67	6.15	8	0.68	6.16	0.68	9.16	10
4	45 - 54 Watts		924	693,583	Lights	50	16	12,138	@	0.84	4.67	0.84	6.70	5,235	0.85	6.77	0.85	9.77	7,373
5	55 - 64 Watts		1,092	-	Lights	60	23	-	@	1.01	5.06	1.01	7.23	7	1.02	7.39	1.02	10.39	9
6	65 - 74 Watts		312	91,928	Lights	70	8	2,252	@	1.18	5.46	1.18	7.77	825	1.19	8.00	1.19	11.00	1,123
7	75 - 84 Watts		-	2,064	Lights	80	-	58	@	1.35	5.87	1.35	8.32	20	1.36	8.62	1.36	11.62	27
8	85 - 94 Watts		-	88,256	Lights	90	-	2,780	@	1.52	6.27	1.52	8.85	915	1.53	9.23	1.53	12.23	1,214
9	95 - 104 Watts		-	180	Lights	100	-	6	@	1.69	6.66	1.69	9.39	2	1.70	9.85	1.70	12.85	3
10	105 - 114 Watts		-	7,344	Lights	110	-	283	@	1.86	7.06	1.86	9.92	87	1.87	10.46	1.87	13.46	113
11	115 - 124 Watts		-	24	Lights	120	-	1	@	2.02	7.47	2.02	10.47	0	2.04	11.08	2.04	14.08	0
12	125 - 134 Watts		-	-	Lights	130	-	-	@	2.19	7.87	2.19	11.01	-	2.21	11.69	2.21	14.69	-
13	135 - 144 Watts		-	-	Lights	140	-	-	@	2.36	8.26	2.36	11.54	-	2.38	12.31	2.38	15.31	-
14	145 - 154 Watts		-	-	Lights	150	-	-	@	2.53	8.67	2.53	12.09	-	2.55	12.92	2.55	15.92	-
15	155 - 164 Watts		-	-	Lights	160	-	-	@	2.70	9.07	2.70	12.62	-	2.72	13.54	2.72	16.54	-
16	165 - 174 Watts		-	25,560	Lights	170	-	1,521	@	2.87	9.47	2.87	13.16	410	2.89	14.15	2.89	17.15	512
17	175 - 184 Watts		-	-	Lights	180	-	-	@	3.04	9.87	3.04	13.70	-	3.06	14.77	3.06	17.77	-
18	185 - 194 Watts		-	156	Lights	190	-	10	@	3.21	10.27	3.21	14.24	3	3.23	15.38	3.23	18.38	3
19	195 - 204 Watts		-	48	Lights	200	-	3	@	3.37	10.67	3.37	14.78	1	3.40	16.00	3.40	19.00	1
20	205 - 214 Watts		-	2,004	Lights	210	-	147	@	3.54	11.08	3.54	15.32	38	3.57	16.61	3.57	19.61	46
21	Conversion Credit		-	129,840	Lights					(3.52)		(3.52)		(457)			(5.15)		(669)
22	Annual PSQR Factor		3,864	911,148	Lights		68	19,200		0.000570		0.000570		11	0.000570		0.000570		11
23	Total Unmetered LED		3,864	911,148	Lights		68	19,200						7,103					9,778

**Schedule F-3.0**

Case No.: U-20963  
Exhibit No.: A-16 (HWM-3)  
Schedule: F-3.0  
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Witness: HWMiller  
Date: March 2021

Line	(a)	(b) (c) (d) (e) (f) (g)						(h) (i) (j) (k) (l)						(m) (n) (o) (p) (q)						Net Increase /(Decrease) \$000 (r)
		Billing Determinants						Present						Proposed						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)		
No.	Description	Customer	Company	Units	Watts	Customer	MWh	Company	MWh	Production \$/Light	Delivery \$/Light	Production \$/Light	Delivery \$/Light	Revenue \$000	Production \$/Light	Delivery \$/Light	Revenue \$000	Production \$/Light	Delivery \$/Light	Revenue \$000
1	15 - 24 Watts	12	-	Lights	20	0	-	@	-	-	-	0.34	3.82	-	0.34	3.82	\$ 0	0.34	6.82	\$ 0
2	25 - 34 Watts	-	-	Lights	30	-	@	-	-	-	-	0.51	4.10	-	0.51	4.10	-	0.51	7.10	-
3	35 - 44 Watts	1,524	-	Lights	40	21	-	@	-	-	-	0.68	4.39	-	0.68	4.39	-	0.68	7.39	8
4	45 - 54 Watts	924	693,583	Lights	50	16	12,016	-	-	-	-	0.86	4.68	-	0.86	4.68	-	0.86	7.68	5,928
5	55 - 64 Watts	1,092	-	Lights	60	23	-	@	-	-	-	1.03	4.96	-	1.03	4.96	-	1.03	7.96	7
6	65 - 74 Watts	312	91,928	Lights	70	8	2,236	@	-	-	-	1.21	5.25	-	1.21	5.25	-	1.21	8.25	872
7	75 - 84 Watts	72	2,146	Lights	80	2	60	@	-	-	-	1.38	5.54	-	1.38	5.54	-	1.38	8.54	22
8	85 - 94 Watts	-	88,256	Lights	90	-	2,765	@	-	-	-	1.55	5.82	-	1.55	5.82	-	1.55	8.82	915
9	95 - 104 Watts	-	180	Lights	100	-	6	@	-	-	-	1.73	6.11	-	1.73	6.11	-	1.73	9.11	2
10	105 - 114 Watts	-	7,344	Lights	110	-	281	@	-	-	-	1.90	6.40	-	1.90	6.40	-	1.90	9.40	83
11	115 - 124 Watts	804	894,203	Lights	120	34	37,400	@	-	-	-	2.07	6.68	-	2.07	6.68	-	2.07	9.68	10,514
12	125 - 134 Watts	-	37	Lights	130	-	2	@	-	-	-	2.25	6.97	-	2.25	6.97	-	2.25	9.97	0
13	135 - 144 Watts	-	-	Lights	140	-	-	@	-	-	-	2.42	7.26	-	2.42	7.26	-	2.42	10.26	-
14	145 - 154 Watts	-	-	Lights	150	-	-	@	-	-	-	2.59	7.54	-	2.59	7.54	-	2.59	10.54	-
15	155 - 164 Watts	-	-	Lights	160	-	-	@	-	-	-	2.77	7.83	-	2.77	7.83	-	2.77	10.83	-
16	165 - 174 Watts	1,404	127,356	Lights	170	83	7,555	@	-	-	-	2.94	8.12	-	2.94	8.12	-	2.94	11.12	1,806
17	175 - 184 Watts	-	-	Lights	180	-	-	@	-	-	-	3.11	8.40	-	3.11	8.40	-	3.11	11.40	-
18	185 - 194 Watts	-	156	Lights	190	-	10	@	-	-	-	3.29	8.69	-	3.29	8.69	-	3.29	11.69	2
19	195 - 204 Watts	-	144	Lights	200	-	10	@	-	-	-	3.46	8.97	-	3.46	8.97	-	3.46	11.97	2
20	205 - 214 Watts	504	6,381	Lights	210	37	468	@	-	-	-	3.63	9.26	-	3.63	9.26	-	3.63	12.26	108
21	215 - 224 Watts	-	-	Lights	220	-	-	@	-	-	-	3.81	9.55	-	3.81	9.55	-	3.81	12.55	-
22	225 - 234 Watts	-	-	Lights	230	-	-	@	-	-	-	3.98	9.83	-	3.98	9.83	-	3.98	12.83	-
23	235 - 244 Watts	-	-	Lights	240	-	-	@	-	-	-	4.15	10.12	-	4.15	10.12	-	4.15	13.12	-
24	245 - 254 Watts	60	320	Lights	250	5	28	@	-	-	-	4.33								

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Present and Proposed Revenue Detail

Unmetered Service (GU)

Case No.: U-20963

Exhibit No.: A-16 (HWM-3)

Schedule: F-3.0

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Witness: HWMiller

Date: March 2021

	( a )	( b )	( c )	( d )	( e )	( f )	( g )	( h )
Line	Description	Billing Determinants		Present		Proposed		Net Increase
No.		Quantity	Units	Rate	Revenue	Rate	Revenue	/ (Decrease)
				\$/unit	\$000	\$/unit	\$000	\$000
	<b>BUNDLED SERVICE</b>							
	<b>Production</b>							
1	Non-capacity All kWh	100,655	MWh	@ 0.039347	\$ 3,960	0.035881	\$ 3,612	\$ (349)
2	Capacity All kWh	100,655	MWh	@ 0.023287	2,344	0.026708	2,688	344
3	Annual PSCR Factor	100,655	MWh	@ 0.000570	57	0.000570	57	-
4	Total Production				\$ 6,362		\$ 6,357	\$ (5)
	<b>Transmission</b>							
5	All kWh	100,655	MWh	@ 0.011558	1,163	0.011822	1,190	27
	<b>Delivery</b>							
6	System Access	5,712	Bills	@ 2.00	\$ 11	2.00	\$ 11	\$ -
7	Distribution	100,655	MWh	@ 0.021003	2,114	0.024941	2,510	396
8	Total Delivery				\$ 2,125		\$ 2,522	\$ 396
9	Total Bundled Service				\$ 9,651		\$ 10,069	\$ 418

**Schedule F-3.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
 Present and Proposed Revenue Detail

Large Self-generation (GSG-2)

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-3)  
 Schedule: F-3.0  
 Page: 25 of 25  
 Witness: HWMiller  
 Date: March 2021

( a )		( b )		( c )		( d )		( e )		( f )		( g )		( h )	
Line		Billing Determinants				Present		Proposed		Net Increase					
No.	Description	Quantity	Units			Rate	Revenue	Rate	Revenue	/ (Decrease)					
						\$/unit	\$000	\$/unit	\$000	\$000					
	BUNDLED SERVICE														
	Production														
	Voltage Level 1														
1	On-peak kW-day	35	MW	@	11.86	\$	419	11.86	\$	419	\$	-			
2	All kWh	44,506	MWh	@	0.030959		1,378	0.030959		1,378		-			
	Voltage Level 2														
3	On-peak kW-day	61	MW	@	12.04		732	12.04		732		-			
4	All kWh	27,532	MWh	@	0.031191		859	0.031191		859		-			
	Voltage Level 3														
5	On-peak kW-day	1	MW	@	12.19		10	12.19		10		-			
6	All kWh	112	MWh	@	0.030947		3	0.030947		3		-			
7	Power Factor Adjustment						32			32		-			
8	Total Production						\$ 3,434			\$ 3,434	\$	-			
	Transmission														
	Voltage Level 1														
9	On-peak kW-day	35	MW	@	2.64	\$	93	2.64	\$	93	\$	-			
	Voltage Level 2														
10	On-peak kW-day	61	MW	@	2.06		125	2.06		125		-			
	Voltage Level 3														
11	On-peak kW-day	1	MW	@	2.71		2	2.71		2		-			
12	Total Transmission						\$ 221			\$ 221	\$	-			
	Delivery														
	System Access														
	Voltage Level 1														
13	Standby	103	Bills	@	200.00	\$	21	200.00	\$	21	\$	-			
14	Supplemental	-	Bills	@	100.00		-	100.00		-		-			
13	Maximum kW	1,291	MW	@	0.61		788	0.62		800		13			
14	Interconnect	81	MW	@	(0.61)		(49)	(0.62)		(50)		(1)			
15	Substation Ownership	-	MW	@	(0.35)		-	(0.45)		-		-			
	Voltage Level 2														
16	Standby	67	Bills	@	200.00	\$	13	200.00	\$	13	\$	-			
17	Supplemental	-	Bills	@	100.00		-	100.00		-		-			
16	Maximum kW	339	MW	@	2.40		814	2.37		803		(10)			
18	Substation Ownership	224	MW	@	(0.98)		(220)	(0.60)		(134)		85			
	Voltage Level 3														
19	Standby	12	Bills	@	200.00	\$	2	200.00	\$	2	\$	-			
20	Supplemental	-	Bills	@	100.00		-	100.00		-		-			
19	Maximum kW	7	MW	@	4.10		29	4.81		34		5			
21	Power Factor Adjustment						12			14		1			
22	Total Delivery						\$ 1,410			\$ 1,503	\$	93			
23	Total Standby Service						\$ 5,065			\$ 5,158	\$	93			



## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16(HWM-4)  
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Witness: HWMiller  
Date: March 2021

Residential Summer On-peak RSP  
Senior Citizen Provision RSC

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)					(f)	(g)	Winter (Oct. - May)				(j)	(k)		
			(c)	(d)	(e)	(h)	(i)			(l)	(m)						
												Monthly Bills				Difference	
												Present	Proposed			Amount	Percent
		\$	\$	%	\$	\$	¢/kWh	\$	\$	\$	\$	%	\$	¢/kWh			
1	5	4.83	4.90	0.07	1.5%	98.0	4.78	4.84	0.06	1.3%	96.8						
2	50	12.26	13.00	0.75	6.1%	26.0	11.82	12.42	0.60	5.1%	24.8						
3	100	20.51	22.01	1.49	7.3%	22.0	19.63	20.84	1.21	6.2%	20.8						
4	150	28.77	31.01	2.24	7.8%	20.7	27.45	29.26	1.81	6.6%	19.5						
5	200	37.02	40.01	2.99	8.1%	20.0	35.26	37.68	2.42	6.9%	18.8						
6	250	45.28	49.01	3.74	8.3%	19.6	43.08	46.10	3.02	7.0%	18.4						
7	300	53.53	58.02	4.48	8.4%	19.3	50.90	54.52	3.63	7.1%	18.2						
8	350	61.79	67.02	5.23	8.5%	19.1	58.71	62.94	4.23	7.2%	18.0						
9	400	70.04	76.02	5.98	8.5%	19.0	66.53	71.36	4.83	7.3%	17.8						
10	450	78.30	85.02	6.73	8.6%	18.9	74.34	79.78	5.44	7.3%	17.7						
11	500	86.55	94.03	7.47	8.6%	18.8	82.16	88.20	6.04	7.4%	17.6						
12	550	94.81	103.03	8.22	8.7%	18.7	89.98	96.62	6.65	7.4%	17.6						
13	600	103.06	112.03	8.97	8.7%	18.7	97.79	105.05	7.25	7.4%	17.5						
14	650	111.32	121.03	9.72	8.7%	18.6	105.61	113.47	7.86	7.4%	17.5						
15	700	119.57	130.04	10.46	8.8%	18.6	113.43	121.89	8.46	7.5%	17.4						
16	750	127.83	139.04	11.21	8.8%	18.5	121.24	130.31	9.07	7.5%	17.4						
17	800	136.08	148.04	11.96	8.8%	18.5	129.06	138.73	9.67	7.5%	17.3						
18	850	144.34	157.04	12.70	8.8%	18.5	136.87	147.15	10.27	7.5%	17.3						
19	900	152.59	166.05	13.45	8.8%	18.4	144.69	155.57	10.88	7.5%	17.3						
20	950	160.85	175.05	14.20	8.8%	18.4	152.51	163.99	11.48	7.5%	17.3						
21	1,000	169.10	184.05	14.95	8.8%	18.4	160.32	172.41	12.09	7.5%	17.2						
22	1,500	251.66	274.08	22.42	8.9%	18.3	238.48	256.61	18.13	7.6%	17.1						
23	2,000	334.21	364.10	29.89	8.9%	18.2	316.64	340.82	24.17	7.6%	17.0						
24	2,500	416.76	454.13	37.37	9.0%	18.2	394.81	425.02	30.22	7.7%	17.0						
25	3,000	499.31	544.15	44.84	9.0%	18.1	472.97	509.23	36.26	7.7%	17.0						
26	3,500	581.87	634.18	52.31	9.0%	18.1	551.13	593.43	42.30	7.7%	17.0						
27	4,000	664.42	724.21	59.79	9.0%	18.1	629.29	677.64	48.35	7.7%	16.9						
28	4,500	746.97	814.23	67.26	9.0%	18.1	707.45	761.84	54.39	7.7%	16.9						
29	5,000	829.52	904.26	74.73	9.0%	18.1	785.61	846.05	60.43	7.7%	16.9						

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
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Witness: HWMiller  
Date: March 2021

Residential Summer On-peak RSP  
Income Assistance Provision RIA

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	Winter (Oct. - May)				(j)	(k)		
			(c)	(d)	(e)	(h)			(i)	(l)						
											Monthly Bills				Difference	
											Present	Proposed			Amount	Percent
		\$	\$	\$	%	Unit Cost	\$	\$	\$	\$	%	Unit Cost	¢/kWh			
1	5	0.83	0.90	0.07	9.1%	18.0	0.78	0.84	0.06	7.7%	16.8	16.8				
2	50	8.26	9.00	0.75	9.1%	18.0	7.82	8.42	0.60	7.7%	16.8	16.8				
3	100	16.51	18.01	1.49	9.1%	18.0	15.63	16.84	1.21	7.7%	16.8	16.8				
4	150	24.77	27.01	2.24	9.1%	18.0	23.45	25.26	1.81	7.7%	16.8	16.8				
5	200	33.02	36.01	2.99	9.1%	18.0	31.26	33.68	2.42	7.7%	16.8	16.8				
6	250	41.28	45.01	3.74	9.1%	18.0	39.08	42.10	3.02	7.7%	16.8	16.8				
7	300	49.53	54.02	4.48	9.1%	18.0	46.90	50.52	3.63	7.7%	16.8	16.8				
8	350	57.79	63.02	5.23	9.1%	18.0	54.71	58.94	4.23	7.7%	16.8	16.8				
9	400	66.04	72.02	5.98	9.1%	18.0	62.53	67.36	4.83	7.7%	16.8	16.8				
10	450	74.30	81.02	6.73	9.1%	18.0	70.34	75.78	5.44	7.7%	16.8	16.8				
11	500	82.55	90.03	7.47	9.1%	18.0	78.16	84.20	6.04	7.7%	16.8	16.8				
12	550	90.81	99.03	8.22	9.1%	18.0	85.98	92.62	6.65	7.7%	16.8	16.8				
13	600	99.06	108.03	8.97	9.1%	18.0	93.79	101.05	7.25	7.7%	16.8	16.8				
14	650	107.32	117.03	9.72	9.1%	18.0	101.61	109.47	7.86	7.7%	16.8	16.8				
15	700	115.57	126.04	10.46	9.1%	18.0	109.43	117.89	8.46	7.7%	16.8	16.8				
16	750	123.83	135.04	11.21	9.1%	18.0	117.24	126.31	9.07	7.7%	16.8	16.8				
17	800	132.08	144.04	11.96	9.1%	18.0	125.06	134.73	9.67	7.7%	16.8	16.8				
18	850	140.34	153.04	12.70	9.1%	18.0	132.87	143.15	10.27	7.7%	16.8	16.8				
19	900	148.59	162.05	13.45	9.1%	18.0	140.69	151.57	10.88	7.7%	16.8	16.8				
20	950	156.85	171.05	14.20	9.1%	18.0	148.51	159.99	11.48	7.7%	16.8	16.8				
21	1,000	165.10	180.05	14.95	9.1%	18.0	156.32	168.41	12.09	7.7%	16.8	16.8				
22	1,500	247.66	270.08	22.42	9.1%	18.0	234.48	252.61	18.13	7.7%	16.8	16.8				
23	2,000	330.21	360.10	29.89	9.1%	18.0	312.64	336.82	24.17	7.7%	16.8	16.8				
24	2,500	412.76	450.13	37.37	9.1%	18.0	390.81	421.02	30.22	7.7%	16.8	16.8				
25	3,000	495.31	540.15	44.84	9.1%	18.0	468.97	505.23	36.26	7.7%	16.8	16.8				
26	3,500	577.87	630.18	52.31	9.1%	18.0	547.13	589.43	42.30	7.7%	16.8	16.8				
27	4,000	660.42	720.21	59.79	9.1%	18.0	625.29	673.64	48.35	7.7%	16.8	16.8				
28	4,500	742.97	810.23	67.26	9.1%	18.0	703.45	757.84	54.39	7.7%	16.8	16.8				
29	5,000	825.52	900.26	74.73	9.1%	18.0	781.61	842.05	60.43	7.7%	16.8	16.8				

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
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Witness: HWMiller  
Date: March 2021

Residential Smart Hours RSH

Line No.	Monthly Use kWh	(a)	(b)	Summer (June - Sept.)				(f)	(g)	(h)	(i)	(j)	(k)	
				Monthly Bills		Difference								Proposed Unit Cost
				Present	Proposed	Amount	Percent							
			\$	\$	\$	%	\$	\$	\$	\$	\$	%	c/kWh	
1	5		8.83	8.91	0.07	0.8%	178.1	8.78	8.84	0.06	0.7%		176.8	
2	50		16.32	17.07	0.75	4.6%	34.1	15.78	16.38	0.60	3.8%		32.8	
3	100		24.65	26.14	1.50	6.1%	26.1	23.56	24.76	1.20	5.1%		24.8	
4	150		32.97	35.21	2.25	6.8%	23.5	31.34	33.15	1.80	5.8%		22.1	
5	200		41.29	44.29	3.00	7.3%	22.1	39.12	41.53	2.41	6.1%		20.8	
6	250		49.61	53.36	3.74	7.5%	21.3	46.90	49.91	3.01	6.4%		20.0	
7	300		57.94	62.43	4.49	7.8%	20.8	54.68	58.29	3.61	6.6%		19.4	
8	350		66.26	71.50	5.24	7.9%	20.4	62.46	66.67	4.21	6.7%		19.0	
9	400		74.58	80.57	5.99	8.0%	20.1	70.24	75.06	4.81	6.8%		18.8	
10	450		82.90	89.64	6.74	8.1%	19.9	78.03	83.44	5.41	6.9%		18.5	
11	500		91.23	98.71	7.49	8.2%	19.7	85.81	91.82	6.01	7.0%		18.4	
12	550		99.55	107.79	8.24	8.3%	19.6	93.59	100.20	6.62	7.1%		18.2	
13	600		107.87	116.86	8.99	8.3%	19.5	101.37	108.58	7.22	7.1%		18.1	
14	650		116.19	125.93	9.73	8.4%	19.4	109.15	116.97	7.82	7.2%		18.0	
15	700		124.52	135.00	10.48	8.4%	19.3	116.93	125.35	8.42	7.2%		17.9	
16	750		132.84	144.07	11.23	8.5%	19.2	124.71	133.73	9.02	7.2%		17.8	
17	800		141.16	153.14	11.98	8.5%	19.1	132.49	142.11	9.62	7.3%		17.8	
18	850		149.48	162.21	12.73	8.5%	19.1	140.27	150.49	10.22	7.3%		17.7	
19	900		157.81	171.29	13.48	8.5%	19.0	148.05	158.88	10.83	7.3%		17.7	
20	950		166.13	180.36	14.23	8.6%	19.0	155.83	167.26	11.43	7.3%		17.6	
21	1,000		174.45	189.43	14.98	8.6%	18.9	163.61	175.64	12.03	7.4%		17.6	
22	1,500		257.68	280.14	22.46	8.7%	18.7	241.42	259.46	18.04	7.5%		17.3	
23	2,000		340.91	370.86	29.95	8.8%	18.5	319.22	343.28	24.06	7.5%		17.2	
24	2,500		424.13	461.57	37.44	8.8%	18.5	397.03	427.10	30.07	7.6%		17.1	
25	3,000		507.36	552.29	44.93	8.9%	18.4	474.84	510.92	36.08	7.6%		17.0	
26	3,500		590.59	643.00	52.41	8.9%	18.4	552.64	594.74	42.10	7.6%		17.0	
27	4,000		673.81	733.71	59.90	8.9%	18.3	630.45	678.56	48.11	7.6%		17.0	
28	4,500		757.04	824.43	67.39	8.9%	18.3	708.25	762.38	54.13	7.6%		16.9	
29	5,000		840.26	915.14	74.88	8.9%	18.3	786.06	846.20	60.14	7.7%		16.9	

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Residential Smart Hours RSH  
Senior Citizen Provision RSC

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	5	4.83	4.91	0.07	1.5%	4.78	4.84	0.06	1.3%
2	50	12.32	13.07	0.75	6.1%	11.78	12.38	0.60	5.1%
3	100	20.65	22.14	1.50	7.3%	19.56	20.76	1.20	6.1%
4	150	28.97	31.21	2.25	7.8%	27.34	29.15	1.80	6.6%
5	200	37.29	40.29	3.00	8.0%	35.12	37.53	2.41	6.8%
6	250	45.61	49.36	3.74	8.2%	42.90	45.91	3.01	7.0%
7	300	53.94	58.43	4.49	8.3%	50.68	54.29	3.61	7.1%
8	350	62.26	67.50	5.24	8.4%	58.46	62.67	4.21	7.2%
9	400	70.58	76.57	5.99	8.5%	66.24	71.06	4.81	7.3%
10	450	78.90	85.64	6.74	8.5%	74.03	79.44	5.41	7.3%
11	500	87.23	94.71	7.49	8.6%	81.81	87.82	6.01	7.4%
12	550	95.55	103.79	8.24	8.6%	89.59	96.20	6.62	7.4%
13	600	103.87	112.86	8.99	8.7%	97.37	104.58	7.22	7.4%
14	650	112.19	121.93	9.73	8.7%	105.15	112.97	7.82	7.4%
15	700	120.52	131.00	10.48	8.7%	112.93	121.35	8.42	7.5%
16	750	128.84	140.07	11.23	8.7%	120.71	129.73	9.02	7.5%
17	800	137.16	149.14	11.98	8.7%	128.49	138.11	9.62	7.5%
18	850	145.48	158.21	12.73	8.7%	136.27	146.49	10.22	7.5%
19	900	153.81	167.29	13.48	8.8%	144.05	154.88	10.83	7.5%
20	950	162.13	176.36	14.23	8.8%	151.83	163.26	11.43	7.5%
21	1,000	170.45	185.43	14.98	8.8%	159.61	171.64	12.03	7.5%
22	1,500	253.68	276.14	22.46	8.9%	237.42	255.46	18.04	7.6%
23	2,000	336.91	366.86	29.95	8.9%	315.22	339.28	24.06	7.6%
24	2,500	420.13	457.57	37.44	8.9%	393.03	423.10	30.07	7.7%
25	3,000	503.36	548.29	44.93	8.9%	470.84	506.92	36.08	7.7%
26	3,500	586.59	639.00	52.41	8.9%	548.64	590.74	42.10	7.7%
27	4,000	669.81	729.71	59.90	8.9%	626.45	674.56	48.11	7.7%
28	4,500	753.04	820.43	67.39	8.9%	704.25	758.38	54.13	7.7%
29	5,000	836.26	911.14	74.88	9.0%	782.06	842.20	60.14	7.7%

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## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

## Comparison of Present and Proposed Monthly Bills

Residential Smart Hours RSH

Income Assistance Provision RIA

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	Winter (Oct. - May)				(j)	(k)	
			(c)		(d)				Proposed Unit Cost c/kWh	(h)		(i)			
			Present	Proposed	Amount	Difference				Present	Proposed	Amount			Difference
1	5	0.83	0.91	0.07	9.0%	18.1	0.78	0.84	0.06	7.7%	16.8				
2	50	8.32	9.07	0.75	9.0%	18.1	7.78	8.38	0.60	7.7%	16.8				
3	100	16.65	18.14	1.50	9.0%	18.1	15.56	16.76	1.20	7.7%	16.8				
4	150	24.97	27.21	2.25	9.0%	18.1	23.34	25.15	1.80	7.7%	16.8				
5	200	33.29	36.29	3.00	9.0%	18.1	31.12	33.53	2.41	7.7%	16.8				
6	250	41.61	45.36	3.74	9.0%	18.1	38.90	41.91	3.01	7.7%	16.8				
7	300	49.94	54.43	4.49	9.0%	18.1	46.68	50.29	3.61	7.7%	16.8				
8	350	58.26	63.50	5.24	9.0%	18.1	54.46	58.67	4.21	7.7%	16.8				
9	400	66.58	72.57	5.99	9.0%	18.1	62.24	67.06	4.81	7.7%	16.8				
10	450	74.90	81.64	6.74	9.0%	18.1	70.03	75.44	5.41	7.7%	16.8				
11	500	83.23	90.71	7.49	9.0%	18.1	77.81	83.82	6.01	7.7%	16.8				
12	550	91.55	99.79	8.24	9.0%	18.1	85.59	92.20	6.62	7.7%	16.8				
13	600	99.87	108.86	8.99	9.0%	18.1	93.37	100.58	7.22	7.7%	16.8				
14	650	108.19	117.93	9.73	9.0%	18.1	101.15	108.97	7.82	7.7%	16.8				
15	700	116.52	127.00	10.48	9.0%	18.1	108.93	117.35	8.42	7.7%	16.8				
16	750	124.84	136.07	11.23	9.0%	18.1	116.71	125.73	9.02	7.7%	16.8				
17	800	133.16	145.14	11.98	9.0%	18.1	124.49	134.11	9.62	7.7%	16.8				
18	850	141.48	154.21	12.73	9.0%	18.1	132.27	142.49	10.22	7.7%	16.8				
19	900	149.81	163.29	13.48	9.0%	18.1	140.05	150.88	10.83	7.7%	16.8				
20	950	158.13	172.36	14.23	9.0%	18.1	147.83	159.26	11.43	7.7%	16.8				
21	1,000	166.45	181.43	14.98	9.0%	18.1	155.61	167.64	12.03	7.7%	16.8				
22	1,500	249.68	272.14	22.46	9.0%	18.1	233.42	251.46	18.04	7.7%	16.8				
23	2,000	332.91	362.86	29.95	9.0%	18.1	311.22	335.28	24.06	7.7%	16.8				
24	2,500	416.13	453.57	37.44	9.0%	18.1	389.03	419.10	30.07	7.7%	16.8				
25	3,000	499.36	544.29	44.93	9.0%	18.1	466.84	502.92	36.08	7.7%	16.8				
26	3,500	582.59	635.00	52.41	9.0%	18.1	544.64	586.74	42.10	7.7%	16.8				
27	4,000	665.81	725.71	59.90	9.0%	18.1	622.45	670.56	48.11	7.7%	16.8				
28	4,500	749.04	816.43	67.39	9.0%	18.1	700.25	754.38	54.13	7.7%	16.8				
29	5,000	832.26	907.14	74.88	9.0%	18.1	778.06	838.20	60.14	7.7%	16.8				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Residential Nighttime Savers RPM

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)					(f)	(g)	Winter (Oct. - May)			(j)	(k)	
			(c)	(d)	(e)	(h)	(i)								
										Monthly Bills		Difference			
										Present	Proposed	Amount			Percent
		\$	\$	\$	%	¢/kWh	\$	\$	\$	\$	%	¢/kWh			
1	5	8.78	8.84	0.06	0.7%	176.8	8.74	8.81	0.07	0.7%	176.2				
2	50	15.75	16.38	0.63	4.0%	32.8	15.44	16.10	0.65	4.2%	32.2				
3	100	23.51	24.76	1.25	5.3%	24.8	22.89	24.19	1.30	5.7%	24.2				
4	150	31.26	33.14	1.88	6.0%	22.1	30.33	32.29	1.96	6.4%	21.5				
5	200	39.01	41.52	2.51	6.4%	20.8	37.77	40.38	2.61	6.9%	20.2				
6	250	46.77	49.90	3.13	6.7%	20.0	45.22	48.48	3.26	7.2%	19.4				
7	300	54.52	58.28	3.76	6.9%	19.4	52.66	56.57	3.91	7.4%	18.9				
8	350	62.28	66.66	4.39	7.0%	19.0	60.10	64.67	4.56	7.6%	18.5				
9	400	70.03	75.05	5.02	7.2%	18.8	67.55	72.76	5.21	7.7%	18.2				
10	450	77.78	83.43	5.64	7.3%	18.5	74.99	80.86	5.87	7.8%	18.0				
11	500	85.54	91.81	6.27	7.3%	18.4	82.43	88.95	6.52	7.9%	17.8				
12	550	93.29	100.19	6.90	7.4%	18.2	89.87	97.05	7.17	8.0%	17.6				
13	600	101.04	108.57	7.52	7.4%	18.1	97.32	105.14	7.82	8.0%	17.5				
14	650	108.80	116.95	8.15	7.5%	18.0	104.76	113.24	8.47	8.1%	17.4				
15	700	116.55	125.33	8.78	7.5%	17.9	112.20	121.33	9.13	8.1%	17.3				
16	750	124.31	133.71	9.40	7.6%	17.8	119.65	129.43	9.78	8.2%	17.3				
17	800	132.06	142.09	10.03	7.6%	17.8	127.09	137.52	10.43	8.2%	17.2				
18	850	139.81	150.47	10.66	7.6%	17.7	134.53	145.62	11.08	8.2%	17.1				
19	900	147.57	158.85	11.29	7.6%	17.7	141.98	153.71	11.73	8.3%	17.1				
20	950	155.32	167.23	11.91	7.7%	17.6	149.42	161.81	12.39	8.3%	17.0				
21	1,000	163.07	175.61	12.54	7.7%	17.6	156.86	169.90	13.04	8.3%	17.0				
22	1,500	240.61	259.42	18.81	7.8%	17.3	231.30	250.85	19.56	8.5%	16.7				
23	2,000	318.15	343.23	25.08	7.9%	17.2	305.73	331.80	26.07	8.5%	16.6				
24	2,500	395.69	427.03	31.35	7.9%	17.1	380.16	412.75	32.59	8.6%	16.5				
25	3,000	473.22	510.84	37.62	7.9%	17.0	454.59	493.70	39.11	8.6%	16.5				
26	3,500	550.76	594.65	43.89	8.0%	17.0	529.02	574.65	45.63	8.6%	16.4				
27	4,000	628.30	678.45	50.16	8.0%	17.0	603.45	655.60	52.15	8.6%	16.4				
28	4,500	705.83	762.26	56.43	8.0%	16.9	677.89	736.55	58.67	8.7%	16.4				
29	5,000	783.37	846.07	62.70	8.0%	16.9	752.32	817.50	65.19	8.7%	16.4				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Residential Nighttime Savers RPM  
Senior Citizen Provision RSC

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	(h)	Winter (Oct. - May)		(i)	(j)	(k)	
			Monthly Bills		Difference					Proposed Unit Cost	Difference				
			Present	Proposed	Amount	Percent					Amount				Percent
		\$	\$	\$	%	¢/kWh	\$	\$	\$	\$	%	\$	%	¢/kWh	
1	5	4.78	4.84	0.06	1.3%	96.8	4.74	4.81	0.07	1.4%	96.2				
2	50	11.75	12.38	0.63	5.3%	24.8	11.44	12.10	0.65	5.7%	24.2				
3	100	19.51	20.76	1.25	6.4%	20.8	18.89	20.19	1.30	6.9%	20.2				
4	150	27.26	29.14	1.88	6.9%	19.4	26.33	28.29	1.96	7.4%	18.9				
5	200	35.01	37.52	2.51	7.2%	18.8	33.77	36.38	2.61	7.7%	18.2				
6	250	42.77	45.90	3.13	7.3%	18.4	41.22	44.48	3.26	7.9%	17.8				
7	300	50.52	54.28	3.76	7.4%	18.1	48.66	52.57	3.91	8.0%	17.5				
8	350	58.28	62.66	4.39	7.5%	17.9	56.10	60.67	4.56	8.1%	17.3				
9	400	66.03	71.05	5.02	7.6%	17.8	63.55	68.76	5.21	8.2%	17.2				
10	450	73.78	79.43	5.64	7.6%	17.7	70.99	76.86	5.87	8.3%	17.1				
11	500	81.54	87.81	6.27	7.7%	17.6	78.43	84.95	6.52	8.3%	17.0				
12	550	89.29	96.19	6.90	7.7%	17.5	85.87	93.05	7.17	8.4%	16.9				
13	600	97.04	104.57	7.52	7.8%	17.4	93.32	101.14	7.82	8.4%	16.9				
14	650	104.80	112.95	8.15	7.8%	17.4	100.76	109.24	8.47	8.4%	16.8				
15	700	112.55	121.33	8.78	7.8%	17.3	108.20	117.33	9.13	8.4%	16.8				
16	750	120.31	129.71	9.40	7.8%	17.3	115.65	125.43	9.78	8.5%	16.7				
17	800	128.06	138.09	10.03	7.8%	17.3	123.09	133.52	10.43	8.5%	16.7				
18	850	135.81	146.47	10.66	7.8%	17.2	130.53	141.62	11.08	8.5%	16.7				
19	900	143.57	154.85	11.29	7.9%	17.2	137.98	149.71	11.73	8.5%	16.6				
20	950	151.32	163.23	11.91	7.9%	17.2	145.42	157.81	12.39	8.5%	16.6				
21	1,000	159.07	171.61	12.54	7.9%	17.2	152.86	165.90	13.04	8.5%	16.6				
22	1,500	236.61	255.42	18.81	7.9%	17.0	227.30	246.85	19.56	8.6%	16.5				
23	2,000	314.15	339.23	25.08	8.0%	17.0	301.73	327.80	26.07	8.6%	16.4				
24	2,500	391.69	423.03	31.35	8.0%	16.9	376.16	408.75	32.59	8.7%	16.4				
25	3,000	469.22	506.84	37.62	8.0%	16.9	450.59	489.70	39.11	8.7%	16.3				
26	3,500	546.76	590.65	43.89	8.0%	16.9	525.02	570.65	45.63	8.7%	16.3				
27	4,000	624.30	674.45	50.16	8.0%	16.9	599.45	651.60	52.15	8.7%	16.3				
28	4,500	701.83	758.26	56.43	8.0%	16.9	673.89	732.55	58.67	8.7%	16.3				
29	5,000	779.37	842.07	62.70	8.0%	16.8	748.32	813.50	65.19	8.7%	16.3				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Residential Nighttime Savers RPM  
Income Assistance Provision R/A

Line No.	(a) Monthly Use kWh	(b)	(c)				(d)				(e)	(f)	(g)	(h)				(i)	(j)	(k)
			(b)		(c)		(d)		(e)					(h)		(i)				
			Summer (June - Sept.)		Winter (Oct. - May)		Monthly Bills		Difference					Monthly Bills		Difference				
			Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent				Present	Proposed	Amount	Percent			
		\$	\$	\$	%	Unit Cost	\$	\$	\$	%	\$	\$	\$	\$	\$	\$	¢/kWh	¢/kWh		
1	5	0.78	0.84	0.06	8.1%	16.8	0.74	0.81	0.07	8.8%	16.2									
2	50	7.75	8.38	0.63	8.1%	16.8	7.44	8.10	0.65	8.8%	16.2									
3	100	15.51	16.76	1.25	8.1%	16.8	14.89	16.19	1.30	8.8%	16.2									
4	150	23.26	25.14	1.88	8.1%	16.8	22.33	24.29	1.96	8.8%	16.2									
5	200	31.01	33.52	2.51	8.1%	16.8	29.77	32.38	2.61	8.8%	16.2									
6	250	38.77	41.90	3.13	8.1%	16.8	37.22	40.48	3.26	8.8%	16.2									
7	300	46.52	50.28	3.76	8.1%	16.8	44.66	48.57	3.91	8.8%	16.2									
8	350	54.28	58.66	4.39	8.1%	16.8	52.10	56.67	4.56	8.8%	16.2									
9	400	62.03	67.05	5.02	8.1%	16.8	59.55	64.76	5.21	8.8%	16.2									
10	450	69.78	75.43	5.64	8.1%	16.8	66.99	72.86	5.87	8.8%	16.2									
11	500	77.54	83.81	6.27	8.1%	16.8	74.43	80.95	6.52	8.8%	16.2									
12	550	85.29	92.19	6.90	8.1%	16.8	81.87	89.05	7.17	8.8%	16.2									
13	600	93.04	100.57	7.52	8.1%	16.8	89.32	97.14	7.82	8.8%	16.2									
14	650	100.80	108.95	8.15	8.1%	16.8	96.76	105.24	8.47	8.8%	16.2									
15	700	108.55	117.33	8.78	8.1%	16.8	104.20	113.33	9.13	8.8%	16.2									
16	750	116.31	125.71	9.40	8.1%	16.8	111.65	121.43	9.78	8.8%	16.2									
17	800	124.06	134.09	10.03	8.1%	16.8	119.09	129.52	10.43	8.8%	16.2									
18	850	131.81	142.47	10.66	8.1%	16.8	126.53	137.62	11.08	8.8%	16.2									
19	900	139.57	150.85	11.29	8.1%	16.8	133.98	145.71	11.73	8.8%	16.2									
20	950	147.32	159.23	11.91	8.1%	16.8	141.42	153.81	12.39	8.8%	16.2									
21	1,000	155.07	167.61	12.54	8.1%	16.8	148.86	161.90	13.04	8.8%	16.2									
22	1,500	232.61	251.42	18.81	8.1%	16.8	223.30	242.85	19.56	8.8%	16.2									
23	2,000	310.15	335.23	25.08	8.1%	16.8	297.73	323.80	26.07	8.8%	16.2									
24	2,500	387.69	419.03	31.35	8.1%	16.8	372.16	404.75	32.59	8.8%	16.2									
25	3,000	465.22	502.84	37.62	8.1%	16.8	446.59	485.70	39.11	8.8%	16.2									
26	3,500	542.76	586.65	43.89	8.1%	16.8	521.02	566.65	45.63	8.8%	16.2									
27	4,000	620.30	670.45	50.16	8.1%	16.8	595.45	647.60	52.15	8.8%	16.2									
28	4,500	697.83	754.26	56.43	8.1%	16.8	669.89	728.55	58.67	8.8%	16.2									
29	5,000	775.37	838.07	62.70	8.1%	16.8	744.32	809.50	65.19	8.8%	16.2									

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Residential Non-Transmitting Meters RSM

Schedule F-4.0

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use kWh	(b)	(c) Summer (June - Sept.)				(d)	(e)	(f)	(g)	(h) Winter (Oct. - May)				(i)	(j)	(k)	
			(b)		(c)						Proposed Unit Cost c/kWh	(h)		(i)				
			Present	Proposed	Amount	Percent						Present	Proposed	Amount				Percent
1	5	8.81	8.86	0.06	0.7%	177.3	8.78	8.84	0.06	0.7%								
2	50	16.05	16.64	0.59	3.7%	33.3	15.82	16.42	0.60	3.8%								
3	100	24.10	25.29	1.19	4.9%	25.3	23.63	24.84	1.21	5.1%								
4	150	32.15	33.93	1.78	5.5%	22.6	31.45	33.26	1.81	5.8%								
5	200	40.20	42.58	2.38	5.9%	21.3	39.26	41.68	2.42	6.2%								
6	250	48.25	51.22	2.97	6.2%	20.5	47.08	50.10	3.02	6.4%								
7	300	56.30	59.87	3.57	6.3%	20.0	54.90	58.52	3.63	6.6%								
8	350	64.35	68.51	4.16	6.5%	19.6	62.71	66.94	4.23	6.7%								
9	400	72.40	77.16	4.76	6.6%	19.3	70.53	75.36	4.83	6.9%								
10	450	80.45	85.80	5.35	6.7%	19.1	78.34	83.78	5.44	6.9%								
11	500	88.50	94.45	5.95	6.7%	18.9	86.16	92.20	6.04	7.0%								
12	550	96.55	103.09	6.54	6.8%	18.7	93.98	100.62	6.65	7.1%								
13	600	104.60	111.74	7.14	6.8%	18.6	101.79	109.05	7.25	7.1%								
14	650	113.87	122.04	8.17	7.2%	18.8	109.61	117.47	7.86	7.2%								
15	700	123.13	132.33	9.20	7.5%	18.9	117.43	125.89	8.46	7.2%								
16	750	132.40	142.63	10.23	7.7%	19.0	125.24	134.31	9.07	7.2%								
17	800	141.66	152.93	11.26	8.0%	19.1	133.06	142.73	9.67	7.3%								
18	850	150.93	163.22	12.30	8.1%	19.2	140.87	151.15	10.27	7.3%								
19	900	160.19	173.52	13.33	8.3%	19.3	148.69	159.57	10.88	7.3%								
20	950	169.46	183.82	14.36	8.5%	19.3	156.51	167.99	11.48	7.3%								
21	1,000	178.72	194.11	15.39	8.6%	19.4	164.32	176.41	12.09	7.4%								
22	1,500	271.37	297.08	25.71	9.5%	19.8	242.48	260.61	18.13	7.5%								
23	2,000	364.01	400.05	36.03	9.9%	20.0	320.64	344.82	24.17	7.5%								
24	2,500	456.66	503.02	46.35	10.2%	20.1	398.81	429.02	30.22	7.6%								
25	3,000	549.31	605.98	56.67	10.3%	20.2	476.97	513.23	36.26	7.6%								
26	3,500	641.96	708.95	67.00	10.4%	20.3	555.13	597.43	42.30	7.6%								
27	4,000	734.60	811.92	77.32	10.5%	20.3	633.29	681.64	48.35	7.6%								
28	4,500	827.25	914.89	87.64	10.6%	20.3	711.45	765.84	54.39	7.6%								
29	5,000	919.90	1,017.85	97.96	10.6%	20.4	789.61	850.05	60.43	7.7%								



## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Residential Non-Transmitting Meters RSM  
Income Assistance Provision R/ACase No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	5	4.81	4.86	0.06	1.2%	4.78	4.84	0.06	1.3%
2	50	12.05	12.64	0.59	4.9%	11.82	12.42	0.60	5.1%
3	100	20.10	21.29	1.19	5.9%	19.63	20.84	1.21	6.2%
4	150	28.15	29.93	1.78	6.3%	27.45	29.26	1.81	6.6%
5	200	36.20	38.58	2.38	6.6%	35.26	37.68	2.42	6.9%
6	250	44.25	47.22	2.97	6.7%	43.08	46.10	3.02	7.0%
7	300	52.30	55.87	3.57	6.8%	50.90	54.52	3.63	7.1%
8	350	60.35	64.51	4.16	6.9%	58.71	62.94	4.23	7.2%
9	400	68.40	73.16	4.76	7.0%	66.53	71.36	4.83	7.3%
10	450	76.45	81.80	5.35	7.0%	74.34	79.78	5.44	7.3%
11	500	84.50	90.45	5.95	7.0%	82.16	88.20	6.04	7.4%
12	550	92.55	99.09	6.54	7.1%	89.98	96.62	6.65	7.4%
13	600	100.60	107.74	7.14	7.1%	97.79	105.05	7.25	7.4%
14	650	109.87	118.04	8.17	7.4%	105.61	113.47	7.86	7.4%
15	700	119.13	128.33	9.20	7.7%	113.43	121.89	8.46	7.5%
16	750	128.40	138.63	10.23	8.0%	121.24	130.31	9.07	7.5%
17	800	137.66	148.93	11.26	8.2%	129.06	138.73	9.67	7.5%
18	850	146.93	159.22	12.30	8.4%	136.87	147.15	10.27	7.5%
19	900	156.19	169.52	13.33	8.5%	144.69	155.57	10.88	7.5%
20	950	165.46	179.82	14.36	8.7%	152.51	163.99	11.48	7.5%
21	1,000	174.72	190.11	15.39	8.8%	160.32	172.41	12.09	7.5%
22	1,500	267.37	293.08	25.71	9.6%	238.48	256.61	18.13	7.6%
23	2,000	360.01	396.05	36.03	10.0%	316.64	340.82	24.17	7.6%
24	2,500	452.66	499.02	46.35	10.2%	394.81	425.02	30.22	7.7%
25	3,000	545.31	601.98	56.67	10.4%	472.97	509.23	36.26	7.7%
26	3,500	637.96	704.95	67.00	10.5%	551.13	593.43	42.30	7.7%
27	4,000	730.60	807.92	77.32	10.6%	629.29	677.64	48.35	7.7%
28	4,500	823.25	910.89	87.64	10.6%	707.45	761.84	54.39	7.7%
29	5,000	915.90	1,013.85	97.96	10.7%	785.61	846.05	60.43	7.7%

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Secondary Energy-only GS

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 13 of 46  
Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	250	55.01	53.33	(1.68)	-3.1%	21.3	54.75	(0.73)	-1.3%
2	500	90.03	86.66	(3.36)	-3.7%	17.3	89.51	(1.46)	-1.6%
3	750	125.04	120.00	(5.04)	-4.0%	16.0	124.26	(2.20)	-1.8%
4	1,000	160.05	153.33	(6.73)	-4.2%	15.3	159.01	(2.93)	-1.8%
5	1,500	230.08	219.99	(10.09)	-4.4%	14.7	228.52	(4.39)	-1.9%
6	2,000	300.10	286.65	(13.45)	-4.5%	14.3	298.02	(5.86)	-2.0%
7	2,500	370.13	353.32	(16.81)	-4.5%	14.1	367.53	(7.32)	-2.0%
8	3,000	440.16	419.98	(20.18)	-4.6%	14.0	437.03	(8.79)	-2.0%
9	3,500	510.18	486.64	(23.54)	-4.6%	13.9	506.54	(10.25)	-2.0%
10	4,000	580.21	553.31	(26.90)	-4.6%	13.8	576.04	(11.72)	-2.0%
11	4,500	650.23	619.97	(30.26)	-4.7%	13.8	645.55	(13.18)	-2.0%
12	5,000	720.26	686.64	(33.63)	-4.7%	13.7	715.05	(14.65)	-2.0%
13	6,000	860.31	819.96	(40.35)	-4.7%	13.7	854.06	(17.58)	-2.1%
14	7,000	1,000.36	953.29	(47.08)	-4.7%	13.6	993.07	(20.51)	-2.1%
15	8,000	1,140.42	1,086.62	(53.80)	-4.7%	13.6	1,132.08	(23.44)	-2.1%
16	9,000	1,280.47	1,219.94	(60.53)	-4.7%	13.6	1,271.09	(26.37)	-2.1%
17	10,000	1,420.52	1,353.27	(67.25)	-4.7%	13.5	1,410.10	(29.30)	-2.1%
18	15,000	2,120.78	2,019.91	(100.88)	-4.8%	13.5	2,105.15	(43.95)	-2.1%
19	20,000	2,821.04	2,686.54	(134.50)	-4.8%	13.4	2,800.20	(58.60)	-2.1%
20	25,000	3,521.30	3,353.18	(168.13)	-4.8%	13.4	3,495.25	(73.25)	-2.1%
21	30,000	4,221.56	4,019.81	(201.75)	-4.8%	13.4	4,190.30	(87.90)	-2.1%
22	35,000	4,921.82	4,686.45	(235.38)	-4.8%	13.4	4,885.35	(102.55)	-2.1%
23	40,000	5,622.08	5,353.08	(269.00)	-4.8%	13.4	5,580.40	(117.20)	-2.1%
24	45,000	6,322.34	6,019.72	(302.63)	-4.8%	13.4	6,275.45	(131.85)	-2.1%
25	50,000	7,022.60	6,686.35	(336.25)	-4.8%	13.4	6,970.50	(146.50)	-2.1%
26	55,000	7,722.86	7,352.99	(369.88)	-4.8%	13.4	7,665.55	(161.15)	-2.1%
27	60,000	8,423.12	8,019.62	(403.50)	-4.8%	13.4	8,360.60	(175.80)	-2.1%
28	65,000	9,123.38	8,686.26	(437.13)	-4.8%	13.4	9,055.65	(190.45)	-2.1%
29	70,000	9,823.64	9,352.89	(470.75)	-4.8%	13.4	9,750.70	(205.10)	-2.1%

Proposed Unit Cost	¢/kWh	21.6	17.6	16.3	15.6	14.9	14.6	14.4	14.3	14.2	14.1	14.1	14.0	13.9	13.9	13.8	13.8	13.7	13.7	13.7	13.7	13.6	13.6	13.6	13.6
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## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Secondary Energy-only GS  
Education Provision GEICase No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use kWh	(a)	(b)	Summer (June - Sept.)				(f)	(g)	Winter (Oct. - May)				(j)	(k)
				Monthly Bills		Difference				Monthly Bills		Difference			
				Present	Proposed	Amount	Percent			Present	Proposed	Amount	Percent		
				\$	\$	\$	%			\$	\$	\$	%		
1	250		54.82	53.14	(1.68)	-3.1%	21.3	54.56	53.83	(0.73)	-1.3%	21.5			
2	500		89.64	86.28	(3.35)	-3.7%	17.3	89.11	87.66	(1.46)	-1.6%	17.5			
3	750		124.45	119.42	(5.03)	-4.0%	15.9	123.67	121.49	(2.18)	-1.8%	16.2			
4	1,000		159.27	152.56	(6.71)	-4.2%	15.3	158.23	155.32	(2.91)	-1.8%	15.5			
5	1,500		228.91	218.84	(10.06)	-4.4%	14.6	227.34	222.97	(4.37)	-1.9%	14.9			
6	2,000		298.54	285.13	(13.41)	-4.5%	14.3	296.46	290.63	(5.82)	-2.0%	14.5			
7	2,500		368.18	351.41	(16.77)	-4.6%	14.1	365.57	358.29	(7.28)	-2.0%	14.3			
8	3,000		437.81	417.69	(20.12)	-4.6%	13.9	434.68	425.95	(8.74)	-2.0%	14.2			
9	3,500		507.45	483.97	(23.47)	-4.6%	13.8	503.80	493.61	(10.19)	-2.0%	14.1			
10	4,000		577.08	550.25	(26.83)	-4.6%	13.8	572.91	561.26	(11.65)	-2.0%	14.0			
11	4,500		646.72	616.53	(30.18)	-4.7%	13.7	642.03	628.92	(13.10)	-2.0%	14.0			
12	5,000		716.35	682.82	(33.54)	-4.7%	13.7	711.14	696.58	(14.56)	-2.0%	13.9			
13	6,000		855.62	815.38	(40.24)	-4.7%	13.6	849.37	831.90	(17.47)	-2.1%	13.9			
14	7,000		994.89	947.94	(46.95)	-4.7%	13.5	987.60	967.21	(20.38)	-2.1%	13.8			
15	8,000		1,134.16	1,080.50	(53.66)	-4.7%	13.5	1,125.82	1,102.53	(23.30)	-2.1%	13.8			
16	9,000		1,273.43	1,213.07	(60.36)	-4.7%	13.5	1,264.05	1,237.84	(26.21)	-2.1%	13.8			
17	10,000		1,412.70	1,345.63	(67.07)	-4.7%	13.5	1,402.28	1,373.16	(29.12)	-2.1%	13.7			
18	15,000		2,109.05	2,008.45	(100.61)	-4.8%	13.4	2,093.42	2,049.74	(43.68)	-2.1%	13.7			
19	20,000		2,805.40	2,671.26	(134.14)	-4.8%	13.4	2,784.56	2,726.32	(58.24)	-2.1%	13.6			
20	25,000		3,501.75	3,334.08	(167.68)	-4.8%	13.3	3,475.70	3,402.90	(72.80)	-2.1%	13.6			
21	30,000		4,198.10	3,996.89	(201.21)	-4.8%	13.3	4,166.84	4,079.48	(87.36)	-2.1%	13.6			
22	35,000		4,894.45	4,659.71	(234.74)	-4.8%	13.3	4,857.98	4,756.06	(101.92)	-2.1%	13.6			
23	40,000		5,590.80	5,322.52	(268.28)	-4.8%	13.3	5,549.12	5,432.64	(116.48)	-2.1%	13.6			
24	45,000		6,287.15	5,985.34	(301.82)	-4.8%	13.3	6,240.26	6,109.22	(131.04)	-2.1%	13.6			
25	50,000		6,983.50	6,648.15	(335.35)	-4.8%	13.3	6,931.40	6,785.80	(145.60)	-2.1%	13.6			
26	55,000		7,679.85	7,310.97	(368.88)	-4.8%	13.3	7,622.54	7,462.38	(160.16)	-2.1%	13.6			
27	60,000		8,376.20	7,973.78	(402.42)	-4.8%	13.3	8,313.68	8,138.96	(174.72)	-2.1%	13.6			
28	65,000		9,072.55	8,636.60	(435.96)	-4.8%	13.3	9,004.82	8,815.54	(189.28)	-2.1%	13.6			
29	70,000		9,768.90	9,299.41	(469.49)	-4.8%	13.3	9,695.96	9,492.12	(203.84)	-2.1%	13.6			

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Secondary Demand GSD

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 15 of 46  
Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use kWh	(a)	(b)	Summer (June - Sept.)					(f)	(g)	(h)	(i)	(j)	(k)	
				Monthly Bills			Difference								
				Present	Proposed	Amount	Percent	Proposed							Unit Cost
				\$	\$	\$	%	\$							¢/kWh
1	500	95.69	96.09	0.41	0.4%	19.2	89.41	90.59	1.18	1.3%	18.1				
2	1,000	161.37	162.18	0.81	0.5%	16.2	148.81	151.17	2.36	1.6%	15.1				
3	1,500	227.06	228.28	1.22	0.5%	15.2	208.22	211.76	3.53	1.7%	14.1				
4	2,000	292.74	294.37	1.63	0.6%	14.7	267.63	272.34	4.71	1.8%	13.6				
5	2,500	358.43	360.46	2.03	0.6%	14.4	327.04	332.93	5.89	1.8%	13.3				
6	3,000	424.12	426.55	2.44	0.6%	14.2	386.44	393.51	7.07	1.8%	13.1				
7	3,500	489.80	492.65	2.85	0.6%	14.1	445.85	454.10	8.24	1.8%	13.0				
8	4,000	555.49	558.74	3.25	0.6%	14.0	505.26	514.68	9.42	1.9%	12.9				
9	4,500	621.17	624.83	3.66	0.6%	13.9	564.67	575.27	10.60	1.9%	12.8				
10	5,000	686.86	690.92	4.06	0.6%	13.8	624.07	635.85	11.78	1.9%	12.7				
11	6,000	818.23	823.11	4.88	0.6%	13.7	742.89	757.02	14.13	1.9%	12.6				
12	7,000	949.60	955.29	5.69	0.6%	13.6	861.70	878.19	16.49	1.9%	12.5				
13	8,000	1,080.98	1,087.48	6.50	0.6%	13.6	980.52	999.36	18.84	1.9%	12.5				
14	9,000	1,212.35	1,219.66	7.32	0.6%	13.6	1,099.33	1,120.53	21.20	1.9%	12.5				
15	10,000	1,343.72	1,351.85	8.13	0.6%	13.5	1,218.15	1,241.70	23.55	1.9%	12.4				
16	11,000	1,475.09	1,484.03	8.94	0.6%	13.5	1,336.96	1,362.87	25.91	1.9%	12.4				
17	12,000	1,606.46	1,616.22	9.75	0.6%	13.5	1,455.78	1,484.04	28.26	1.9%	12.4				
18	13,000	1,737.84	1,748.40	10.57	0.6%	13.4	1,574.59	1,605.21	30.62	1.9%	12.3				
19	14,000	1,869.21	1,880.59	11.38	0.6%	13.4	1,693.41	1,726.38	32.97	1.9%	12.3				
20	15,000	2,000.58	2,012.77	12.19	0.6%	13.4	1,812.22	1,847.55	35.33	1.9%	12.3				
21	16,000	2,131.95	2,144.96	13.01	0.6%	13.4	1,931.04	1,968.72	37.68	2.0%	12.3				
22	17,000	2,263.32	2,277.14	13.82	0.6%	13.4	2,049.85	2,089.89	40.04	2.0%	12.3				
23	18,000	2,394.70	2,409.33	14.63	0.6%	13.4	2,168.67	2,211.06	42.39	2.0%	12.3				
24	19,000	2,526.07	2,541.51	15.45	0.6%	13.4	2,287.48	2,332.23	44.75	2.0%	12.3				
25	20,000	2,657.44	2,673.70	16.26	0.6%	13.4	2,406.29	2,453.40	47.11	2.0%	12.3				
26	21,000	2,788.81	2,805.88	17.07	0.6%	13.4	2,525.11	2,574.57	49.46	2.0%	12.3				
27	22,000	2,920.18	2,938.07	17.88	0.6%	13.4	2,643.92	2,695.74	51.82	2.0%	12.3				
28	23,000	3,051.56	3,070.25	18.70	0.6%	13.3	2,762.74	2,816.91	54.17	2.0%	12.2				
29	24,000	3,182.93	3,202.44	19.51	0.6%	13.3	2,881.55	2,938.08	56.53	2.0%	12.2				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 16 of 46  
Witness: HWMiller  
Date: March 2021

Secondary Demand GSD  
Education Provision GEI

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	500	95.37	95.78	0.41	0.4%	89.09	90.27	1.18	1.3%
2	1,000	160.74	161.55	0.81	0.5%	148.19	150.54	2.35	1.6%
3	1,500	226.12	227.33	1.22	0.5%	207.28	210.81	3.53	1.7%
4	2,000	291.49	293.11	1.62	0.6%	266.37	271.08	4.71	1.8%
5	2,500	356.86	358.89	2.03	0.6%	325.47	331.35	5.88	1.8%
6	3,000	422.23	424.66	2.43	0.6%	384.56	391.62	7.06	1.8%
7	3,500	487.60	490.44	2.84	0.6%	443.65	451.89	8.24	1.9%
8	4,000	552.98	556.22	3.24	0.6%	502.75	512.16	9.41	1.9%
9	4,500	618.35	622.00	3.65	0.6%	561.84	572.43	10.59	1.9%
10	5,000	683.72	687.77	4.05	0.6%	620.93	632.70	11.77	1.9%
11	6,000	814.46	819.33	4.87	0.6%	739.12	753.24	14.12	1.9%
12	7,000	945.21	950.88	5.68	0.6%	857.31	873.78	16.47	1.9%
13	8,000	1,075.95	1,082.44	6.49	0.6%	975.49	994.32	18.83	1.9%
14	9,000	1,206.70	1,213.99	7.30	0.6%	1,093.68	1,114.86	21.18	1.9%
15	10,000	1,337.44	1,345.55	8.11	0.6%	1,211.87	1,235.40	23.53	1.9%
16	11,000	1,468.18	1,477.10	8.92	0.6%	1,330.05	1,355.94	25.89	1.9%
17	12,000	1,598.93	1,608.66	9.73	0.6%	1,448.24	1,476.48	28.24	1.9%
18	13,000	1,729.67	1,740.21	10.54	0.6%	1,566.43	1,597.02	30.59	2.0%
19	14,000	1,860.42	1,871.77	11.35	0.6%	1,684.61	1,717.56	32.95	2.0%
20	15,000	1,991.16	2,003.32	12.16	0.6%	1,802.80	1,838.10	35.30	2.0%
21	16,000	2,121.90	2,134.88	12.97	0.6%	1,920.99	1,958.64	37.65	2.0%
22	17,000	2,252.65	2,266.43	13.79	0.6%	2,039.17	2,079.18	40.01	2.0%
23	18,000	2,383.39	2,397.99	14.60	0.6%	2,157.36	2,199.72	42.36	2.0%
24	19,000	2,514.14	2,529.54	15.41	0.6%	2,275.55	2,320.26	44.71	2.0%
25	20,000	2,644.88	2,661.10	16.22	0.6%	2,393.73	2,440.80	47.07	2.0%
26	21,000	2,775.62	2,792.65	17.03	0.6%	2,511.92	2,561.34	49.42	2.0%
27	22,000	2,906.37	2,924.21	17.84	0.6%	2,630.11	2,681.88	51.77	2.0%
28	23,000	3,037.11	3,055.76	18.65	0.6%	2,748.30	2,802.42	54.13	2.0%
29	24,000	3,167.86	3,187.32	19.46	0.6%	2,866.48	2,922.96	56.48	2.0%

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 17 of 46  
Witness: HWMiller  
Date: March 2021

Secondary Time-of-Use GSTU

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	(h)	Winter (Oct. - May)		(j)	(k)							
			Monthly Bills	(c)	(d)	(e)				Proposed Unit Cost	Proposed			Difference						
															Present	Proposed	Amount	Percent	Amount	Percent
		\$	\$	\$	%	c/kWh	\$	\$	\$	%	\$	%	c/kWh							
1	500	88.34	79.78	(8.55)	-9.7%	16.0	90.53	87.61	(2.92)	-3.2%			17.5							
2	1,000	156.67	139.56	(17.11)	-10.9%	14.0	161.06	155.21	(5.85)	-3.6%			15.5							
3	1,500	225.01	199.35	(25.66)	-11.4%	13.3	231.59	222.82	(8.77)	-3.8%			14.9							
4	2,000	293.34	259.13	(34.22)	-11.7%	13.0	302.12	290.43	(11.69)	-3.9%			14.5							
5	2,500	361.68	318.91	(42.77)	-11.8%	12.8	372.65	358.03	(14.62)	-3.9%			14.3							
6	3,000	430.02	378.69	(51.32)	-11.9%	12.6	443.18	425.64	(17.54)	-4.0%			14.2							
7	3,500	498.35	438.48	(59.88)	-12.0%	12.5	513.71	493.25	(20.46)	-4.0%			14.1							
8	4,000	566.69	498.26	(68.43)	-12.1%	12.5	584.24	560.85	(23.39)	-4.0%			14.0							
9	4,500	635.03	558.04	(76.98)	-12.1%	12.4	654.77	628.46	(26.31)	-4.0%			14.0							
10	5,000	703.36	617.82	(85.54)	-12.2%	12.4	725.30	696.07	(29.23)	-4.0%			13.9							
11	6,000	840.03	737.39	(102.65)	-12.2%	12.3	866.36	831.28	(35.08)	-4.0%			13.9							
12	7,000	976.71	856.95	(119.75)	-12.3%	12.2	1,007.42	966.50	(40.93)	-4.1%			13.8							
13	8,000	1,113.38	976.52	(136.86)	-12.3%	12.2	1,148.48	1,101.71	(46.77)	-4.1%			13.8							
14	9,000	1,250.05	1,096.08	(153.97)	-12.3%	12.2	1,289.54	1,236.92	(52.62)	-4.1%			13.7							
15	10,000	1,386.72	1,215.65	(171.08)	-12.3%	12.2	1,430.60	1,372.14	(58.47)	-4.1%			13.7							
16	11,000	1,523.40	1,335.21	(188.18)	-12.4%	12.1	1,571.66	1,507.35	(64.31)	-4.1%			13.7							
17	12,000	1,660.07	1,454.78	(205.29)	-12.4%	12.1	1,712.72	1,642.56	(70.16)	-4.1%			13.7							
18	13,000	1,796.74	1,574.34	(222.40)	-12.4%	12.1	1,853.78	1,777.78	(76.01)	-4.1%			13.7							
19	14,000	1,933.41	1,693.91	(239.51)	-12.4%	12.1	1,994.84	1,912.99	(81.85)	-4.1%			13.7							
20	15,000	2,070.09	1,813.47	(256.61)	-12.4%	12.1	2,135.91	2,048.21	(87.70)	-4.1%			13.7							
21	16,000	2,206.76	1,933.04	(273.72)	-12.4%	12.1	2,276.97	2,183.42	(93.55)	-4.1%			13.6							
22	17,000	2,343.43	2,052.60	(290.83)	-12.4%	12.1	2,418.03	2,318.63	(99.39)	-4.1%			13.6							
23	18,000	2,480.10	2,172.17	(307.94)	-12.4%	12.1	2,559.09	2,453.85	(105.24)	-4.1%			13.6							
24	19,000	2,616.78	2,291.73	(325.04)	-12.4%	12.1	2,700.15	2,589.06	(111.09)	-4.1%			13.6							
25	20,000	2,753.45	2,411.30	(342.15)	-12.4%	12.1	2,841.21	2,724.27	(116.93)	-4.1%			13.6							
26	21,000	2,890.12	2,530.86	(359.26)	-12.4%	12.1	2,982.27	2,859.49	(122.78)	-4.1%			13.6							
27	22,000	3,026.79	2,650.43	(376.37)	-12.4%	12.0	3,123.33	2,994.70	(128.63)	-4.1%			13.6							
28	23,000	3,163.47	2,769.99	(393.48)	-12.4%	12.0	3,264.39	3,129.92	(134.47)	-4.1%			13.6							
29	24,000	3,300.14	2,889.56	(410.58)	-12.4%	12.0	3,405.45	3,265.13	(140.32)	-4.1%			13.6							

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Secondary Time-of-Use GSTU  
Education Provision GEI

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)					(f)	(g)	Winter (Oct. - May)			(j)	(k)	
			Monthly Bills		Difference		Proposed Unit Cost ¢/kWh			Monthly Bills		Difference			
			Present \$	Proposed \$	Amount \$	Percent %				Present \$	Proposed \$	Amount \$			Percent %
1	500	87.95	79.40	(8.54)	-9.7%	15.9	90.14	87.22	(2.91)	-3.2%	17.4				
2	1,000	155.89	138.80	(17.09)	-11.0%	13.9	160.28	154.45	(5.83)	-3.6%	15.4				
3	1,500	223.84	198.20	(25.63)	-11.5%	13.2	230.42	221.67	(8.74)	-3.8%	14.8				
4	2,000	291.78	257.60	(34.18)	-11.7%	12.9	300.56	288.90	(11.66)	-3.9%	14.4				
5	2,500	359.73	317.00	(42.72)	-11.9%	12.7	370.70	356.12	(14.57)	-3.9%	14.2				
6	3,000	427.67	376.40	(51.27)	-12.0%	12.5	440.84	423.35	(17.49)	-4.0%	14.1				
7	3,500	495.62	435.80	(59.81)	-12.1%	12.5	510.97	490.57	(20.40)	-4.0%	14.0				
8	4,000	563.56	495.20	(68.36)	-12.1%	12.4	581.11	557.80	(23.31)	-4.0%	13.9				
9	4,500	631.51	554.60	(76.90)	-12.2%	12.3	651.25	625.02	(26.23)	-4.0%	13.9				
10	5,000	699.45	614.00	(85.45)	-12.2%	12.3	721.39	692.25	(29.14)	-4.0%	13.8				
11	6,000	835.34	732.80	(102.54)	-12.3%	12.2	861.67	826.70	(34.97)	-4.1%	13.8				
12	7,000	971.23	851.61	(119.63)	-12.3%	12.2	1,001.95	961.15	(40.80)	-4.1%	13.7				
13	8,000	1,107.12	970.41	(136.72)	-12.3%	12.1	1,142.23	1,095.60	(46.63)	-4.1%	13.7				
14	9,000	1,243.01	1,089.21	(153.81)	-12.4%	12.1	1,282.51	1,230.05	(52.46)	-4.1%	13.7				
15	10,000	1,378.90	1,208.01	(170.90)	-12.4%	12.1	1,422.78	1,364.50	(58.29)	-4.1%	13.6				
16	11,000	1,514.79	1,326.81	(187.99)	-12.4%	12.1	1,563.06	1,498.95	(64.11)	-4.1%	13.6				
17	12,000	1,650.69	1,445.61	(205.08)	-12.4%	12.0	1,703.34	1,633.40	(69.94)	-4.1%	13.6				
18	13,000	1,786.58	1,564.41	(222.17)	-12.4%	12.0	1,843.62	1,767.85	(75.77)	-4.1%	13.6				
19	14,000	1,922.47	1,683.21	(239.25)	-12.4%	12.0	1,983.90	1,902.30	(81.60)	-4.1%	13.6				
20	15,000	2,058.36	1,802.01	(256.34)	-12.5%	12.0	2,124.18	2,036.75	(87.43)	-4.1%	13.6				
21	16,000	2,194.25	1,920.81	(273.43)	-12.5%	12.0	2,264.45	2,171.20	(93.26)	-4.1%	13.6				
22	17,000	2,330.14	2,039.61	(290.52)	-12.5%	12.0	2,404.73	2,305.65	(99.09)	-4.1%	13.6				
23	18,000	2,466.03	2,158.41	(307.61)	-12.5%	12.0	2,545.01	2,440.10	(104.91)	-4.1%	13.6				
24	19,000	2,601.92	2,277.22	(324.70)	-12.5%	12.0	2,685.29	2,574.55	(110.74)	-4.1%	13.6				
25	20,000	2,737.81	2,396.02	(341.79)	-12.5%	12.0	2,825.57	2,708.99	(116.57)	-4.1%	13.5				
26	21,000	2,873.70	2,514.82	(358.88)	-12.5%	12.0	2,965.85	2,843.44	(122.40)	-4.1%	13.5				
27	22,000	3,009.59	2,633.62	(375.97)	-12.5%	12.0	3,106.12	2,977.89	(128.23)	-4.1%	13.5				
28	23,000	3,145.48	2,752.42	(393.06)	-12.5%	12.0	3,246.40	3,112.34	(134.06)	-4.1%	13.5				
29	24,000	3,281.37	2,871.22	(410.15)	-12.5%	12.0	3,386.68	3,246.79	(139.89)	-4.1%	13.5				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Secondary Time-of-Use GSTU

Secondary Interruptible Provision

Line No.	Monthly Use kWh	(a)	Summer (June - Sept.)					(f)	Winter (Oct. - May)					(j)	(k)		
			(b)	(c)		(d)			(e)	(g)	(h)		(i)				
				Monthly Bills		Difference					Monthly Bills					Difference	
				Present	Proposed	Amount	Percent				Present	Proposed				Amount	Percent
			\$	\$	\$	%	\$	\$	\$	%	\$	\$	%	c/kWh			
1	500		79.58	71.24	(8.34)	-10.5%	14.2	81.77	79.06	(2.71)	-3.3%			15.8			
2	1,000		139.15	122.47	(16.68)	-12.0%	12.2	143.54	138.12	(5.42)	-3.8%			13.8			
3	1,500		198.73	173.71	(25.03)	-12.6%	11.6	205.31	197.18	(8.13)	-4.0%			13.1			
4	2,000		258.31	224.94	(33.37)	-12.9%	11.2	267.09	256.24	(10.85)	-4.1%			12.8			
5	2,500		317.89	276.18	(41.71)	-13.1%	11.0	328.86	315.30	(13.56)	-4.1%			12.6			
6	3,000		377.46	327.41	(50.05)	-13.3%	10.9	390.63	374.36	(16.27)	-4.2%			12.5			
7	3,500		437.04	378.65	(58.39)	-13.4%	10.8	452.40	433.42	(18.98)	-4.2%			12.4			
8	4,000		496.62	429.88	(66.74)	-13.4%	10.7	514.17	492.48	(21.69)	-4.2%			12.3			
9	4,500		556.20	481.12	(75.08)	-13.5%	10.7	575.94	551.54	(24.40)	-4.2%			12.3			
10	5,000		615.77	532.35	(83.42)	-13.5%	10.6	637.71	610.60	(27.12)	-4.3%			12.2			
11	6,000		734.93	634.82	(100.11)	-13.6%	10.6	761.26	728.72	(32.54)	-4.3%			12.1			
12	7,000		854.08	737.29	(116.79)	-13.7%	10.5	884.80	846.84	(37.96)	-4.3%			12.1			
13	8,000		973.24	839.76	(133.47)	-13.7%	10.5	1,008.34	964.95	(43.39)	-4.3%			12.1			
14	9,000		1,092.39	942.23	(150.16)	-13.7%	10.5	1,131.88	1,083.07	(48.81)	-4.3%			12.0			
15	10,000		1,211.55	1,044.70	(166.84)	-13.8%	10.4	1,255.43	1,201.19	(54.23)	-4.3%			12.0			
16	11,000		1,330.70	1,147.17	(183.53)	-13.8%	10.4	1,378.97	1,319.31	(59.66)	-4.3%			12.0			
17	12,000		1,449.86	1,249.64	(200.21)	-13.8%	10.4	1,502.51	1,437.43	(65.08)	-4.3%			12.0			
18	13,000		1,569.01	1,352.12	(216.90)	-13.8%	10.4	1,626.05	1,555.55	(70.50)	-4.3%			12.0			
19	14,000		1,688.17	1,454.59	(233.58)	-13.8%	10.4	1,749.60	1,673.67	(75.93)	-4.3%			12.0			
20	15,000		1,807.32	1,557.06	(250.26)	-13.8%	10.4	1,873.14	1,791.79	(81.35)	-4.3%			11.9			
21	16,000		1,926.47	1,659.53	(266.95)	-13.9%	10.4	1,996.68	1,909.91	(86.77)	-4.3%			11.9			
22	17,000		2,045.63	1,762.00	(283.63)	-13.9%	10.4	2,120.22	2,028.03	(92.20)	-4.3%			11.9			
23	18,000		2,164.78	1,864.47	(300.32)	-13.9%	10.4	2,243.77	2,146.15	(97.62)	-4.4%			11.9			
24	19,000		2,283.94	1,966.94	(317.00)	-13.9%	10.4	2,367.31	2,264.27	(103.04)	-4.4%			11.9			
25	20,000		2,403.09	2,069.41	(333.69)	-13.9%	10.3	2,490.85	2,382.39	(108.46)	-4.4%			11.9			
26	21,000		2,522.25	2,171.88	(350.37)	-13.9%	10.3	2,614.39	2,500.51	(113.89)	-4.4%			11.9			
27	22,000		2,641.40	2,274.35	(367.05)	-13.9%	10.3	2,737.94	2,618.63	(119.31)	-4.4%			11.9			
28	23,000		2,760.56	2,376.82	(383.74)	-13.9%	10.3	2,861.48	2,736.74	(124.73)	-4.4%			11.9			
29	24,000		2,879.71	2,479.29	(400.42)	-13.9%	10.3	2,985.02	2,854.86	(130.16)	-4.4%			11.9			

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Primary Energy-only GP Voltage Level 1

**Schedule F-4.0**

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 20 of 46  
Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	(h)	(i)	(j)	(k)	
			Monthly Bills		Difference								Proposed Unit Cost ¢/kWh
			Present	Proposed	Amount	Percent							
		\$	\$	\$	%		\$	\$	\$	\$	%	¢/kWh	
1	500	143.79	142.72	(1.07)	-0.7%	28.5	143.37	143.94	0.57	0.4%		28.8	
2	1,000	187.58	185.43	(2.15)	-1.1%	18.5	186.73	187.87	1.14	0.6%		18.8	
3	1,500	231.37	228.15	(3.22)	-1.4%	15.2	230.10	231.81	1.71	0.7%		15.5	
4	2,000	275.16	270.86	(4.30)	-1.6%	13.5	273.47	275.75	2.28	0.8%		13.8	
5	2,500	318.95	313.58	(5.37)	-1.7%	12.5	316.84	319.69	2.85	0.9%		12.8	
6	3,000	362.74	356.29	(6.44)	-1.8%	11.9	360.20	363.62	3.42	0.9%		12.1	
7	4,000	450.32	441.72	(8.59)	-1.9%	11.0	446.94	451.50	4.56	1.0%		11.3	
8	5,000	537.90	527.16	(10.74)	-2.0%	10.5	533.67	539.37	5.70	1.1%		10.8	
9	6,000	625.47	612.59	(12.89)	-2.1%	10.2	620.40	627.24	6.84	1.1%		10.5	
10	7,000	713.05	698.02	(15.04)	-2.1%	10.0	707.14	715.12	7.98	1.1%		10.2	
11	8,000	800.63	783.45	(17.18)	-2.1%	9.8	793.87	802.99	9.12	1.1%		10.0	
12	9,000	888.21	868.88	(19.33)	-2.2%	9.7	880.61	890.87	10.26	1.2%		9.9	
13	10,000	975.79	954.31	(21.48)	-2.2%	9.5	967.34	978.74	11.40	1.2%		9.8	
14	15,000	1,413.69	1,381.47	(32.22)	-2.3%	9.2	1,401.01	1,418.11	17.10	1.2%		9.5	
15	20,000	1,851.58	1,808.62	(42.96)	-2.3%	9.0	1,834.68	1,857.48	22.80	1.2%		9.3	
16	25,000	2,289.48	2,235.78	(53.70)	-2.3%	8.9	2,268.35	2,296.85	28.50	1.3%		9.2	
17	30,000	2,727.37	2,662.93	(64.44)	-2.4%	8.9	2,702.02	2,736.22	34.20	1.3%		9.1	
18	35,000	3,165.27	3,090.09	(75.18)	-2.4%	8.8	3,135.69	3,175.59	39.90	1.3%		9.1	
19	40,000	3,603.16	3,517.24	(85.92)	-2.4%	8.8	3,569.36	3,614.96	45.60	1.3%		9.0	
20	45,000	4,041.06	3,944.40	(96.66)	-2.4%	8.8	4,003.03	4,054.33	51.30	1.3%		9.0	
21	50,000	4,478.95	4,371.55	(107.40)	-2.4%	8.7	4,436.70	4,493.70	57.00	1.3%		9.0	
22	60,000	5,354.74	5,225.86	(128.88)	-2.4%	8.7	5,304.04	5,372.44	68.40	1.3%		9.0	
23	70,000	6,230.53	6,080.17	(150.36)	-2.4%	8.7	6,171.38	6,251.18	79.80	1.3%		8.9	
24	80,000	7,106.32	6,934.48	(171.84)	-2.4%	8.7	7,038.72	7,129.92	91.20	1.3%		8.9	
25	90,000	7,982.11	7,788.79	(193.32)	-2.4%	8.7	7,906.06	8,008.66	102.60	1.3%		8.9	
26	100,000	8,857.90	8,643.10	(214.80)	-2.4%	8.6	8,773.40	8,887.40	114.00	1.3%		8.9	
27	110,000	9,733.69	9,497.41	(236.28)	-2.4%	8.6	9,640.74	9,766.14	125.40	1.3%		8.9	
28	120,000	10,609.48	10,351.72	(257.76)	-2.4%	8.6	10,508.08	10,644.88	136.80	1.3%		8.9	
29	130,000	11,485.27	11,206.03	(279.24)	-2.4%	8.6	11,375.42	11,523.62	148.20	1.3%		8.9	

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-4)  
 Schedule F-4.0  
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 Witness: HWMiller  
 Date: March 2021

Primary Energy-only GP Voltage Level 1  
 Education Provision GEI

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	500	143.54	142.47	(1.08)	-0.8%	143.12	143.69	0.57	0.4%
2	1,000	187.08	184.93	(2.15)	-1.2%	186.24	187.37	1.13	0.6%
3	1,500	230.63	227.40	(3.23)	-1.4%	229.36	231.06	1.70	0.7%
4	2,000	274.17	269.86	(4.31)	-1.6%	272.48	274.75	2.27	0.8%
5	2,500	317.71	312.33	(5.39)	-1.7%	315.60	318.43	2.83	0.9%
6	3,000	361.25	354.79	(6.46)	-1.8%	358.72	362.12	3.40	0.9%
7	4,000	448.34	439.72	(8.62)	-1.9%	444.96	449.49	4.54	1.0%
8	5,000	535.42	524.65	(10.77)	-2.0%	531.20	536.87	5.67	1.1%
9	6,000	622.50	609.58	(12.92)	-2.1%	617.43	624.24	6.80	1.1%
10	7,000	709.59	694.51	(15.08)	-2.1%	703.67	711.61	7.94	1.1%
11	8,000	796.67	779.44	(17.23)	-2.2%	789.91	798.98	9.07	1.1%
12	9,000	883.76	864.37	(19.39)	-2.2%	876.15	886.36	10.21	1.2%
13	10,000	970.84	949.30	(21.54)	-2.2%	962.39	973.73	11.34	1.2%
14	15,000	1,406.26	1,373.95	(32.31)	-2.3%	1,393.59	1,410.60	17.01	1.2%
15	20,000	1,841.68	1,798.60	(43.08)	-2.3%	1,824.78	1,847.46	22.68	1.2%
16	25,000	2,277.10	2,223.25	(53.85)	-2.4%	2,255.98	2,284.33	28.35	1.3%
17	30,000	2,712.52	2,647.90	(64.62)	-2.4%	2,687.17	2,721.19	34.02	1.3%
18	35,000	3,147.94	3,072.55	(75.39)	-2.4%	3,118.37	3,158.06	39.69	1.3%
19	40,000	3,583.36	3,497.20	(86.16)	-2.4%	3,549.56	3,594.92	45.36	1.3%
20	45,000	4,018.78	3,921.85	(96.93)	-2.4%	3,980.76	4,031.79	51.03	1.3%
21	50,000	4,454.20	4,346.50	(107.70)	-2.4%	4,411.95	4,468.65	56.70	1.3%
22	60,000	5,325.04	5,195.80	(129.24)	-2.4%	5,274.34	5,342.38	68.04	1.3%
23	70,000	6,195.88	6,045.10	(150.78)	-2.4%	6,136.73	6,216.11	79.38	1.3%
24	80,000	7,066.72	6,894.40	(172.32)	-2.4%	6,999.12	7,089.84	90.72	1.3%
25	90,000	7,937.56	7,743.70	(193.86)	-2.4%	7,861.51	7,963.57	102.06	1.3%
26	100,000	8,808.40	8,593.00	(215.40)	-2.4%	8,723.90	8,837.30	113.40	1.3%
27	110,000	9,679.24	9,442.30	(236.94)	-2.4%	9,586.29	9,711.03	124.74	1.3%
28	120,000	10,550.08	10,291.60	(258.48)	-2.5%	10,448.68	10,584.76	136.08	1.3%
29	130,000	11,420.92	11,140.90	(280.02)	-2.5%	11,311.07	11,458.49	147.42	1.3%

Proposed Unit Cost	c/kWh	28.7	18.7	15.4	13.7	12.7	12.1	11.2	10.7	10.4	10.2	10.0	9.8	9.7	9.4	9.2	9.1	9.1	9.0	9.0	9.0	8.9	8.9	8.8	8.8	8.8	8.8
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**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Energy-only GP Voltage Level 2

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)					(f)	(g)	(h)	(i)	(j)	(k)
			Monthly Bills		Difference		Proposed Unit Cost						
			Present	Proposed	Amount	Percent							
		\$	\$	\$	%		\$	\$	\$	\$	\$	%	c/kWh
1	500	146.41	145.41	(0.99)	-0.7%	29.1	145.98	146.65	0.67	0.5%	29.3		
2	1,000	192.81	190.82	(1.99)	-1.0%	19.1	191.96	193.30	1.34	0.7%	19.3		
3	1,500	239.22	236.23	(2.98)	-1.2%	15.7	237.95	239.95	2.01	0.8%	16.0		
4	2,000	285.62	281.65	(3.98)	-1.4%	14.1	283.93	286.61	2.68	0.9%	14.3		
5	2,500	332.03	327.06	(4.97)	-1.5%	13.1	329.91	333.26	3.35	1.0%	13.3		
6	3,000	378.44	372.47	(5.97)	-1.6%	12.4	375.89	379.91	4.02	1.1%	12.7		
7	4,000	471.25	463.29	(7.96)	-1.7%	11.6	467.86	473.21	5.36	1.1%	11.8		
8	5,000	564.06	554.12	(9.94)	-1.8%	11.1	559.82	566.52	6.70	1.2%	11.3		
9	6,000	656.87	644.94	(11.93)	-1.8%	10.7	651.78	659.82	8.03	1.2%	11.0		
10	7,000	749.68	735.76	(13.92)	-1.9%	10.5	743.75	753.12	9.37	1.3%	10.8		
11	8,000	842.50	826.58	(15.91)	-1.9%	10.3	835.71	846.42	10.71	1.3%	10.6		
12	9,000	935.31	917.41	(17.90)	-1.9%	10.2	927.68	939.73	12.05	1.3%	10.4		
13	10,000	1,028.12	1,008.23	(19.89)	-1.9%	10.1	1,019.64	1,033.03	13.39	1.3%	10.3		
14	15,000	1,492.18	1,462.35	(29.84)	-2.0%	9.7	1,479.46	1,499.55	20.09	1.4%	10.0		
15	20,000	1,956.24	1,916.46	(39.78)	-2.0%	9.6	1,939.28	1,966.06	26.78	1.4%	9.8		
16	25,000	2,420.30	2,370.58	(49.73)	-2.1%	9.5	2,399.10	2,432.58	33.48	1.4%	9.7		
17	30,000	2,884.36	2,824.69	(59.67)	-2.1%	9.4	2,858.92	2,899.09	40.17	1.4%	9.7		
18	35,000	3,348.42	3,278.81	(69.62)	-2.1%	9.4	3,318.74	3,365.61	46.87	1.4%	9.6		
19	40,000	3,812.48	3,732.92	(79.56)	-2.1%	9.3	3,778.56	3,832.12	53.56	1.4%	9.6		
20	45,000	4,276.54	4,187.04	(89.51)	-2.1%	9.3	4,238.38	4,298.64	60.26	1.4%	9.6		
21	50,000	4,740.60	4,641.15	(99.45)	-2.1%	9.3	4,698.20	4,765.15	66.95	1.4%	9.5		
22	60,000	5,668.72	5,549.38	(119.34)	-2.1%	9.2	5,617.84	5,698.18	80.34	1.4%	9.5		
23	70,000	6,596.84	6,457.61	(139.23)	-2.1%	9.2	6,537.48	6,631.21	93.73	1.4%	9.5		
24	80,000	7,524.96	7,365.84	(159.12)	-2.1%	9.2	7,457.12	7,564.24	107.12	1.4%	9.5		
25	90,000	8,453.08	8,274.07	(179.01)	-2.1%	9.2	8,376.76	8,497.27	120.51	1.4%	9.4		
26	100,000	9,381.20	9,182.30	(198.90)	-2.1%	9.2	9,296.40	9,430.30	133.90	1.4%	9.4		
27	110,000	10,309.32	10,090.53	(218.79)	-2.1%	9.2	10,216.04	10,363.33	147.29	1.4%	9.4		
28	120,000	11,237.44	10,998.76	(238.68)	-2.1%	9.2	11,135.68	11,296.36	160.68	1.4%	9.4		
29	130,000	12,165.56	11,906.99	(258.57)	-2.1%	9.2	12,055.32	12,229.39	174.07	1.4%	9.4		

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Primary Energy-only GP Voltage Level 2

Education Provision GEI

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use kWh	Summer (June - Sept.)					Winter (Oct. - May)				
		Monthly Bills			Difference		Monthly Bills			Difference	
		Present	Proposed	Amount	Percent	Unit Cost	Present	Proposed	Amount	Percent	Unit Cost
		\$	\$	\$	%	¢/kWh	\$	\$	\$	%	¢/kWh
1	500	146.16	145.16	(1.00)	-0.7%	29.0	145.73	146.40	0.67	0.5%	29.3
2	1,000	192.32	190.32	(2.00)	-1.0%	19.0	191.47	192.80	1.33	0.7%	19.3
3	1,500	238.48	235.48	(2.99)	-1.3%	15.7	237.20	239.20	2.00	0.8%	15.9
4	2,000	284.63	280.64	(3.99)	-1.4%	14.0	282.94	285.60	2.67	0.9%	14.3
5	2,500	330.79	325.81	(4.99)	-1.5%	13.0	328.67	332.01	3.33	1.0%	13.3
6	3,000	376.95	370.97	(5.99)	-1.6%	12.4	374.41	378.41	4.00	1.1%	12.6
7	4,000	469.27	461.29	(7.98)	-1.7%	11.5	465.88	471.21	5.33	1.1%	11.8
8	5,000	561.59	551.61	(9.98)	-1.8%	11.0	557.35	564.01	6.66	1.2%	11.3
9	6,000	653.90	641.93	(11.97)	-1.8%	10.7	648.81	656.81	8.00	1.2%	10.9
10	7,000	746.22	732.25	(13.97)	-1.9%	10.5	740.28	749.61	9.33	1.3%	10.7
11	8,000	838.54	822.58	(15.96)	-1.9%	10.3	831.75	842.42	10.66	1.3%	10.5
12	9,000	930.85	912.90	(17.96)	-1.9%	10.1	923.22	935.22	12.00	1.3%	10.4
13	10,000	1,023.17	1,003.22	(19.95)	-1.9%	10.0	1,014.69	1,028.02	13.33	1.3%	10.3
14	15,000	1,484.76	1,454.83	(29.93)	-2.0%	9.7	1,472.04	1,492.03	20.00	1.4%	9.9
15	20,000	1,946.34	1,906.44	(39.90)	-2.1%	9.5	1,929.38	1,956.04	26.66	1.4%	9.8
16	25,000	2,407.93	2,358.05	(49.88)	-2.1%	9.4	2,386.73	2,420.05	33.33	1.4%	9.7
17	30,000	2,869.51	2,809.66	(59.85)	-2.1%	9.4	2,844.07	2,884.06	39.99	1.4%	9.6
18	35,000	3,331.10	3,261.27	(69.83)	-2.1%	9.3	3,301.42	3,348.07	46.66	1.4%	9.6
19	40,000	3,792.68	3,712.88	(79.80)	-2.1%	9.3	3,758.76	3,812.08	53.32	1.4%	9.5
20	45,000	4,254.27	4,164.49	(89.78)	-2.1%	9.3	4,216.11	4,276.09	59.99	1.4%	9.5
21	50,000	4,715.85	4,616.10	(99.75)	-2.1%	9.2	4,673.45	4,740.10	66.65	1.4%	9.5
22	60,000	5,639.02	5,519.32	(119.70)	-2.1%	9.2	5,588.14	5,668.12	79.98	1.4%	9.4
23	70,000	6,562.19	6,422.54	(139.65)	-2.1%	9.2	6,502.83	6,596.14	93.31	1.4%	9.4
24	80,000	7,485.36	7,325.76	(159.60)	-2.1%	9.2	7,417.52	7,524.16	106.64	1.4%	9.4
25	90,000	8,408.53	8,228.98	(179.55)	-2.1%	9.1	8,332.21	8,452.18	119.97	1.4%	9.4
26	100,000	9,331.70	9,132.20	(199.50)	-2.1%	9.1	9,246.90	9,380.20	133.30	1.4%	9.4
27	110,000	10,254.87	10,035.42	(219.45)	-2.1%	9.1	10,161.59	10,308.22	146.63	1.4%	9.4
28	120,000	11,178.04	10,938.64	(239.40)	-2.1%	9.1	11,076.28	11,236.24	159.96	1.4%	9.4
29	130,000	12,101.21	11,841.86	(259.35)	-2.1%	9.1	11,990.97	12,164.26	173.29	1.4%	9.4





**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16(HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Demand GPD Voltage Level 1

Line No.	Monthly Use	Summer (June - Sept.)					Winter (Oct. - May)				
		Monthly Bills			Difference		Monthly Bills			Difference	
		Present	Proposed	\$000	Amount	Percent	Present	Proposed	\$000	Amount	Percent
		\$000	\$000	%	\$000	%	\$000	\$000	%	\$000	%
	MWh										
1	100	7.16	7.70	7.4%	0.53	7.7	6.90	7.34	0.45	6.5%	7.3
2	110	7.86	8.44	7.5%	0.59	7.7	7.57	8.06	0.49	6.5%	7.3
3	120	8.55	9.19	7.5%	0.64	7.7	8.24	8.77	0.54	6.5%	7.3
4	130	9.25	9.94	7.5%	0.69	7.6	8.91	9.49	0.58	6.5%	7.3
5	140	9.95	10.69	7.5%	0.75	7.6	9.58	10.20	0.63	6.6%	7.3
6	150	10.64	11.44	7.5%	0.80	7.6	10.25	10.92	0.67	6.6%	7.3
7	200	14.12	15.19	7.5%	1.07	7.6	13.59	14.49	0.90	6.6%	7.2
8	250	17.61	18.94	7.6%	1.33	7.6	16.94	18.06	1.12	6.6%	7.2
9	300	21.09	22.69	7.6%	1.60	7.6	20.29	21.63	1.34	6.6%	7.2
10	350	24.57	26.43	7.6%	1.86	7.6	23.64	25.21	1.57	6.6%	7.2
11	400	28.05	30.18	7.6%	2.13	7.5	26.99	28.78	1.79	6.6%	7.2
12	450	31.53	33.93	7.6%	2.40	7.5	30.34	32.35	2.02	6.6%	7.2
13	500	35.01	37.68	7.6%	2.66	7.5	33.68	35.92	2.24	6.7%	7.2
14	600	41.97	45.17	7.6%	3.20	7.5	40.38	43.07	2.69	6.7%	7.2
15	700	48.94	52.67	7.6%	3.73	7.5	47.08	50.21	3.14	6.7%	7.2
16	800	55.90	60.16	7.6%	4.26	7.5	53.77	57.36	3.58	6.7%	7.2
17	900	62.86	67.66	7.6%	4.80	7.5	60.47	64.50	4.03	6.7%	7.2
18	1,000	69.82	75.15	7.6%	5.33	7.5	67.17	71.65	4.48	6.7%	7.2
19	1,500	104.64	112.63	7.6%	7.99	7.5	100.65	107.37	6.72	6.7%	7.2
20	2,000	139.45	150.10	7.6%	10.66	7.5	134.14	143.10	8.96	6.7%	7.2
21	2,500	174.26	187.58	7.6%	13.32	7.5	167.62	178.82	11.20	6.7%	7.2
22	3,000	209.07	225.05	7.6%	15.98	7.5	201.10	214.55	13.44	6.7%	7.2
23	3,500	243.88	262.53	7.6%	18.65	7.5	234.59	250.27	15.68	6.7%	7.2
24	4,000	278.69	300.01	7.6%	21.31	7.5	268.07	285.99	17.92	6.7%	7.1
25	4,500	313.51	337.48	7.6%	23.98	7.5	301.55	321.72	20.16	6.7%	7.1
26	5,000	348.32	374.96	7.6%	26.64	7.5	335.04	357.44	22.41	6.7%	7.1
27	5,500	383.13	412.43	7.6%	29.30	7.5	368.52	393.17	24.65	6.7%	7.1
28	6,000	417.94	449.91	7.6%	31.97	7.5	402.01	428.89	26.89	6.7%	7.1
29	6,500	452.75	487.38	7.6%	34.63	7.5	435.49	464.62	29.13	6.7%	7.1

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills

Case No.:	U-20963
Exhibit No.:	A-16 (HWM-4)
Schedule	F-4.0
Page	27 of 46
Witness:	HWMiller
Date:	March 2021

Primary Demand GPD Voltage Level 1  
Primary Interruptible Provision GI

Line No.	(a) Monthly Use MWh	(b)	(c)				(d)				(e)	(f)	(g)	(h)				(i)	(j)	(k)
			Summer (June - Sept.)		Winter (Oct. - May)															
			Monthly Bills		Monthly Bills		Difference		Difference											
			Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent										
		\$000	\$000	\$000	%	c/kWh	\$000	\$000	%	\$000	\$000	%	\$000	\$000	%	c/kWh				
1	100	8.02	8.81	0.79	9.9%	8.8	7.78	8.46		0.67		8.6%				8.5				
2	110	8.80	9.67	0.87	9.9%	8.8	8.54	9.28		0.74		8.7%				8.4				
3	120	9.58	10.53	0.95	9.9%	8.8	9.30	10.11		0.81		8.7%				8.4				
4	130	10.36	11.39	1.03	9.9%	8.8	10.06	10.93		0.87		8.7%				8.4				
5	140	11.14	12.25	1.11	10.0%	8.8	10.82	11.76		0.94		8.7%				8.4				
6	150	11.92	13.11	1.19	10.0%	8.7	11.58	12.59		1.01		8.7%				8.4				
7	200	15.83	17.42	1.58	10.0%	8.7	15.37	16.71		1.34		8.8%				8.4				
8	250	19.74	21.72	1.98	10.0%	8.7	19.16	20.84		1.68		8.8%				8.3				
9	300	23.65	26.02	2.38	10.1%	8.7	22.95	24.97		2.02		8.8%				8.3				
10	350	27.55	30.33	2.77	10.1%	8.7	26.75	29.10		2.35		8.8%				8.3				
11	400	31.46	34.63	3.17	10.1%	8.7	30.54	33.23		2.69		8.8%				8.3				
12	450	35.37	38.93	3.57	10.1%	8.7	34.33	37.36		3.03		8.8%				8.3				
13	500	39.28	43.24	3.96	10.1%	8.6	38.12	41.48		3.36		8.8%				8.3				
14	600	47.09	51.85	4.75	10.1%	8.6	45.71	49.74		4.03		8.8%				8.3				
15	700	54.91	60.45	5.55	10.1%	8.6	53.29	58.00		4.71		8.8%				8.3				
16	800	62.72	69.06	6.34	10.1%	8.6	60.87	66.25		5.38		8.8%				8.3				
17	900	70.54	77.67	7.13	10.1%	8.6	68.46	74.51		6.05		8.8%				8.3				
18	1,000	78.35	86.28	7.92	10.1%	8.6	76.04	82.77		6.72		8.8%				8.3				
19	1,500	117.43	129.31	11.88	10.1%	8.6	113.96	124.05		10.09		8.8%				8.3				
20	2,000	156.51	172.35	15.85	10.1%	8.6	151.89	165.33		13.45		8.9%				8.3				
21	2,500	195.58	215.39	19.81	10.1%	8.6	189.81	206.62		16.81		8.9%				8.3				
22	3,000	234.66	258.43	23.77	10.1%	8.6	227.73	247.90		20.17		8.9%				8.3				
23	3,500	273.74	301.46	27.73	10.1%	8.6	265.65	289.18		23.53		8.9%				8.3				
24	4,000	312.81	344.50	31.69	10.1%	8.6	303.57	330.47		26.90		8.9%				8.3				
25	4,500	351.89	387.54	35.65	10.1%	8.6	341.49	371.75		30.26		8.9%				8.3				
26	5,000	390.97	430.58	39.61	10.1%	8.6	379.42	413.04		33.62		8.9%				8.3				
27	5,500	430.04	473.62	43.57	10.1%	8.6	417.34	454.32		36.98		8.9%				8.3				
28	6,000	469.12	516.65	47.54	10.1%	8.6	455.26	495.60		40.34		8.9%				8.3				
29	6,500	508.19	559.69	51.50	10.1%	8.6	493.18	536.89		43.70		8.9%				8.3				

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Demand GPD Voltage Level 2

Line No.	(a) Monthly Use MWh	Summer (June - Sept.)					Winter (Oct. - May)					(k) Proposed Unit Cost ¢/kWh	
		(b) Present \$000	(c) Monthly Bills		(d) Difference		(e) Proposed Unit Cost ¢/kWh	(f) Present \$000	(g) Monthly Bills		(h) Difference		
			Proposed \$000	Amount \$000	Percent %	Proposed \$000			Amount \$000	Percent %			
1	100	9.20	9.88	0.67	7.3%	9.9	8.80	9.37	0.57	6.5%	9.4		
2	110	10.10	10.84	0.74	7.3%	9.9	9.66	10.29	0.63	6.5%	9.4		
3	120	11.00	11.81	0.81	7.3%	9.8	10.52	11.21	0.69	6.5%	9.3		
4	130	11.90	12.78	0.87	7.3%	9.8	11.38	12.12	0.74	6.5%	9.3		
5	140	12.81	13.75	0.94	7.4%	9.8	12.24	13.04	0.80	6.5%	9.3		
6	150	13.71	14.71	1.01	7.4%	9.8	13.10	13.96	0.86	6.6%	9.3		
7	200	18.21	19.55	1.35	7.4%	9.8	17.40	18.54	1.14	6.6%	9.3		
8	250	22.71	24.39	1.68	7.4%	9.8	21.70	23.13	1.43	6.6%	9.3		
9	300	27.21	29.23	2.02	7.4%	9.7	26.00	27.72	1.72	6.6%	9.2		
10	350	31.71	34.07	2.35	7.4%	9.7	30.30	32.30	2.00	6.6%	9.2		
11	400	36.21	38.90	2.69	7.4%	9.7	34.60	36.89	2.29	6.6%	9.2		
12	450	40.72	43.74	3.03	7.4%	9.7	38.90	41.47	2.58	6.6%	9.2		
13	500	45.22	48.58	3.36	7.4%	9.7	43.20	46.06	2.86	6.6%	9.2		
14	600	54.22	58.26	4.04	7.4%	9.7	51.80	55.23	3.43	6.6%	9.2		
15	700	63.23	67.93	4.71	7.4%	9.7	60.40	64.40	4.01	6.6%	9.2		
16	800	72.23	77.61	5.38	7.4%	9.7	69.00	73.58	4.58	6.6%	9.2		
17	900	81.23	87.29	6.05	7.5%	9.7	77.60	82.75	5.15	6.6%	9.2		
18	1,000	90.24	96.96	6.73	7.5%	9.7	86.20	91.92	5.72	6.6%	9.2		
19	1,500	135.25	145.34	10.09	7.5%	9.7	129.19	137.78	8.59	6.6%	9.2		
20	2,000	180.27	193.72	13.45	7.5%	9.7	172.19	183.64	11.45	6.6%	9.2		
21	2,500	225.29	242.10	16.81	7.5%	9.7	215.19	229.50	14.31	6.6%	9.2		
22	3,000	270.31	290.49	20.18	7.5%	9.7	258.19	275.36	17.17	6.7%	9.2		
23	3,500	315.33	338.87	23.54	7.5%	9.7	301.19	321.22	20.03	6.7%	9.2		
24	4,000	360.34	387.25	26.90	7.5%	9.7	344.19	367.08	22.90	6.7%	9.2		
25	4,500	405.36	435.63	30.26	7.5%	9.7	387.18	412.94	25.76	6.7%	9.2		
26	5,000	450.38	484.01	33.63	7.5%	9.7	430.18	458.80	28.62	6.7%	9.2		
27	5,500	495.40	532.39	36.99	7.5%	9.7	473.18	504.66	31.48	6.7%	9.2		
28	6,000	540.42	580.77	40.35	7.5%	9.7	516.18	550.52	34.34	6.7%	9.2		
29	6,500	585.43	629.15	43.72	7.5%	9.7	559.18	596.38	37.21	6.7%	9.2		

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Primary Demand GPD Voltage Level 2

Primary Interruptible Provision GI

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use	Summer (June - Sept.)					Winter (Oct. - May)				
		Monthly Bills			Difference		Monthly Bills			Difference	
		Present	Proposed		Amount	Percent	Present	Proposed		Amount	Percent
		\$000	\$000		\$000	%	\$000	\$000		\$000	%
	MWh					¢/kWh					¢/kWh
1	100	8.64	9.43		0.79	9.1%	8.40	9.08		0.67	8.0%
2	110	9.49	10.36		0.87	9.2%	9.22	9.97		0.74	8.0%
3	120	10.33	11.28		0.95	9.2%	10.04	10.85		0.81	8.1%
4	130	11.18	12.20		1.03	9.2%	10.86	11.74		0.88	8.1%
5	140	12.02	13.13		1.11	9.2%	11.68	12.63		0.94	8.1%
6	150	12.87	14.05		1.18	9.2%	12.51	13.52		1.01	8.1%
7	200	17.09	18.67		1.58	9.2%	16.61	17.96		1.35	8.1%
8	250	21.31	23.28		1.97	9.3%	20.71	22.39		1.69	8.1%
9	300	25.53	27.90		2.37	9.3%	24.81	26.83		2.02	8.2%
10	350	29.75	32.52		2.76	9.3%	28.91	31.27		2.36	8.2%
11	400	33.98	37.14		3.16	9.3%	33.01	35.71		2.70	8.2%
12	450	38.20	41.75		3.55	9.3%	37.12	40.15		3.03	8.2%
13	500	42.42	46.37		3.95	9.3%	41.22	44.59		3.37	8.2%
14	600	50.86	55.60		4.74	9.3%	49.42	53.47		4.05	8.2%
15	700	59.31	64.84		5.53	9.3%	57.62	62.35		4.72	8.2%
16	800	67.75	74.07		6.32	9.3%	65.83	71.22		5.39	8.2%
17	900	76.20	83.30		7.11	9.3%	74.03	80.10		6.07	8.2%
18	1,000	84.64	92.54		7.90	9.3%	82.24	88.98		6.74	8.2%
19	1,500	126.86	138.71		11.84	9.3%	123.25	133.37		10.11	8.2%
20	2,000	169.08	184.88		15.79	9.3%	164.27	177.76		13.49	8.2%
21	2,500	211.30	231.04		19.74	9.3%	205.29	222.15		16.86	8.2%
22	3,000	253.52	277.21		23.69	9.3%	246.31	266.54		20.23	8.2%
23	3,500	295.74	323.38		27.64	9.3%	287.32	310.93		23.60	8.2%
24	4,000	337.97	369.55		31.59	9.3%	328.34	355.31		26.97	8.2%
25	4,500	380.19	415.72		35.53	9.3%	369.36	399.70		30.34	8.2%
26	5,000	422.41	461.89		39.48	9.3%	410.38	444.09		33.71	8.2%
27	5,500	464.63	508.06		43.43	9.3%	451.40	488.48		37.09	8.2%
28	6,000	506.85	554.23		47.38	9.3%	492.41	532.87		40.46	8.2%
29	6,500	549.07	600.39		51.33	9.3%	533.43	577.26		43.83	8.2%

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
 Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
 Exhibit No.: A-16 (HWM-4)  
 Schedule F-4.0  
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 Witness: HWMiller  
 Date: March 2021

Primary Demand GPD Voltage Level 3

Line No.	(a) Monthly Use MWh	(b)	(c) (d) (e) (f) (g) (h) (i) (j) (k)								
			Summer (June - Sept.)			Winter (Oct. - May)			Proposed Unit Cost ¢/kWh		
			Monthly Bills		Difference	Monthly Bills		Difference			
			Present	Proposed		Present	Proposed			Amount	Percent
		\$000	\$000	\$000	%	¢/kWh	\$000	\$000	\$000	%	
1	100	9.78	10.53	0.75	7.7%	10.5	9.37	10.02	0.65	7.0%	10.0
2	110	10.74	11.57	0.83	7.7%	10.5	10.28	11.00	0.72	7.0%	10.0
3	120	11.69	12.60	0.91	7.7%	10.5	11.20	11.98	0.78	7.0%	10.0
4	130	12.65	13.63	0.98	7.8%	10.5	12.12	12.96	0.85	7.0%	10.0
5	140	13.61	14.67	1.06	7.8%	10.5	13.03	13.95	0.91	7.0%	10.0
6	150	14.57	15.70	1.13	7.8%	10.5	13.95	14.93	0.98	7.0%	10.0
7	200	19.36	20.87	1.51	7.8%	10.4	18.53	19.84	1.31	7.0%	9.9
8	250	24.14	26.03	1.89	7.8%	10.4	23.11	24.75	1.63	7.1%	9.9
9	300	28.93	31.20	2.26	7.8%	10.4	27.70	29.66	1.96	7.1%	9.9
10	350	33.72	36.36	2.64	7.8%	10.4	32.28	34.56	2.28	7.1%	9.9
11	400	38.51	41.53	3.02	7.8%	10.4	36.86	39.47	2.61	7.1%	9.9
12	450	43.30	46.70	3.40	7.8%	10.4	41.45	44.38	2.94	7.1%	9.9
13	500	48.09	51.86	3.77	7.8%	10.4	46.03	49.29	3.26	7.1%	9.9
14	600	57.67	62.20	4.53	7.9%	10.4	55.19	59.11	3.92	7.1%	9.9
15	700	67.25	72.53	5.28	7.9%	10.4	64.36	68.93	4.57	7.1%	9.8
16	800	76.82	82.86	6.04	7.9%	10.4	73.53	78.75	5.22	7.1%	9.8
17	900	86.40	93.20	6.79	7.9%	10.4	82.69	88.57	5.87	7.1%	9.8
18	1,000	95.98	103.53	7.55	7.9%	10.4	91.86	98.38	6.53	7.1%	9.8
19	1,500	143.87	155.19	11.32	7.9%	10.3	137.69	147.48	9.79	7.1%	9.8
20	2,000	191.76	206.86	15.10	7.9%	10.3	183.51	196.57	13.05	7.1%	9.8
21	2,500	239.65	258.52	18.87	7.9%	10.3	229.34	245.66	16.32	7.1%	9.8
22	3,000	287.54	310.18	22.65	7.9%	10.3	275.17	294.75	19.58	7.1%	9.8
23	3,500	335.43	361.85	26.42	7.9%	10.3	321.00	343.85	22.85	7.1%	9.8
24	4,000	383.32	413.51	30.20	7.9%	10.3	366.83	392.94	26.11	7.1%	9.8
25	4,500	431.21	465.18	33.97	7.9%	10.3	412.66	442.03	29.37	7.1%	9.8
26	5,000	479.10	516.84	37.75	7.9%	10.3	458.49	491.12	32.64	7.1%	9.8
27	5,500	526.99	568.51	41.52	7.9%	10.3	504.31	540.22	35.90	7.1%	9.8
28	6,000	574.88	620.17	45.29	7.9%	10.3	550.14	589.31	39.16	7.1%	9.8
29	6,500	622.77	671.83	49.07	7.9%	10.3	595.97	638.40	42.43	7.1%	9.8

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Primary Demand GPD Voltage Level 3

Primary Interruptible Provision GI

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	Monthly Use	Summer (June - Sept.)					Winter (Oct. - May)				
		Monthly Bills			Difference		Monthly Bills			Difference	
		Present	Proposed		Amount	Percent	Present	Proposed		Amount	Percent
		\$000	\$000	(c)	(d)	(e)	(g)	(h)	(i)	(j)	(k)
	MWh				\$000	%	\$000	\$000	\$000	%	¢/kWh
1	100	9.32	10.22		0.89	9.6%	9.07	9.85	0.78	8.6%	9.8
2	110	10.24	11.22		0.98	9.6%	9.96	10.81	0.85	8.6%	9.8
3	120	11.15	12.22		1.07	9.6%	10.85	11.78	0.93	8.6%	9.8
4	130	12.06	13.22		1.16	9.6%	11.74	12.74	1.01	8.6%	9.8
5	140	12.97	14.23		1.25	9.6%	12.62	13.71	1.09	8.6%	9.8
6	150	13.89	15.23		1.34	9.6%	13.51	14.67	1.16	8.6%	9.8
7	200	18.45	20.24		1.79	9.7%	17.95	19.50	1.55	8.6%	9.7
8	250	23.01	25.24		2.23	9.7%	22.38	24.32	1.94	8.7%	9.7
9	300	27.57	30.25		2.68	9.7%	26.82	29.15	2.33	8.7%	9.7
10	350	32.14	35.26		3.13	9.7%	31.26	33.97	2.72	8.7%	9.7
11	400	36.70	40.27		3.57	9.7%	35.69	38.80	3.10	8.7%	9.7
12	450	41.26	45.28		4.02	9.7%	40.13	43.62	3.49	8.7%	9.7
13	500	45.82	50.29		4.47	9.7%	44.57	48.45	3.88	8.7%	9.7
14	600	54.95	60.31		5.36	9.8%	53.44	58.10	4.66	8.7%	9.7
15	700	64.07	70.33		6.25	9.8%	62.31	67.75	5.43	8.7%	9.7
16	800	73.20	80.34		7.15	9.8%	71.19	77.40	6.21	8.7%	9.7
17	900	82.32	90.36		8.04	9.8%	80.06	87.05	6.98	8.7%	9.7
18	1,000	91.45	100.38		8.93	9.8%	88.94	96.70	7.76	8.7%	9.7
19	1,500	137.07	150.47		13.40	9.8%	133.30	144.94	11.64	8.7%	9.7
20	2,000	182.69	200.56		17.87	9.8%	177.67	193.19	15.52	8.7%	9.7
21	2,500	228.32	250.65		22.33	9.8%	222.04	241.44	19.40	8.7%	9.7
22	3,000	273.94	300.74		26.80	9.8%	266.41	289.69	23.28	8.7%	9.7
23	3,500	319.56	350.83		31.27	9.8%	310.77	337.94	27.16	8.7%	9.7
24	4,000	365.18	400.92		35.73	9.8%	355.14	386.18	31.04	8.7%	9.7
25	4,500	410.81	451.01		40.20	9.8%	399.51	434.43	34.92	8.7%	9.7
26	5,000	456.43	501.10		44.67	9.8%	443.88	482.68	38.80	8.7%	9.7
27	5,500	502.05	551.19		49.14	9.8%	488.25	530.93	42.68	8.7%	9.7
28	6,000	547.68	601.28		53.60	9.8%	532.61	579.17	46.56	8.7%	9.7
29	6,500	593.30	651.37		58.07	9.8%	576.98	627.42	50.44	8.7%	9.7

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills

Case No.:	U-20963
Exhibit No.:	A-16 (HWM-4)
Schedule	F-4.0
Page	32 of 46
Witness:	HWMiller
Date:	March 2021

Line No.	(a) Monthly Use MWh	(b)	Summer (June - Sept.)						(f)	(g)	(h)	(i)	(j)	(k)	
			Monthly Bills			Proposed Unit Cost ¢/kWh	Difference								
			Present	Proposed	Amount		Percent	Amount							Percent
		\$000	\$000	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	¢/kWh	
1	100	9.08	9.18	0.10	1.1%	9.2	9.2	7.61	7.39	(0.22)	-3.0%	7.4	-3.0%	7.4	
2	110	9.97	10.08	0.11	1.1%	9.2	9.2	8.36	8.11	(0.25)	-3.0%	7.4	-3.0%	7.4	
3	120	10.85	10.97	0.12	1.1%	9.1	9.1	9.10	8.83	(0.27)	-3.0%	7.4	-3.0%	7.4	
4	130	11.74	11.87	0.13	1.1%	9.1	9.1	9.84	9.55	(0.29)	-3.0%	7.3	-3.0%	7.3	
5	140	12.63	12.77	0.14	1.1%	9.1	9.1	10.58	10.26	(0.31)	-3.0%	7.3	-3.0%	7.3	
6	150	13.52	13.67	0.15	1.1%	9.1	9.1	11.32	10.98	(0.34)	-3.0%	7.3	-3.0%	7.3	
7	200	17.95	18.16	0.20	1.1%	9.1	9.1	15.03	14.58	(0.45)	-3.0%	7.3	-3.0%	7.3	
8	250	22.39	22.65	0.25	1.1%	9.1	9.1	18.73	18.17	(0.56)	-3.0%	7.3	-3.0%	7.3	
9	300	26.83	27.13	0.30	1.1%	9.0	9.0	22.44	21.77	(0.67)	-3.0%	7.3	-3.0%	7.3	
10	350	31.27	31.62	0.35	1.1%	9.0	9.0	26.15	25.36	(0.79)	-3.0%	7.2	-3.0%	7.2	
11	400	35.71	36.11	0.40	1.1%	9.0	9.0	29.86	28.96	(0.90)	-3.0%	7.2	-3.0%	7.2	
12	450	40.15	40.60	0.45	1.1%	9.0	9.0	33.56	32.55	(1.01)	-3.0%	7.2	-3.0%	7.2	
13	500	44.59	45.09	0.51	1.1%	9.0	9.0	37.27	36.14	(1.12)	-3.0%	7.2	-3.0%	7.2	
14	600	53.46	54.07	0.61	1.1%	9.0	9.0	44.68	43.33	(1.35)	-3.0%	7.2	-3.0%	7.2	
15	700	62.34	63.05	0.71	1.1%	9.0	9.0	52.10	50.52	(1.57)	-3.0%	7.2	-3.0%	7.2	
16	800	71.22	72.03	0.81	1.1%	9.0	9.0	59.51	57.71	(1.80)	-3.0%	7.2	-3.0%	7.2	
17	900	80.10	81.00	0.91	1.1%	9.0	9.0	66.93	64.90	(2.02)	-3.0%	7.2	-3.0%	7.2	
18	1,000	88.97	89.98	1.01	1.1%	9.0	9.0	74.34	72.09	(2.25)	-3.0%	7.2	-3.0%	7.2	
19	1,500	133.36	134.87	1.52	1.1%	9.0	9.0	111.41	108.03	(3.37)	-3.0%	7.2	-3.0%	7.2	
20	2,000	177.75	179.77	2.02	1.1%	9.0	9.0	148.48	143.98	(4.50)	-3.0%	7.2	-3.0%	7.2	
21	2,500	222.13	224.66	2.53	1.1%	9.0	9.0	185.55	179.92	(5.62)	-3.0%	7.2	-3.0%	7.2	
22	3,000	266.52	269.55	3.03	1.1%	9.0	9.0	222.62	215.87	(6.75)	-3.0%	7.2	-3.0%	7.2	
23	3,500	310.91	314.44	3.54	1.1%	9.0	9.0	259.69	251.81	(7.87)	-3.0%	7.2	-3.0%	7.2	
24	4,000	355.29	359.33	4.04	1.1%	9.0	9.0	296.76	287.76	(9.00)	-3.0%	7.2	-3.0%	7.2	
25	4,500	399.68	404.22	4.55	1.1%	9.0	9.0	333.83	323.70	(10.12)	-3.0%	7.2	-3.0%	7.2	
26	5,000	444.06	449.12	5.05	1.1%	9.0	9.0	370.90	359.65	(11.25)	-3.0%	7.2	-3.0%	7.2	
27	5,500	488.45	494.01	5.56	1.1%	9.0	9.0	407.97	395.59	(12.37)	-3.0%	7.2	-3.0%	7.2	
28	6,000	532.84	538.90	6.06	1.1%	9.0	9.0	445.03	431.54	(13.50)	-3.0%	7.2	-		

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills

Case No.:	U-20963
Exhibit No.:	A-16 (HWM-4)
Schedule	F-4.0
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Witness:	HWMiller
Date:	March 2021

Line No.	(a) Monthly Use MWh	(b)	Summer (June - Sept.)					(f)	(g)	Winter (Oct. - May)			(j)	(k)					
			(c)	(d)	(e)	Monthly Bills				Proposed Unit Cost ¢/kWh	Monthly Bills				Proposed Unit Cost ¢/kWh				
						Present	Proposed				Amount	Difference				Present	Proposed	Amount	Difference
		\$000	\$000	%	\$000	%	\$000	\$000	\$000	\$000	\$000	%	\$000	%					
1	100	9.25	9.29	0.04	0.4%	9.3	8.25	8.02	(0.24)	-2.9%	8.0	-2.9%	(0.24)	-2.9%					
2	110	10.15	10.20	0.04	0.4%	9.3	9.06	8.80	(0.26)	-2.9%	8.0	-2.9%	(0.26)	-2.9%					
3	120	11.06	11.11	0.05	0.4%	9.3	9.86	9.58	(0.28)	-2.9%	8.0	-2.9%	(0.28)	-2.9%					
4	130	11.96	12.02	0.05	0.4%	9.2	10.67	10.36	(0.31)	-2.9%	8.0	-2.9%	(0.31)	-2.9%					
5	140	12.87	12.93	0.06	0.4%	9.2	11.47	11.14	(0.33)	-2.9%	8.0	-2.9%	(0.33)	-2.9%					
6	150	13.77	13.84	0.06	0.4%	9.2	12.28	11.92	(0.36)	-2.9%	7.9	-2.9%	(0.36)	-2.9%					
7	200	18.30	18.38	0.08	0.4%	9.2	16.31	15.83	(0.47)	-2.9%	7.9	-2.9%	(0.47)	-2.9%					
8	250	22.82	22.93	0.10	0.4%	9.2	20.33	19.74	(0.59)	-2.9%	7.9	-2.9%	(0.59)	-2.9%					
9	300	27.35	27.47	0.12	0.4%	9.2	24.36	23.65	(0.71)	-2.9%	7.9	-2.9%	(0.71)	-2.9%					
10	350	31.87	32.02	0.14	0.4%	9.1	28.39	27.56	(0.83)	-2.9%	7.9	-2.9%	(0.83)	-2.9%					
11	400	36.40	36.56	0.16	0.4%	9.1	32.41	31.46	(0.95)	-2.9%	7.9	-2.9%	(0.95)	-2.9%					
12	450	40.92	41.11	0.18	0.4%	9.1	36.44	35.37	(1.07)	-2.9%	7.9	-2.9%	(1.07)	-2.9%					
13	500	45.45	45.65	0.20	0.4%	9.1	40.47	39.28	(1.19)	-2.9%	7.9	-2.9%	(1.19)	-2.9%					
14	600	54.50	54.74	0.24	0.4%	9.1	48.52	47.10	(1.42)	-2.9%	7.8	-2.9%	(1.42)	-2.9%					
15	700	63.55	63.83	0.28	0.4%	9.1	56.57	54.91	(1.66)	-2.9%	7.8	-2.9%	(1.66)	-2.9%					
16	800	72.60	72.92	0.32	0.4%	9.1	64.63	62.73	(1.90)	-2.9%	7.8	-2.9%	(1.90)	-2.9%					
17	900	81.65	82.01	0.37	0.4%	9.1	72.68	70.55	(2.13)	-2.9%	7.8	-2.9%	(2.13)	-2.9%					
18	1,000	90.70	91.10	0.41	0.4%	9.1	80.73	78.36	(2.37)	-2.9%	7.8	-2.9%	(2.37)	-2.9%					
19	1,500	135.95	136.56	0.61	0.4%	9.1	121.00	117.44	(3.56)	-2.9%	7.8	-2.9%	(3.56)	-2.9%					
20	2,000	181.20	182.01	0.81	0.4%	9.1	161.26	156.52	(4.74)	-2.9%	7.8	-2.9%	(4.74)	-2.9%					
21	2,500	226.45	227.46	1.02	0.4%	9.1	201.53	195.60	(5.93)	-2.9%	7.8	-2.9%	(5.93)	-2.9%					
22	3,000	271.70	272.91	1.22	0.4%	9.1	241.80	234.69	(7.11)	-2.9%	7.8	-2.9%	(7.11)	-2.9%					
23	3,500	316.95	318.37	1.42	0.4%	9.1	282.06	273.77	(8.30)	-2.9%	7.8	-2.9%	(8.30)	-2.9%					
24	4,000	362.19	363.82	1.62	0.4%	9.1	322.33	312.85	(9.48)	-2.9%	7.8	-2.9%	(9.48)	-2.9%					
25	4,500	407.44	409.27	1.83	0.4%	9.1	362.59	351.93	(10.67)	-2.9%	7.8	-2.9%	(10.67)	-2.9%					
26	5,000	452.69	454.72	2.03	0.4%	9.1	402.86	391.01	(11.85)	-2.9%	7.8	-2.9%	(11.85)	-2.9%					
27	5,500	497.94	500.18	2.23	0.4%	9.1	443.13	430.09	(13.04)	-2.9%	7.8	-2.9%	(13.04)	-2.9%					
28	6,000	543.19	545.63																



## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Energy Intensive EIP Voltage Level 1

Line No.	(a) Monthly Use MWh	Summer (June - Sept.)					(f) Proposed Unit Cost c/kWh	Winter (Oct. - May)					(k) Proposed Unit Cost c/kWh
		(b) Present \$000	(c) Monthly Bills		(d) Amount \$000	(e) Difference Percent %		(g) Present \$000	(h) Monthly Bills		(i) Amount \$000	(j) Difference Percent %	
			(b)	(c)					(g)	(h)			
1	100	6.53	7.07	0.54	8.3%	7.1	5.83	6.33	0.50	8.6%	6.3		
2	110	7.16	7.75	0.59	8.3%	7.0	6.40	6.95	0.55	8.6%	6.3		
3	120	7.79	8.44	0.65	8.3%	7.0	6.96	7.56	0.60	8.6%	6.3		
4	130	8.43	9.13	0.70	8.3%	7.0	7.52	8.17	0.65	8.6%	6.3		
5	140	9.06	9.81	0.75	8.3%	7.0	8.09	8.79	0.70	8.6%	6.3		
6	150	9.69	10.50	0.81	8.3%	7.0	8.65	9.40	0.75	8.7%	6.3		
7	200	12.85	13.93	1.08	8.4%	7.0	11.47	12.46	1.00	8.7%	6.2		
8	250	16.02	17.36	1.35	8.4%	6.9	14.28	15.53	1.25	8.7%	6.2		
9	300	19.18	20.80	1.62	8.4%	6.9	17.10	18.60	1.50	8.8%	6.2		
10	350	22.34	24.23	1.89	8.4%	6.9	19.92	21.66	1.75	8.8%	6.2		
11	400	25.51	27.66	2.15	8.4%	6.9	22.73	24.73	2.00	8.8%	6.2		
12	450	28.67	31.10	2.42	8.5%	6.9	25.55	27.80	2.25	8.8%	6.2		
13	500	31.83	34.53	2.69	8.5%	6.9	28.37	30.86	2.50	8.8%	6.2		
14	600	38.16	41.39	3.23	8.5%	6.9	34.00	36.99	3.00	8.8%	6.2		
15	700	44.49	48.26	3.77	8.5%	6.9	39.63	43.13	3.49	8.8%	6.2		
16	800	50.82	55.13	4.31	8.5%	6.9	45.26	49.26	3.99	8.8%	6.2		
17	900	57.14	61.99	4.85	8.5%	6.9	50.90	55.39	4.49	8.8%	6.2		
18	1,000	63.47	68.86	5.39	8.5%	6.9	56.53	61.52	4.99	8.8%	6.2		
19	1,500	95.10	103.18	8.08	8.5%	6.9	84.70	92.18	7.49	8.8%	6.1		
20	2,000	126.74	137.51	10.77	8.5%	6.9	112.86	122.85	9.99	8.8%	6.1		
21	2,500	158.37	171.84	13.47	8.5%	6.9	141.03	153.51	12.48	8.9%	6.1		
22	3,000	190.01	206.17	16.16	8.5%	6.9	169.19	184.17	14.98	8.9%	6.1		
23	3,500	221.64	240.50	18.85	8.5%	6.9	197.36	214.83	17.47	8.9%	6.1		
24	4,000	253.28	274.83	21.55	8.5%	6.9	225.52	245.49	19.97	8.9%	6.1		
25	4,500	284.91	309.15	24.24	8.5%	6.9	253.69	276.15	22.47	8.9%	6.1		
26	5,000	316.55	343.48	26.93	8.5%	6.9	281.85	306.82	24.96	8.9%	6.1		
27	5,500	348.18	377.81	29.63	8.5%	6.9	310.02	337.48	27.46	8.9%	6.1		
28	6,000	379.82	412.14	32.32	8.5%	6.9	338.18	368.14	29.96	8.9%	6.1		
29	6,500	411.45	446.47	35.01	8.5%	6.9	366.35	398.80	32.45	8.9%	6.1		

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills

Primary Energy Intensive EIP Voltage Level 2

Line No.	(a) Monthly Use MWh	Summer (June - Sept.)						Winter (Oct. - May)						(k) Proposed Unit Cost c/kWh	
		(b) Present \$000	(c) Monthly Bills		(d) Difference		(e) Percent %	(f) Proposed Unit Cost c/kWh	(g) Present \$000	(h) Monthly Bills		(i) Difference			(j) Percent %
			Proposed \$000	Amount \$000	Amount \$000	Percent %				Proposed \$000	Amount \$000	Amount \$000	Percent %		
1	100	7.23	7.76	0.53	7.4%	7.8	6.52	7.01	0.49	7.6%	7.0				
2	110	7.93	8.51	0.58	7.4%	7.7	7.15	7.69	0.54	7.6%	7.0				
3	120	8.63	9.27	0.64	7.4%	7.7	7.78	8.37	0.59	7.6%	7.0				
4	130	9.33	10.02	0.69	7.4%	7.7	8.42	9.06	0.64	7.6%	7.0				
5	140	10.04	10.78	0.74	7.4%	7.7	9.05	9.74	0.69	7.6%	7.0				
6	150	10.74	11.54	0.80	7.4%	7.7	9.68	10.42	0.74	7.6%	6.9				
7	200	14.25	15.31	1.06	7.5%	7.7	12.84	13.82	0.98	7.7%	6.9				
8	250	17.76	19.09	1.33	7.5%	7.6	16.00	17.23	1.23	7.7%	6.9				
9	300	21.28	22.87	1.59	7.5%	7.6	19.16	20.64	1.48	7.7%	6.9				
10	350	24.79	26.65	1.86	7.5%	7.6	22.32	24.04	1.72	7.7%	6.9				
11	400	28.30	30.43	2.13	7.5%	7.6	25.48	27.45	1.97	7.7%	6.9				
12	450	31.82	34.21	2.39	7.5%	7.6	28.64	30.85	2.22	7.7%	6.9				
13	500	35.33	37.99	2.66	7.5%	7.6	31.80	34.26	2.46	7.7%	6.9				
14	600	42.35	45.54	3.19	7.5%	7.6	38.12	41.07	2.95	7.7%	6.8				
15	700	49.38	53.10	3.72	7.5%	7.6	44.44	47.88	3.45	7.8%	6.8				
16	800	56.41	60.66	4.25	7.5%	7.6	50.76	54.69	3.94	7.8%	6.8				
17	900	63.43	68.22	4.78	7.5%	7.6	57.08	61.51	4.43	7.8%	6.8				
18	1,000	70.46	75.77	5.32	7.5%	7.6	63.39	68.32	4.92	7.8%	6.8				
19	1,500	105.59	113.56	7.97	7.6%	7.6	94.99	102.38	7.38	7.8%	6.8				
20	2,000	140.71	151.35	10.63	7.6%	7.6	126.59	136.44	9.85	7.8%	6.8				
21	2,500	175.84	189.13	13.29	7.6%	7.6	158.19	170.49	12.31	7.8%	6.8				
22	3,000	210.97	226.92	15.95	7.6%	7.6	189.78	204.55	14.77	7.8%	6.8				
23	3,500	246.10	264.70	18.61	7.6%	7.6	221.38	238.61	17.23	7.8%	6.8				
24	4,000	281.23	302.49	21.26	7.6%	7.6	252.98	272.67	19.69	7.8%	6.8				
25	4,500	316.36	340.28	23.92	7.6%	7.6	284.58	306.73	22.15	7.8%	6.8				
26	5,000	351.48	378.06	26.58	7.6%	7.6	316.17	340.79	24.61	7.8%	6.8				
27	5,500	386.61	415.85	29.24	7.6%	7.6	347.77	374.85	27.07	7.8%	6.8				
28	6,000	421.74	453.64	31.89	7.6%	7.6	379.37	408.91	29.54	7.8%	6.8				
29	6,500	456.87	491.42	34.55	7.6%	7.6	410.97	442.96	32.00	7.8%	6.8				

**MICHIGAN PUBLIC SERVICE COMMISSION**  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills

### Primary Energy Intensive EIP Voltage Level 3

Line No.	Monthly Use	(a)	Summer (June - Sept.)						(f)	Winter (Oct. - May)						(j)	(k)	
			(b)	(c)		(d)		(e)		(g)	(h)		(i)		(j)			
				Monthly Bills	Proposed	Present	Amount				Difference	Proposed	Present	Amount				Difference
		MWh							Unit Cost						Unit Cost			
									c/kWh						c/kWh			
1	100		7.94	8.41	0.48	6.0%	8.4	7.21	7.90	0.69	9.5%	7.9						
2	110		8.71	9.24	0.52	6.0%	8.4	7.92	8.67	0.76	9.5%	7.9						
3	120		9.49	10.06	0.57	6.0%	8.4	8.62	9.44	0.82	9.6%	7.9						
4	130		10.26	10.88	0.62	6.0%	8.4	9.32	10.21	0.89	9.6%	7.9						
5	140		11.03	11.70	0.67	6.0%	8.4	10.02	10.98	0.96	9.6%	7.8						
6	150		11.81	12.52	0.71	6.0%	8.3	10.72	11.75	1.03	9.6%	7.8						
7	200		15.68	16.63	0.95	6.1%	8.3	14.23	15.60	1.37	9.7%	7.8						
8	250		19.55	20.74	1.19	6.1%	8.3	17.74	19.45	1.72	9.7%	7.8						
9	300		23.42	24.84	1.43	6.1%	8.3	21.24	23.30	2.06	9.7%	7.8						
10	350		27.29	28.95	1.66	6.1%	8.3	24.75	27.15	2.40	9.7%	7.8						
11	400		31.16	33.06	1.90	6.1%	8.3	28.26	31.01	2.75	9.7%	7.8						
12	450		35.03	37.17	2.14	6.1%	8.3	31.77	34.86	3.09	9.7%	7.7						
13	500		38.90	41.27	2.38	6.1%	8.3	35.27	38.71	3.43	9.7%	7.7						
14	600		46.63	49.49	2.85	6.1%	8.2	42.29	46.41	4.12	9.7%	7.7						
15	700		54.37	57.70	3.33	6.1%	8.2	49.30	54.11	4.81	9.7%	7.7						
16	800		62.11	65.92	3.80	6.1%	8.2	56.32	61.81	5.49	9.8%	7.7						
17	900		69.85	74.13	4.28	6.1%	8.2	63.33	69.51	6.18	9.8%	7.7						
18	1,000		77.59	82.34	4.75	6.1%	8.2	70.35	77.21	6.87	9.8%	7.7						
19	1,500		116.29	123.42	7.13	6.1%	8.2	105.42	115.72	10.30	9.8%	7.7						
20	2,000		154.98	164.49	9.51	6.1%	8.2	140.49	154.23	13.73	9.8%	7.7						
21	2,500		193.68	205.56	11.89	6.1%	8.2	175.57	192.73	17.16	9.8%	7.7						
22	3,000		232.37	246.63	14.26	6.1%	8.2	210.64	231.24	20.60	9.8%	7.7						
23	3,500		271.07	287.71	16.64	6.1%	8.2	245.71	269.74	24.03	9.8%	7.7						
24	4,000		309.76	328.78	19.02	6.1%	8.2	280.79	308.25	27.46	9.8%	7.7						
25	4,500		348.46	369.85	21.40	6.1%	8.2	315.86	346.76	30.90	9.8%	7.7						
26	5,000		387.15	410.92	23.77	6.1%	8.2	350.93	385.26	34.33	9.8%	7.7						
27	5,500		425.85	452.00	26.15	6.1%	8.2	386.01	423.77	37.76	9.8%	7.7						
28	6,000		464.54	493.07	28.53	6.1%	8.2	421.08	462.28	41.20	9.8%	7.7						
29	6,500		503.24	534.14	30.90	6.1%	8.2	456.15	500.78	44.63	9.8%	7.7						

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Secondary Energy-only GS  
Retail Open Access

Line No.	(a) Monthly Use kWh	Summer (June - Sept.)					Winter (Oct. - May)					(k) Proposed Unit Cost c/kWh		
		(b) Present \$	(c) Monthly Bills		(d) Difference		(e) Proposed Unit Cost c/kWh	(f) Present \$	(g) Monthly Bills		(h) Difference			
			(b) Present \$	(c) Proposed \$	(d) Amount \$	(e) Percent %			(f) Proposed \$	(g) Present \$	(h) Proposed \$		(i) Amount \$	(j) Percent %
1	250	31.95	30.88	(1.07)	-3.4%	12.4	31.95	30.88	(1.07)	-3.4%	12.4			
2	500	43.89	41.75	(2.14)	-4.9%	8.4	43.89	41.75	(2.14)	-4.9%	8.4			
3	750	55.84	52.63	(3.21)	-5.8%	7.0	55.84	52.63	(3.21)	-5.8%	7.0			
4	1,000	67.79	63.50	(4.28)	-6.3%	6.4	67.79	63.50	(4.28)	-6.3%	6.4			
5	1,500	91.68	85.25	(6.43)	-7.0%	5.7	91.68	85.25	(6.43)	-7.0%	5.7			
6	2,000	115.57	107.00	(8.57)	-7.4%	5.4	115.57	107.00	(8.57)	-7.4%	5.4			
7	2,500	139.47	128.76	(10.71)	-7.7%	5.2	139.47	128.76	(10.71)	-7.7%	5.2			
8	3,000	163.36	150.51	(12.85)	-7.9%	5.0	163.36	150.51	(12.85)	-7.9%	5.0			
9	3,500	187.25	172.26	(14.99)	-8.0%	4.9	187.25	172.26	(14.99)	-8.0%	4.9			
10	4,000	211.14	194.01	(17.14)	-8.1%	4.9	211.14	194.01	(17.14)	-8.1%	4.9			
11	4,500	235.04	215.76	(19.28)	-8.2%	4.8	235.04	215.76	(19.28)	-8.2%	4.8			
12	5,000	258.93	237.51	(21.42)	-8.3%	4.8	258.93	237.51	(21.42)	-8.3%	4.8			
13	6,000	306.72	281.01	(25.70)	-8.4%	4.7	306.72	281.01	(25.70)	-8.4%	4.7			
14	7,000	354.50	324.51	(29.99)	-8.5%	4.6	354.50	324.51	(29.99)	-8.5%	4.6			
15	8,000	402.29	368.02	(34.27)	-8.5%	4.6	402.29	368.02	(34.27)	-8.5%	4.6			
16	9,000	450.07	411.52	(38.56)	-8.6%	4.6	450.07	411.52	(38.56)	-8.6%	4.6			
17	10,000	497.86	455.02	(42.84)	-8.6%	4.6	497.86	455.02	(42.84)	-8.6%	4.6			
18	15,000	736.79	672.53	(64.26)	-8.7%	4.5	736.79	672.53	(64.26)	-8.7%	4.5			
19	20,000	975.72	890.04	(85.68)	-8.8%	4.5	975.72	890.04	(85.68)	-8.8%	4.5			
20	25,000	1,214.65	1,107.55	(107.10)	-8.8%	4.4	1,214.65	1,107.55	(107.10)	-8.8%	4.4			
21	30,000	1,453.58	1,325.06	(128.52)	-8.8%	4.4	1,453.58	1,325.06	(128.52)	-8.8%	4.4			
22	35,000	1,692.51	1,542.57	(149.94)	-8.9%	4.4	1,692.51	1,542.57	(149.94)	-8.9%	4.4			
23	40,000	1,931.44	1,760.08	(171.36)	-8.9%	4.4	1,931.44	1,760.08	(171.36)	-8.9%	4.4			
24	45,000	2,170.37	1,977.59	(192.78)	-8.9%	4.4	2,170.37	1,977.59	(192.78)	-8.9%	4.4			
25	50,000	2,409.30	2,195.10	(214.20)	-8.9%	4.4	2,409.30	2,195.10	(214.20)	-8.9%	4.4			
26	55,000	2,648.23	2,412.61	(235.62)	-8.9%	4.4	2,648.23	2,412.61	(235.62)	-8.9%	4.4			
27	60,000	2,887.16	2,630.12	(257.04)	-8.9%	4.4	2,887.16	2,630.12	(257.04)	-8.9%	4.4			
28	65,000	3,126.09	2,847.63	(278.46)	-8.9%	4.4	3,126.09	2,847.63	(278.46)	-8.9%	4.4			
29	70,000	3,365.02	3,065.14	(299.88)	-8.9%	4.4	3,365.02	3,065.14	(299.88)	-8.9%	4.4			

**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Secondary Demand GSD  
Retail Open Access

Line No.	Monthly Use kWh	Summer (June - Sept.)				Winter (Oct. - May)			
		Monthly Bills		Difference		Monthly Bills		Difference	
		Present	Proposed	Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	\$	%	\$	\$	\$	%
1	500	47.81	48.20	0.39	0.8%	47.81	48.20	0.39	0.8%
2	1,000	65.63	66.41	0.78	1.2%	65.63	66.41	0.78	1.2%
3	1,500	83.44	84.61	1.17	1.4%	83.44	84.61	1.17	1.4%
4	2,000	101.26	102.81	1.56	1.5%	101.26	102.81	1.56	1.5%
5	2,500	119.07	121.02	1.94	1.6%	119.07	121.02	1.94	1.6%
6	3,000	136.89	139.22	2.33	1.7%	136.89	139.22	2.33	1.7%
7	3,500	154.70	157.42	2.72	1.8%	154.70	157.42	2.72	1.8%
8	4,000	172.52	175.63	3.11	1.8%	172.52	175.63	3.11	1.8%
9	4,500	190.33	193.83	3.50	1.8%	190.33	193.83	3.50	1.8%
10	5,000	208.15	212.04	3.89	1.9%	208.15	212.04	3.89	1.9%
11	6,000	243.78	248.44	4.67	1.9%	243.78	248.44	4.67	1.9%
12	7,000	279.41	284.85	5.44	1.9%	279.41	284.85	5.44	1.9%
13	8,000	315.04	321.26	6.22	2.0%	315.04	321.26	6.22	2.0%
14	9,000	350.67	357.66	7.00	2.0%	350.67	357.66	7.00	2.0%
15	10,000	386.30	394.07	7.78	2.0%	386.30	394.07	7.78	2.0%
16	11,000	421.92	430.48	8.55	2.0%	421.92	430.48	8.55	2.0%
17	12,000	457.55	466.89	9.33	2.0%	457.55	466.89	9.33	2.0%
18	13,000	493.18	503.29	10.11	2.0%	493.18	503.29	10.11	2.0%
19	14,000	528.81	539.70	10.89	2.1%	528.81	539.70	10.89	2.1%
20	15,000	564.44	576.11	11.66	2.1%	564.44	576.11	11.66	2.1%
21	16,000	600.07	612.51	12.44	2.1%	600.07	612.51	12.44	2.1%
22	17,000	635.70	648.92	13.22	2.1%	635.70	648.92	13.22	2.1%
23	18,000	671.33	685.33	14.00	2.1%	671.33	685.33	14.00	2.1%
24	19,000	706.96	721.73	14.77	2.1%	706.96	721.73	14.77	2.1%
25	20,000	742.59	758.14	15.55	2.1%	742.59	758.14	15.55	2.1%
26	21,000	778.22	794.55	16.33	2.1%	778.22	794.55	16.33	2.1%
27	22,000	813.85	830.96	17.11	2.1%	813.85	830.96	17.11	2.1%
28	23,000	849.48	867.36	17.88	2.1%	849.48	867.36	17.88	2.1%
29	24,000	885.11	903.77	18.66	2.1%	885.11	903.77	18.66	2.1%

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills:

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Secondary Time-of-Use GSTU  
Retail Open Access

Line No.	Monthly Use kWh	(a)	(b)	Summer (June - Sept.)				(f)	(g)	Winter (Oct. - May)				(j)	(k)
				Monthly Bills		Difference				Monthly Bills		Difference			
				Present	Proposed	Amount	Percent			Present	Proposed	Amount	Percent		
			\$	\$	\$	%	Unit Cost	\$	\$	\$	%	Unit Cost	\$	\$	
1	500		43.89	41.75	(2.14)	-4.9%	8.4	43.89	41.75	(2.14)	-4.9%	8.4			
2	1,000		67.79	63.50	(4.28)	-6.3%	6.4	67.79	63.50	(4.28)	-6.3%	6.4			
3	1,500		91.68	85.25	(6.43)	-7.0%	5.7	91.68	85.25	(6.43)	-7.0%	5.7			
4	2,000		115.57	107.00	(8.57)	-7.4%	5.4	115.57	107.00	(8.57)	-7.4%	5.4			
5	2,500		139.47	128.76	(10.71)	-7.7%	5.2	139.47	128.76	(10.71)	-7.7%	5.2			
6	3,000		163.36	150.51	(12.85)	-7.9%	5.0	163.36	150.51	(12.85)	-7.9%	5.0			
7	3,500		187.25	172.26	(14.99)	-8.0%	4.9	187.25	172.26	(14.99)	-8.0%	4.9			
8	4,000		211.14	194.01	(17.14)	-8.1%	4.9	211.14	194.01	(17.14)	-8.1%	4.9			
9	4,500		235.04	215.76	(19.28)	-8.2%	4.8	235.04	215.76	(19.28)	-8.2%	4.8			
10	5,000		258.93	237.51	(21.42)	-8.3%	4.8	258.93	237.51	(21.42)	-8.3%	4.8			
11	6,000		306.72	281.01	(25.70)	-8.4%	4.7	306.72	281.01	(25.70)	-8.4%	4.7			
12	7,000		354.50	324.51	(29.99)	-8.5%	4.6	354.50	324.51	(29.99)	-8.5%	4.6			
13	8,000		402.29	368.02	(34.27)	-8.5%	4.6	402.29	368.02	(34.27)	-8.5%	4.6			
14	9,000		450.07	411.52	(38.56)	-8.6%	4.6	450.07	411.52	(38.56)	-8.6%	4.6			
15	10,000		497.86	455.02	(42.84)	-8.6%	4.6	497.86	455.02	(42.84)	-8.6%	4.6			
16	11,000		545.65	498.52	(47.12)	-8.6%	4.5	545.65	498.52	(47.12)	-8.6%	4.5			
17	12,000		593.43	542.02	(51.41)	-8.7%	4.5	593.43	542.02	(51.41)	-8.7%	4.5			
18	13,000		641.22	585.53	(55.69)	-8.7%	4.5	641.22	585.53	(55.69)	-8.7%	4.5			
19	14,000		689.00	629.03	(59.98)	-8.7%	4.5	689.00	629.03	(59.98)	-8.7%	4.5			
20	15,000		736.79	672.53	(64.26)	-8.7%	4.5	736.79	672.53	(64.26)	-8.7%	4.5			
21	16,000		784.58	716.03	(68.54)	-8.7%	4.5	784.58	716.03	(68.54)	-8.7%	4.5			
22	17,000		832.36	759.53	(72.83)	-8.7%	4.5	832.36	759.53	(72.83)	-8.7%	4.5			
23	18,000		880.15	803.04	(77.11)	-8.8%	4.5	880.15	803.04	(77.11)	-8.8%	4.5			
24	19,000		927.93	846.54	(81.40)	-8.8%	4.5	927.93	846.54	(81.40)	-8.8%	4.5			
25	20,000		975.72	890.04	(85.68)	-8.8%	4.5	975.72	890.04	(85.68)	-8.8%	4.5			
26	21,000		1,023.51	933.54	(89.96)	-8.8%	4.4	1,023.51	933.54	(89.96)	-8.8%	4.4			
27	22,000		1,071.29	977.04	(94.25)	-8.8%	4.4	1,071.29	977.04	(94.25)	-8.8%	4.4			
28	23,000		1,119.08	1,020.55	(98.53)	-8.8%	4.4	1,119.08	1,020.55	(98.53)	-8.8%	4.4			
29	24,000		1,166.86	1,064.05	(102.82)	-8.8%	4.4	1,166.86	1,064.05	(102.82)	-8.8%	4.4			

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

## Comparison of Present and Proposed Monthly Bills

Primary Energy-only GP Voltage Level 1

Retail Open Access

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)					(f)	Winter (Oct. - May)					(j)	(k)						
			(c)	(d)	(e)	(g)	(h)		(i)	(j)	(k)										
												Monthly Bills				Difference		Monthly Bills		Difference	
												Present	Proposed			Amount	Percent	Present	Proposed	Amount	Percent
		\$	\$	%	\$	\$	\$	%	\$	\$	\$	%									
1	500	103.02	101.32	(1.70)	-1.6%	103.02	101.32	(1.70)	-1.6%	20.3	20.3			20.3							
2	1,000	106.04	102.65	(3.39)	-3.2%	106.04	102.65	(3.39)	-3.2%	10.3	10.3			10.3							
3	1,500	109.06	103.97	(5.09)	-4.7%	109.06	103.97	(5.09)	-4.7%	6.9	6.9			6.9							
4	2,000	112.08	105.29	(6.79)	-6.1%	112.08	105.29	(6.79)	-6.1%	5.3	5.3			5.3							
5	2,500	115.10	106.61	(8.49)	-7.4%	115.10	106.61	(8.49)	-7.4%	4.3	4.3			4.3							
6	3,000	118.12	107.94	(10.18)	-8.6%	118.12	107.94	(10.18)	-8.6%	3.6	3.6			3.6							
7	4,000	124.16	110.58	(13.58)	-10.9%	124.16	110.58	(13.58)	-10.9%	2.8	2.8			2.8							
8	5,000	130.20	113.23	(16.97)	-13.0%	130.20	113.23	(16.97)	-13.0%	2.3	2.3			2.3							
9	6,000	136.23	115.87	(20.36)	-14.9%	136.23	115.87	(20.36)	-14.9%	1.9	1.9			1.9							
10	7,000	142.27	118.52	(23.76)	-16.7%	142.27	118.52	(23.76)	-16.7%	1.7	1.7			1.7							
11	8,000	148.31	121.16	(27.15)	-18.3%	148.31	121.16	(27.15)	-18.3%	1.5	1.5			1.5							
12	9,000	154.35	123.81	(30.55)	-19.8%	154.35	123.81	(30.55)	-19.8%	1.4	1.4			1.4							
13	10,000	160.39	126.45	(33.94)	-21.2%	160.39	126.45	(33.94)	-21.2%	1.3	1.3			1.3							
14	15,000	190.59	139.68	(50.91)	-26.7%	190.59	139.68	(50.91)	-26.7%	0.9	0.9			0.9							
15	20,000	220.78	152.90	(67.88)	-30.7%	220.78	152.90	(67.88)	-30.7%	0.8	0.8			0.8							
16	25,000	250.98	166.13	(84.85)	-33.8%	250.98	166.13	(84.85)	-33.8%	0.7	0.7			0.7							
17	30,000	281.17	179.35	(101.82)	-36.2%	281.17	179.35	(101.82)	-36.2%	0.6	0.6			0.6							
18	35,000	311.37	192.58	(118.79)	-38.2%	311.37	192.58	(118.79)	-38.2%	0.6	0.6			0.6							
19	40,000	341.56	205.80	(135.76)	-39.7%	341.56	205.80	(135.76)	-39.7%	0.5	0.5			0.5							
20	45,000	371.76	219.03	(152.73)	-41.1%	371.76	219.03	(152.73)	-41.1%	0.5	0.5			0.5							
21	50,000	401.95	232.25	(169.70)	-42.2%	401.95	232.25	(169.70)	-42.2%	0.5	0.5			0.5							
22	60,000	462.34	258.70	(203.64)	-44.0%	462.34	258.70	(203.64)	-44.0%	0.4	0.4			0.4							
23	70,000	522.73	285.15	(237.58)	-45.4%	522.73	285.15	(237.58)	-45.4%	0.4	0.4			0.4							
24	80,000	583.12	311.60	(271.52)	-46.6%	583.12	311.60	(271.52)	-46.6%	0.4	0.4			0.4							
25	90,000	643.51	338.05	(305.46)	-47.5%	643.51	338.05	(305.46)	-47.5%	0.4	0.4			0.4							
26	100,000	703.90	364.50	(339.40)	-48.2%	703.90	364.50	(339.40)	-48.2%	0.4	0.4			0.4							
27	110,000	764.29	390.95	(373.34)	-48.8%	764.29	390.95	(373.34)	-48.8%	0.4	0.4			0.4							
28	120,000	824.68	417.40	(407.28)	-49.4%	824.68	417.40	(407.28)	-49.4%	0.3	0.3			0.3							
29	130,000	885.07	443.85	(441.22)	-49.9%	885.07	443.85	(441.22)	-49.9%	0.3	0.3			0.3							

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Energy-only GP Voltage Level 2  
Retail Open Access

Line No.	(a) Monthly Use kWh	Summer (June - Sept.)					Winter (Oct. - May)					(k) Proposed Unit Cost c/kWh	
		(b) Present \$	(c) Monthly Bills		(d) Amount \$	(e) Difference Percent %	(f) Proposed Unit Cost c/kWh	(g) Present \$	(h) Monthly Bills		(i) Amount \$		(j) Difference Percent %
			(b)	(c)					(h)	(i)			
1	500	105.05	103.42	(1.63)	-1.5%	20.7	105.05	103.42	(1.63)	-1.5%	20.7		
2	1,000	110.10	106.85	(3.25)	-3.0%	10.7	110.10	106.85	(3.25)	-3.0%	10.7		
3	1,500	115.15	110.27	(4.88)	-4.2%	7.4	115.15	110.27	(4.88)	-4.2%	7.4		
4	2,000	120.20	113.69	(6.51)	-5.4%	5.7	120.20	113.69	(6.51)	-5.4%	5.7		
5	2,500	125.25	117.11	(8.13)	-6.5%	4.7	125.25	117.11	(8.13)	-6.5%	4.7		
6	3,000	130.29	120.54	(9.76)	-7.5%	4.0	130.29	120.54	(9.76)	-7.5%	4.0		
7	4,000	140.39	127.38	(13.01)	-9.3%	3.2	140.39	127.38	(13.01)	-9.3%	3.2		
8	5,000	150.49	134.23	(16.27)	-10.8%	2.7	150.49	134.23	(16.27)	-10.8%	2.7		
9	6,000	160.59	141.07	(19.52)	-12.2%	2.4	160.59	141.07	(19.52)	-12.2%	2.4		
10	7,000	170.69	147.92	(22.77)	-13.3%	2.1	170.69	147.92	(22.77)	-13.3%	2.1		
11	8,000	180.78	154.76	(26.02)	-14.4%	1.9	180.78	154.76	(26.02)	-14.4%	1.9		
12	9,000	190.88	161.61	(29.28)	-15.3%	1.8	190.88	161.61	(29.28)	-15.3%	1.8		
13	10,000	200.98	168.45	(32.53)	-16.2%	1.7	200.98	168.45	(32.53)	-16.2%	1.7		
14	15,000	251.47	202.68	(48.80)	-19.4%	1.4	251.47	202.68	(48.80)	-19.4%	1.4		
15	20,000	301.96	236.90	(65.06)	-21.5%	1.2	301.96	236.90	(65.06)	-21.5%	1.2		
16	25,000	352.45	271.13	(81.33)	-23.1%	1.1	352.45	271.13	(81.33)	-23.1%	1.1		
17	30,000	402.94	305.35	(97.59)	-24.2%	1.0	402.94	305.35	(97.59)	-24.2%	1.0		
18	35,000	453.43	339.58	(113.86)	-25.1%	1.0	453.43	339.58	(113.86)	-25.1%	1.0		
19	40,000	503.92	373.80	(130.12)	-25.8%	0.9	503.92	373.80	(130.12)	-25.8%	0.9		
20	45,000	554.41	408.03	(146.39)	-26.4%	0.9	554.41	408.03	(146.39)	-26.4%	0.9		
21	50,000	604.90	442.25	(162.65)	-26.9%	0.9	604.90	442.25	(162.65)	-26.9%	0.9		
22	60,000	705.88	510.70	(195.18)	-27.7%	0.9	705.88	510.70	(195.18)	-27.7%	0.9		
23	70,000	806.86	579.15	(227.71)	-28.2%	0.8	806.86	579.15	(227.71)	-28.2%	0.8		
24	80,000	907.84	647.60	(260.24)	-28.7%	0.8	907.84	647.60	(260.24)	-28.7%	0.8		
25	90,000	1,008.82	716.05	(292.77)	-29.0%	0.8	1,008.82	716.05	(292.77)	-29.0%	0.8		
26	100,000	1,109.80	784.50	(325.30)	-29.3%	0.8	1,109.80	784.50	(325.30)	-29.3%	0.8		
27	110,000	1,210.78	852.95	(357.83)	-29.6%	0.8	1,210.78	852.95	(357.83)	-29.6%	0.8		
28	120,000	1,311.76	921.40	(390.36)	-29.8%	0.8	1,311.76	921.40	(390.36)	-29.8%	0.8		
29	130,000	1,412.74	989.85	(422.89)	-29.9%	0.8	1,412.74	989.85	(422.89)	-29.9%	0.8		

## Schedule F-4.0

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
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Witness: HWMiller  
Date: March 2021

Primary Energy-only GP Voltage Level 3  
Retail Open Access

Line No.	(a) Monthly Use kWh	(b)	Summer (June - Sept.)				(f)	(g)	Winter (Oct. - May)				(j)	(k)
			(c)	Monthly Bills		(e)			(h)	Monthly Bills		(i)		
				Present	Proposed					Amount	Percent			
		\$	\$	\$	%	Unit Cost	\$	\$	\$	\$	%	Unit Cost	\$	%
1	500	107.64	107.24	(0.40)	-0.4%	21.4	107.64	107.24	(0.40)	-0.4%		21.4	(0.40)	-0.4%
2	1,000	115.28	114.48	(0.80)	-0.7%	11.4	115.28	114.48	(0.80)	-0.7%		11.4	(0.80)	-0.7%
3	1,500	122.91	121.72	(1.20)	-1.0%	8.1	122.91	121.72	(1.20)	-1.0%		8.1	(1.20)	-1.0%
4	2,000	130.55	128.96	(1.60)	-1.2%	6.4	130.55	128.96	(1.60)	-1.2%		6.4	(1.60)	-1.2%
5	2,500	138.19	136.20	(2.00)	-1.4%	5.4	138.19	136.20	(2.00)	-1.4%		5.4	(2.00)	-1.4%
6	3,000	145.83	143.43	(2.39)	-1.6%	4.8	145.83	143.43	(2.39)	-1.6%		4.8	(2.39)	-1.6%
7	4,000	161.10	157.91	(3.19)	-2.0%	3.9	161.10	157.91	(3.19)	-2.0%		3.9	(3.19)	-2.0%
8	5,000	176.38	172.39	(3.99)	-2.3%	3.4	176.38	172.39	(3.99)	-2.3%		3.4	(3.99)	-2.3%
9	6,000	191.66	186.87	(4.79)	-2.5%	3.1	191.66	186.87	(4.79)	-2.5%		3.1	(4.79)	-2.5%
10	7,000	206.93	201.35	(5.59)	-2.7%	2.9	206.93	201.35	(5.59)	-2.7%		2.9	(5.59)	-2.7%
11	8,000	222.21	215.82	(6.38)	-2.9%	2.7	222.21	215.82	(6.38)	-2.9%		2.7	(6.38)	-2.9%
12	9,000	237.48	230.30	(7.18)	-3.0%	2.6	237.48	230.30	(7.18)	-3.0%		2.6	(7.18)	-3.0%
13	10,000	252.76	244.78	(7.98)	-3.2%	2.4	252.76	244.78	(7.98)	-3.2%		2.4	(7.98)	-3.2%
14	15,000	329.14	317.17	(11.97)	-3.6%	2.1	329.14	317.17	(11.97)	-3.6%		2.1	(11.97)	-3.6%
15	20,000	405.52	389.56	(15.96)	-3.9%	1.9	405.52	389.56	(15.96)	-3.9%		1.9	(15.96)	-3.9%
16	25,000	481.90	461.95	(19.95)	-4.1%	1.8	481.90	461.95	(19.95)	-4.1%		1.8	(19.95)	-4.1%
17	30,000	558.28	534.34	(23.94)	-4.3%	1.8	558.28	534.34	(23.94)	-4.3%		1.8	(23.94)	-4.3%
18	35,000	634.66	606.73	(27.93)	-4.4%	1.7	634.66	606.73	(27.93)	-4.4%		1.7	(27.93)	-4.4%
19	40,000	711.04	679.12	(31.92)	-4.5%	1.7	711.04	679.12	(31.92)	-4.5%		1.7	(31.92)	-4.5%
20	45,000	787.42	751.51	(35.91)	-4.6%	1.7	787.42	751.51	(35.91)	-4.6%		1.7	(35.91)	-4.6%
21	50,000	863.80	823.90	(39.90)	-4.6%	1.6	863.80	823.90	(39.90)	-4.6%		1.6	(39.90)	-4.6%
22	60,000	1,016.56	968.68	(47.88)	-4.7%	1.6	1,016.56	968.68	(47.88)	-4.7%		1.6	(47.88)	-4.7%
23	70,000	1,169.32	1,113.46	(55.86)	-4.8%	1.6	1,169.32	1,113.46	(55.86)	-4.8%		1.6	(55.86)	-4.8%
24	80,000	1,322.08	1,258.24	(63.84)	-4.8%	1.6	1,322.08	1,258.24	(63.84)	-4.8%		1.6	(63.84)	-4.8%
25	90,000	1,474.84	1,403.02	(71.82)	-4.9%	1.6	1,474.84	1,403.02	(71.82)	-4.9%		1.6	(71.82)	-4.9%
26	100,000	1,627.60	1,547.80	(79.80)	-4.9%	1.5	1,627.60	1,547.80	(79.80)	-4.9%		1.5	(79.80)	-4.9%
27	110,000	1,780.36	1,692.58	(87.78)	-4.9%	1.5	1,780.36	1,692.58	(87.78)	-4.9%		1.5	(87.78)	-4.9%
28	120,000	1,933.12	1,837.36	(95.76)	-5.0%	1.5	1,933.12	1,837.36	(95.76)	-5.0%		1.5	(95.76)	-5.0%
29	130,000	2,085.88	1,982.14	(103.74)	-5.0%	1.5	2,085.88	1,982.14	(103.74)	-5.0%		1.5	(103.74)	-5.0%

MICHIGAN PUBLIC SERVICE COMMISSION  
Consumers Energy Company  
Comparison of Present and Proposed Monthly Bills:

Primary Demand GPD Voltage Level 1  
Retail Open Access

Schedule F-4.0

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 44 of 46  
Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use MWh	(b)	Summer (June - Sept.)				(e)	(f)	(g)	(h)	Winter (Oct. - May)		(j)	(k)
			Monthly Bills		Difference						Proposed Unit Cost c/kWh	Percent		
			Present	Proposed	Amount	Percent								
1	100	0.31	0.31	0.00	0.00	0.6%	0.3	0.31	0.31	0.00	0.00	0.6%	0.3	
2	110	0.32	0.32	0.00	0.00	0.6%	0.3	0.32	0.32	0.00	0.00	0.6%	0.3	
3	120	0.33	0.33	0.00	0.00	0.6%	0.3	0.33	0.33	0.00	0.00	0.6%	0.3	
4	130	0.34	0.34	0.00	0.00	0.7%	0.3	0.34	0.34	0.00	0.00	0.7%	0.3	
5	140	0.35	0.35	0.00	0.00	0.7%	0.3	0.35	0.35	0.00	0.00	0.7%	0.3	
6	150	0.36	0.36	0.00	0.00	0.7%	0.2	0.36	0.36	0.00	0.00	0.7%	0.2	
7	200	0.41	0.42	0.00	0.00	0.8%	0.2	0.41	0.42	0.00	0.00	0.8%	0.2	
8	250	0.46	0.47	0.00	0.00	0.9%	0.2	0.46	0.47	0.00	0.00	0.9%	0.2	
9	300	0.52	0.52	0.01	0.01	1.0%	0.2	0.52	0.52	0.01	0.01	1.0%	0.2	
10	350	0.57	0.58	0.01	0.01	1.1%	0.2	0.57	0.58	0.01	0.01	1.1%	0.2	
11	400	0.62	0.63	0.01	0.01	1.1%	0.2	0.62	0.63	0.01	0.01	1.1%	0.2	
12	450	0.68	0.68	0.01	0.01	1.2%	0.2	0.68	0.68	0.01	0.01	1.2%	0.2	
13	500	0.73	0.74	0.01	0.01	1.2%	0.1	0.73	0.74	0.01	0.01	1.2%	0.1	
14	600	0.83	0.85	0.01	0.01	1.2%	0.1	0.83	0.85	0.01	0.01	1.2%	0.1	
15	700	0.94	0.95	0.01	0.01	1.3%	0.1	0.94	0.95	0.01	0.01	1.3%	0.1	
16	800	1.05	1.06	0.01	0.01	1.3%	0.1	1.05	1.06	0.01	0.01	1.3%	0.1	
17	900	1.15	1.17	0.02	0.02	1.4%	0.1	1.15	1.17	0.02	0.02	1.4%	0.1	
18	1,000	1.26	1.28	0.02	0.02	1.4%	0.1	1.26	1.28	0.02	0.02	1.4%	0.1	
19	1,500	1.79	1.81	0.03	0.03	1.5%	0.1	1.79	1.81	0.03	0.03	1.5%	0.1	
20	2,000	2.32	2.35	0.03	0.03	1.5%	0.1	2.32	2.35	0.03	0.03	1.5%	0.1	
21	2,500	2.84	2.89	0.04	0.04	1.5%	0.1	2.84	2.89	0.04	0.04	1.5%	0.1	
22	3,000	3.37	3.43	0.05	0.05	1.5%	0.1	3.37	3.43	0.05	0.05	1.5%	0.1	
23	3,500	3.90	3.96	0.06	0.06	1.6%	0.1	3.90	3.96	0.06	0.06	1.6%	0.1	
24	4,000	4.43	4.50	0.07	0.07	1.6%	0.1	4.43	4.50	0.07	0.07	1.6%	0.1	
25	4,500	4.96	5.04	0.08	0.08	1.6%	0.1	4.96	5.04	0.08	0.08	1.6%	0.1	
26	5,000	5.49	5.58	0.09	0.09	1.6%	0.1	5.49	5.58	0.09	0.09	1.6%	0.1	
27	5,500	6.02	6.11	0.10	0.10	1.6%	0.1	6.02	6.11	0.10	0.10	1.6%	0.1	
28	6,000	6.55	6.65	0.10	0.10	1.6%	0.1	6.55	6.65	0.10	0.10	1.6%	0.1	
29	6,500	7.08	7.19	0.11	0.11	1.6%	0.1	7.08	7.19	0.11	0.11	1.6%	0.1	



**Schedule F-4.0**

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Comparison of Present and Proposed Monthly Bills

Primary Demand GPD Voltage Level 3

Retail Open Access

Case No.: U-20963  
Exhibit No.: A-16 (HWM-4)  
Schedule F-4.0  
Page 46 of 46  
Witness: HWMiller  
Date: March 2021

Line No.	(a) Monthly Use MWh	(b)	Summer (June - Sept.)					(f)	(g)	Winter (Oct. - May)			(j)	(k)	
			Monthly Bills		Difference		Proposed Unit Cost c/kWh			Monthly Bills		Difference			
			Present \$000	Proposed \$000	Amount \$000	Percent %				Present \$000	Proposed \$000	Amount \$000			Percent %
1	100	1.14	1.30	0.16	14.3%	1.3	1.14	1.30	0.16	14.3%	1.3				
2	110	1.23	1.41	0.18	14.5%	1.3	1.23	1.41	0.18	14.5%	1.3				
3	120	1.32	1.52	0.19	14.7%	1.3	1.32	1.52	0.19	14.7%	1.3				
4	130	1.42	1.63	0.21	14.9%	1.3	1.42	1.63	0.21	14.9%	1.3				
5	140	1.51	1.74	0.23	15.0%	1.2	1.51	1.74	0.23	15.0%	1.2				
6	150	1.60	1.85	0.24	15.2%	1.2	1.60	1.85	0.24	15.2%	1.2				
7	200	2.07	2.40	0.32	15.6%	1.2	2.07	2.40	0.32	15.6%	1.2				
8	250	2.54	2.95	0.41	16.0%	1.2	2.54	2.95	0.41	16.0%	1.2				
9	300	3.01	3.49	0.49	16.2%	1.2	3.01	3.49	0.49	16.2%	1.2				
10	350	3.48	4.04	0.57	16.3%	1.2	3.48	4.04	0.57	16.3%	1.2				
11	400	3.94	4.59	0.65	16.4%	1.1	3.94	4.59	0.65	16.4%	1.1				
12	450	4.41	5.14	0.73	16.5%	1.1	4.41	5.14	0.73	16.5%	1.1				
13	500	4.88	5.69	0.81	16.6%	1.1	4.88	5.69	0.81	16.6%	1.1				
14	600	5.82	6.79	0.97	16.7%	1.1	5.82	6.79	0.97	16.7%	1.1				
15	700	6.75	7.89	1.13	16.8%	1.1	6.75	7.89	1.13	16.8%	1.1				
16	800	7.69	8.99	1.30	16.9%	1.1	7.69	8.99	1.30	16.9%	1.1				
17	900	8.62	10.08	1.46	16.9%	1.1	8.62	10.08	1.46	16.9%	1.1				
18	1,000	9.56	11.18	1.62	17.0%	1.1	9.56	11.18	1.62	17.0%	1.1				
19	1,500	14.24	16.67	2.43	17.1%	1.1	14.24	16.67	2.43	17.1%	1.1				
20	2,000	18.92	22.16	3.24	17.1%	1.1	18.92	22.16	3.24	17.1%	1.1				
21	2,500	23.60	27.65	4.05	17.2%	1.1	23.60	27.65	4.05	17.2%	1.1				
22	3,000	28.28	33.15	4.86	17.2%	1.1	28.28	33.15	4.86	17.2%	1.1				
23	3,500	32.96	38.64	5.67	17.2%	1.1	32.96	38.64	5.67	17.2%	1.1				
24	4,000	37.64	44.13	6.48	17.2%	1.1	37.64	44.13	6.48	17.2%	1.1				
25	4,500	42.32	49.62	7.29	17.2%	1.1	42.32	49.62	7.29	17.2%	1.1				
26	5,000	47.00	55.11	8.11	17.2%	1.1	47.00	55.11	8.11	17.2%	1.1				
27	5,500	51.68	60.60	8.92	17.3%	1.1	51.68	60.60	8.92	17.3%	1.1				
28	6,000	56.36	66.09	9.73	17.3%	1.1	56.36	66.09	9.73	17.3%	1.1				
29	6,500	61.04	71.58	10.54	17.3%	1.1	61.04	71.58	10.54	17.3%	1.1				

A-99 (HWM-5)  
IS **CONFIDENTIAL** AND BEING FILED  
UNDER SEAL WITH THE MPSC

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Demand Response (DR) Program Funding Recovery Surcharge

Case No.: U-20963  
Exhibit No.: A-100 (HWM-6)  
Page: 1 of 1  
Witness: HWMiller  
Date: March 2021

	( a )	( b )	( c )	( d )	( e )
Line		Billing Determinants		Program	
No.	Description	Quantity	Units	Funding <sup>(1)</sup> (\$000)	DR Surcharge
<b>BUNDLED SERVICE</b>					
<u>Residential Class</u>					
1	Summer On-peak RSP	12,395,968	MWh	\$ 23,603	0.001904 per kWh
2	Smart Hours RSH	61,751	MWh	118	0.001904 per kWh
3	Night Time Savers RPM	7,781	MWh	15	0.001904 per kWh
4	Non-Transmitting Meters RSM	155,848	MWh	297	0.001904 per kWh
5	Total Residential Class			\$ 24,032	
<u>Secondary Class</u>					
6	Energy-only GS	3,830,222	MWh	\$ 5,939	0.001551 per kWh
7	Time-of-Use GSTU	9,437	MWh	15	0.001551 per kWh
8	Demand GSD	8,409	MW	4,524	0.54 per Peak kW
9	Total Secondary			\$ 10,478	
<u>Primary Class</u>					
Energy-only GP					
10	Voltage Level 1	17,345	MWh	\$ 24	0.001388 per kWh
11	Voltage Level 2	40,757	MWh	57	0.001405 per kWh
12	Voltage Level 3	772,936	MWh	1,095	0.001417 per kWh
Demand GPD					
13	Voltage Level 1	1,607	MW	903	0.56 per On-Peak kW
14	Voltage Level 2	2,076	MW	1,184	0.57 per On-Peak kW
15	Voltage Level 3	4,067	MW	2,349	0.58 per On-Peak kW
Time-of-Use GPTU					
16	Voltage Level 1	429,373	MWh	537	0.001250 per kWh
17	Voltage Level 2	920,450	MWh	1,165	0.001266 per kWh
18	Voltage Level 3	3,617,577	MWh	4,618	0.001277 per kWh
Energy Intensive EIP					
19	Voltage Level 1	383,669	MWh	143	0.000373 per kWh
20	Voltage Level 2	64,327	MWh	24	0.000377 per kWh
21	Voltage Level 3	9,389	MWh	4	0.000380 per kWh
22	Total Primary			\$ 12,104	
<u>Lighting &amp; Unmetered Class</u>					
23	Metered Lighting GML	13,118	MWh	5	0.000398 per kWh
24	Universal Unmetered Lighting UUL	81,654	MWh	33	0.000399 per kWh
25	Unmetered Lighting GUL (Transition)	----	----	----	0.000399 per kWh
26	Unmetered Lighting GU-LED (Transition)	----	----	----	0.000399 per kWh
27	Unmetered GU	100,655	MWh	111	0.001102 per kWh
28	Total Lighting & Unmetered			\$ 149	
29	Total Bundled Service			\$ 46,762	

Source:

( 1 ) WP-HWM-8

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBIT**  
**OF**  
**JENNIFER S. ROSE**  
**ON BEHALF OF**  
**CONSUMERS ENERGY COMPANY**

March 2021

2022 Power Supply Cost Recovery Forecast  
Summary by Source

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022
(a)	Energy (MWh)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
1	Coal Steam	1,179,528	1,060,602	1,081,762	596,983	872,185	1,086,771	1,171,728	1,165,568	1,100,700	786,763	962,542	1,199,337	12,264,468
2	Gas & Oil	520,440	419,631	503,292	497,843	407,497	540,764	686,104	588,803	544,348	496,134	591,676	592,493	6,389,024
3	Nuclear PPA	605,196	544,922	590,415	565,344	578,880	0	0	0	0	0	0	0	2,884,757
4	Station Power	4,710	4,254	5,609	11,304	7,633	4,349	3,562	4,710	4,800	11,579	7,602	4,710	74,820
5	CE Owned Renewables	229,135	196,802	222,267	222,349	193,059	179,770	157,655	150,445	162,968	202,873	215,334	226,806	2,359,463
6	Peakers	97,788	36,054	21,854	384	0	3,939	66,660	13,893	22,683	768	0	672	264,695
7	Pumped Storage	143,304	131,886	160,615	124,612	89,826	102,334	109,615	127,619	112,450	37,354	79,498	139,356	1,358,469
8	Total Generated	2,780,099	2,394,151	2,585,813	2,018,819	2,149,080	1,917,926	2,195,324	2,051,037	1,947,950	1,535,471	1,856,652	2,163,373	25,595,697
9	Less: Pumping	-187,687	-171,036	-209,852	-161,912	-120,443	-134,593	-143,060	-157,284	-148,314	-58,166	-97,298	-175,408	-1,765,054
10	Net Generated	2,592,412	2,223,115	2,375,961	1,856,907	2,028,636	1,783,333	2,052,265	1,893,753	1,799,636	1,477,306	1,759,353	1,987,965	23,830,643
11	Purchased (NUGs)	804,017	664,198	673,482	760,655	625,020	610,183	792,183	701,728	712,020	715,222	562,185	601,316	8,222,209
12	Net Interchange	-384,669	-139,512	-247,225	-53,790	21,069	574,508	344,588	521,154	235,448	499,404	382,004	357,347	2,110,326
13	Total System Requirements	3,011,760	2,747,801	2,802,218	2,563,772	2,674,725	2,968,024	3,189,035	3,116,635	2,747,104	2,691,931	2,703,542	2,946,629	34,163,178
Costs (\$5000)														
14	Coal Steam	24,333	21,876	22,736	12,803	18,567	22,774	24,348	24,117	22,759	16,124	19,794	24,727	254,959
15	Gas & Oil	14,953	11,852	13,255	10,917	9,100	11,926	16,022	12,999	12,211	11,214	13,443	14,595	152,488
16	Nuclear PPA Variable	4,866	3,813	4,045	694	241	0	0	0	0	0	0	0	13,659
17	Station Power	0	0	0	0	0	0	0	0	0	0	0	0	0
18	CE Owned Renewables	7,220	6,497	6,497	6,102	5,279	4,087	4,258	4,232	4,095	5,598	6,067	6,984	66,552
19	Peakers	3,655	1,412	810	100	88	204	1,955	502	727	112	88	611	10,265
20	Pumped Storage	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Total Generated	55,027	45,086	47,344	30,617	33,275	38,991	46,584	41,850	39,792	33,049	39,392	46,917	497,923
22	Less: Pumping	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Net Generated	55,027	45,086	47,344	30,617	33,275	38,991	46,584	41,850	39,792	33,049	39,392	46,917	497,923
24	Purchased (NUG) Variable Cost <sup>1</sup>	34,564	29,324	28,143	29,468	25,284	25,082	32,788	29,633	26,090	24,177	18,906	19,766	323,226
25	Net Interchange, Excluding ZRC Purchase	-16,580	-8,220	-8,600	-3,756	834	13,474	7,050	12,148	4,542	13,370	10,565	9,866	36,694
26	Total Fuel, Variable Purchased and Net Interchange	73,011	66,190	66,887	58,329	59,393	77,547	86,422	83,631	70,425	70,596	68,863	76,549	857,844
27	Zonal Resource Credit (ZRC) Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0
28	CE Owned Renewables Capacity	4,206	3,572	3,785	3,555	3,075	2,381	2,481	2,465	2,386	3,261	3,534	4,068	38,769
29	Nuclear PPA Capacity	34,719	27,209	28,859	7,244	5,359	0	0	0	0	0	0	0	103,390
30	Purchased (NUG) Capacity	23,995	22,031	23,677	22,967	23,372	22,417	27,488	27,354	26,082	26,575	25,483	25,894	297,334
31	Purchased (NUG) Fixed Energy	6,514	5,938	6,526	6,659	6,928	6,666	6,862	6,852	6,644	6,854	6,696	6,874	80,014
32	Independent Administrator Expense	40	40	0	0	0	0	0	0	0	40	40	40	200
33	Total Capacity and NUG Fixed Costs	69,473	58,790	62,847	40,424	38,734	31,463	36,831	36,671	35,111	36,731	35,754	36,876	519,706
34	Total Transmission and Energy Markets Administration	39,674	37,384	37,073	34,850	39,842	50,393	49,960	46,316	47,495	37,150	37,967	40,308	498,412
35	MISO - Schedule 2 (Reactive)	-375	-375	-375	-375	-375	-375	-375	-375	-375	-375	-375	-375	-4,500
36	Activated Carbon	85	85	85	85	85	85	85	85	85	85	85	85	1,016
37	Aqueous Ammonia Expense	86	86	86	86	86	86	86	86	86	86	86	86	1,030
38	Urea Expense	154	154	154	154	154	154	154	154	154	154	154	154	1,846
39	Line Expense	572	572	572	572	572	572	572	572	572	572	572	572	6,869
40	Total Power Supply Costs	182,680	162,887	167,330	134,126	138,490	159,924	173,734	167,139	153,552	144,999	143,106	154,255	1,882,222
41	LTLRR Payments	1,422	1,610	2,525	1,890	2,672	2,029	686	1,667	2,937	3,570	1,991	1,419	24,418
42	Total Power Supply Costs Less LTLRR Payments	181,257	161,277	164,805	132,235	135,818	157,895	173,048	165,473	150,616	141,429	141,115	152,836	1,857,804

<sup>1</sup>Purchased (NUG) variable costs include costs associated with PURPA variable energy payments, non-capacity renewable energy plan transfer costs, the Green Generation program, energy-only NUGs and certain hydro plant contract costs.

2022 Power Supply Cost Recovery Forecast  
Purchased and Interchange Power Report (MWh)

(a)	(b)	
	<b>Purchased and Net Interchange Received (MWh)</b>	
43	Market On Peak	
44	Market Off Peak	
45	<u>Purchased Power (NUGs)</u>	
46	Total Received	
	<b>Net Interchange Delivered (MWh)</b>	
47	External Sales	
48	<u>MISO Reliability Assessment Commitment (RAC)</u>	
49	Total Delivered	
50	Net MWh	

2022 Power Supply Cost Recovery Forecast  
Purchased and Interchange Power Report (\$000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022
(a)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
<b>(b) Variable Purchased and Net Interchange Expense (\$000)</b>													
51 Market On Peak Energy	861	1,153	1,286	1,625	5,620	10,470	6,599	9,085	5,330	7,393	8,154	6,773	64,347
52 Market Off Peak Energy	2,894	4,976	2,147	2,997	966	5,834	6,785	6,639	4,849	6,779	4,285	6,273	55,423
53 Purchased (NUG) Energy	33,313	28,073	26,892	28,217	24,033	23,831	31,537	28,382	24,839	22,926	17,655	18,515	308,214
54 Case No. U-16048 Cost Recovery	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>1,251</u>	<u>15,013</u>
55 Total Expense	38,319	35,452	31,577	34,090	31,869	41,385	46,172	45,356	36,270	38,348	31,346	32,812	442,996
<b>(b) Net Interchange Credit (\$000)</b>													
56 External Sale Energy	20,335	14,348	12,033	6,377	5,752	2,638	4,763	3,575	5,637	801	1,874	3,180	81,313
57 External Sale Capacity	0	0	0	0	0	0	0	0	0	0	0	0	0
58 MISO Reliability Assessment Commitment (RAC)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>192</u>	<u>1,571</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,763</u>
59 Total Credit	20,335	14,348	12,033	6,377	5,752	2,830	6,334	3,575	5,637	801	1,875	3,180	83,076
60 Net Expense	<b>17,984</b>	<b>21,104</b>	<b>19,544</b>	<b>27,713</b>	<b>26,118</b>	<b>38,556</b>	<b>39,838</b>	<b>41,781</b>	<b>30,632</b>	<b>37,547</b>	<b>29,471</b>	<b>29,632</b>	<b>359,920</b>

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBIT**

**OF**

**CHRISTOPHER SHAFFER**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021



## Consumers Lifecycle Report

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Provided by Utilimarc

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## Introduction

The Utilimarc Vehicle Replacement Module (VRM) mathematically determines when you should replace your assets. The VRM uses your historic practices to predict future ownership and maintenance cost and determines what lifecycle will guarantee the lowest total cost over the life of the asset. This calculation is built on the following variables:

- Historic Maintenance Cost (including Parts, Labor, Outside Vendors)
- Historic Utilization
- Historic Acquisition Cost and Residual Value
- Current Acquisition Cost

The following report presents the result of running the VRM methodology using data from Consumers. The result is a set of class specific, standard lifecycles for Consumers' top vehicle classes.

## Lifecycle Summary

This table shows the lifecycle recommendations for Consumers' top vehicle classes. These classes represent around 75% of Consumers' annual fleet spend.

Class	Count	Annual Miles	Purchase Prices	Devaluation Rate	Rec. Lifecycle
Sedan - Full size	76	15,600	\$37,000	25%	9
Sedan - Hybrid	60	16,400	\$40,000	25%	9
Pickup - Class 2a	666	17,700	\$39,500	21%	8
Pickup - Class 2b	705	11,100	\$54,800	17%	10
Van - Class 2b	257	12,500	\$52,500	26%	11
Van - Class 3	330	15,400	\$52,500	26%	12
Dump Truck - Class 7	87	4,400	\$115,700	18%	18
Dump Truck - Class 8	30	4,900	\$139,125	18%	14
Service Truck - Class 3	250	16,700	\$76,401	24%	11
Service Truck - Class 5	162	9,300	\$78,700	16%	7
Service Truck Class 6+	255	6,400	\$163,600	18%	14
Bucket Truck - Class 5	139	28,100	\$185,000	24%	7
Bucket Truck - Class 7	44	12,000	\$300,000	18%	12
Bucket Truck - Class 8	297	13,300	\$306,000	21%	17
Digger Derrick - Class 7	28	8,000	\$285,000	18%	13
Digger Derrick - Class 8	164	9,100	\$291,000	18%	11

## Projections

The table below shows the effects of three capital funding scenarios on a variety of fleet metrics over the next ten years. The three scenarios are:

- The Even Replacement scenario replaces a consistent number of units each year, in line with the lifecycle analysis above.
- The Out of Life Replacement scenario replaces every unit outside of lifecycle for the given year.
- The Historic Replacement scenario keeps funding close to 17.5 million dollars.

Even Replacement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual Capital	\$ 19,697,590	\$ 17,041,990	\$ 17,375,950	\$ 16,621,250	\$ 17,544,580	\$ 17,770,820	\$ 20,901,420	\$ 17,113,520	\$ 17,145,640	\$ 26,661,440
Units Replaced	204	188	180	166	160	173	196	161	177	210
Annual Maintenance	\$ 19,785,810	\$ 20,428,520	\$ 21,150,790	\$ 22,089,250	\$ 22,946,240	\$ 23,872,790	\$ 24,654,490	\$ 25,655,390	\$ 26,728,560	\$ 27,331,440
Annual Ownership	\$ 26,355,530	\$ 24,341,630	\$ 22,626,550	\$ 21,055,790	\$ 19,923,290	\$ 19,040,770	\$ 19,008,660	\$ 18,386,750	\$ 17,812,610	\$ 19,109,290
Total	\$ 46,141,340	\$ 44,770,140	\$ 43,777,330	\$ 43,145,040	\$ 42,869,530	\$ 42,913,560	\$ 43,663,140	\$ 44,042,140	\$ 44,541,180	\$ 46,440,730
Out of Life	351	302	210	137	145	162	267	237	218	200
Avg Vehicle Age	5.33	5.34	5.46	5.73	6.10	6.38	6.51	6.89	7.20	7.19

OoL Replacement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual Capital	\$ 39,985,680	\$ 16,963,900	\$ 11,170,910	\$ 15,861,670	\$ 17,239,680	\$ 17,273,950	\$ 29,839,240	\$ 16,042,850	\$ 19,072,890	\$ 20,774,820
Units Replaced	555	139	88	93	168	190	310	138	215	171
Annual Maintenance	\$ 18,982,890	\$ 19,850,910	\$ 20,948,650	\$ 22,027,040	\$ 22,838,270	\$ 23,734,320	\$ 23,976,170	\$ 25,070,630	\$ 25,992,870	\$ 26,929,160
Annual Ownership	\$ 29,546,840	\$ 26,828,160	\$ 23,636,570	\$ 21,724,220	\$ 20,366,420	\$ 19,329,360	\$ 20,722,690	\$ 19,598,960	\$ 18,985,160	\$ 19,102,490
Total	\$ 48,529,730	\$ 46,679,070	\$ 44,585,220	\$ 43,751,250	\$ 43,204,700	\$ 43,063,680	\$ 44,698,870	\$ 44,669,580	\$ 44,978,030	\$ 46,031,650
Out of Life	-	-	-	-	-	-	-	-	-	-
Avg Vehicle Age	4.14	4.54	5.08	5.65	5.95	6.33	6.16	6.73	6.72	6.84

Historic Replacement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual Capital	\$ 17,192,590	\$ 17,338,810	\$ 17,678,710	\$ 17,547,680	\$ 17,544,580	\$ 17,770,820	\$ 17,549,280	\$ 17,113,520	\$ 17,145,640	\$ 17,768,460
Units Replaced	196	189	181	169	160	173	154	161	177	142
Annual Maintenance	\$ 19,968,570	\$ 20,576,200	\$ 21,251,150	\$ 22,113,530	\$ 22,969,130	\$ 23,894,220	\$ 24,930,580	\$ 25,933,680	\$ 26,986,600	\$ 28,155,440
Annual Ownership	\$ 25,966,250	\$ 24,070,520	\$ 22,458,490	\$ 21,059,350	\$ 19,927,750	\$ 19,045,860	\$ 18,480,450	\$ 17,960,030	\$ 17,477,510	\$ 17,251,110
Total	\$ 45,934,820	\$ 44,646,720	\$ 43,709,640	\$ 43,172,880	\$ 42,896,880	\$ 42,940,070	\$ 43,411,030	\$ 43,893,710	\$ 44,464,110	\$ 45,406,560
Out of Life	359	309	216	140	148	165	312	282	263	316
Avg Age	5.41	5.40	5.50	5.75	6.11	6.39	6.78	7.15	7.43	7.76

The Even Replacement scenario attempts to balance vehicle replacement by avoiding “replacement bubbles”. A replacement bubble occurs when a high number of units are concentrated in a few model years. Bubbles occur for a variety of reasons but are usually formed when a fleet delays replacement on a class for a few years and then purchases a large number of assets to catch up. Replacement bubbles can lead to unpredictable spikes in labor demand, maintenance cost, and capital requirements. The Even Replacement scenario replaces units as they come out of lifecycle but limits the number of units that can be replaced each year at the number of units in a class divided by the lifecycle for that class, rounded up. This cap prevents the model from recreating bubbles that resulted from historic purchasing patterns at the cost of some vehicles operating out of lifecycle in the short term.

The Out of Life Replacement scenario replaces units as they come out of lifecycle. Unlike Even Replacement, this scenario recreates historic replacement bubbles. The Historic Replacement scenario follows places capital funding of around \$17.5 million.

### Even vs. Historic Maintenance Comparison

It is worth noting that changes in maintenance cost have additional effects on business operations. The Historic scenario shows an increase in maintenance cost of around \$200,000 compared to the Even scenario. Consumers will need to hire additional staff to support these older vehicles and also plan for the additional maintenance these vehicles require.

Difference	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Maint. Cost Increase	\$ 182,760	\$ 147,680	\$ 100,360	\$ 24,280	\$ 22,890	\$ 21,430	\$ 276,090	\$ 278,290	\$ 258,040	\$ 824,000
Est. Hour Increase	923	746	507	123	116	108	1,395	1,406	1,303	4,162
Est. FTE Increase	0.58	0.47	0.32	0.08	0.07	0.07	0.87	0.88	0.81	2.60
Est. FTE Increase	1%	1%	1%	0%	0%	0%	2%	2%	1%	5%

## Methodology

### Annualized Total Cost

For each vehicle class in this study, Utilimarc applied the VRM to determine what lifecycle approach achieves the lowest cost to own and maintain an average asset over its lifetime. This is done by calculating the *annualized total cost* for each potential approach. Annualized total cost is the estimated sum of all ownership and maintenance cost over the course of an asset's life, divided by the number of years the unit is in service. Minimizing annualized total cost ensures the lowest total cost over the life of the asset. As an example, the table below shows the annualized cost for the possible lifecycles of an Industry light duty pickup truck.

Replacement Age	Annualized Total Cost	Deviation
1	\$5,946	12.3%
2	\$5,759	8.4%
3	\$5,598	5.4%
4	\$5,476	3.1%
5	\$5,390	1.5%
6	\$5,337	0.5%
7	<b>\$5,313</b>	0.0%
8	\$5,316	0.1%
9	\$5,345	0.6%
10	\$5,397	1.6%
11	\$5,472	3.0%
12	\$5,567	4.8%
13	\$5,682	7.0%
14	\$5,816	9.5%

Building on the same example, below are three theoretical vehicle replacement scenarios over a 14-year financial period:

Scenario 1: A fleet manager plans to replace this vehicle every year. The annualized cost of this replacement strategy is \$5,946. Over the 14-year period, this replacement strategy will cost  $14 \times \$5,946 = \$83,244$ .

Scenario 2: A fleet manager plans to replace this vehicle every seven years. The annualized cost of this replacement strategy is \$5,313. Over the 14-year period, this replacement strategy will cost  $14 \times \$5,313 = \$74,382$ .

Scenario 3: A fleet manager plans to replace this vehicle every fourteen years. The annualized cost of this replacement strategy is \$5,816. Over the 14-year period, this strategy will cost  $14 \times \$5,816 = \$81,424$ .

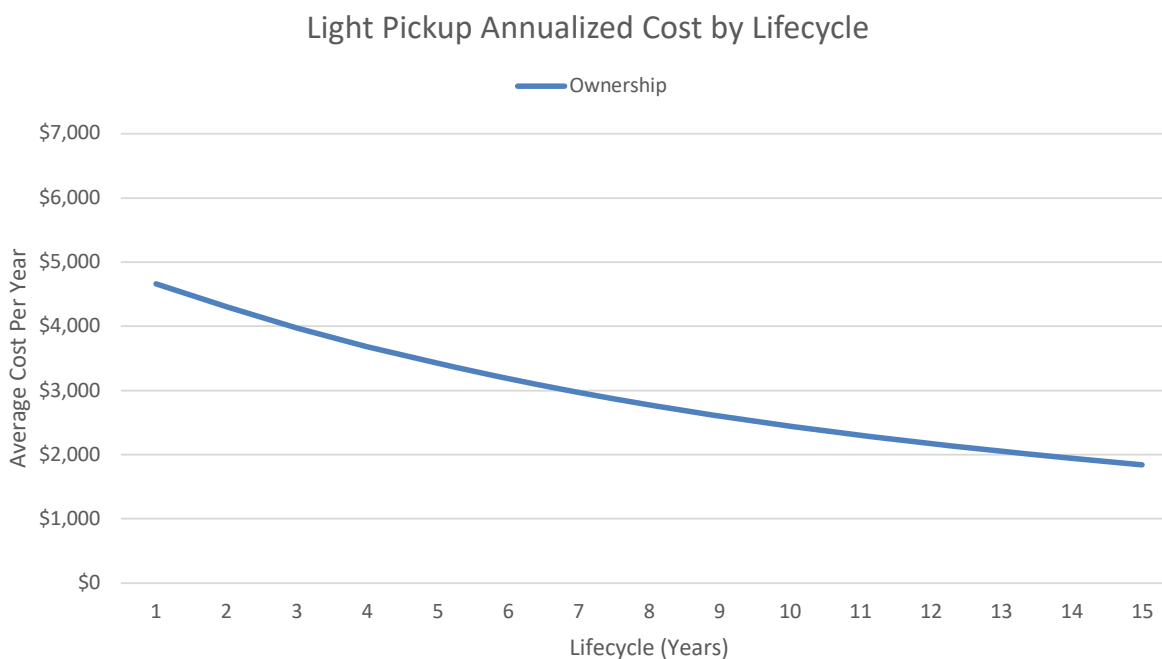
The table below summarizes the calculations in the previous example.

	<b>Chosen Replacement Age</b>	<b>Financial Period (Years)</b>	<b>Annualized Cost</b>	<b>Total Cost for Financial Period</b>
Scenario 1	1	14	\$5,946	\$83,244
Scenario 2	7	14	\$5,313	\$74,382
Scenario 3	14	14	\$5,816	\$81,424

Scenario 2, the scenario with the minimal annualized total cost, achieves the lowest total cost of ownership over the life of the vehicle. Utilimarc recommends replacing units within 1.0% of the true lowest cost of ownership. This provides a window for replacement, highlighted in green on the previous page, where deviating from the recommended lifecycle has limited impact cost.

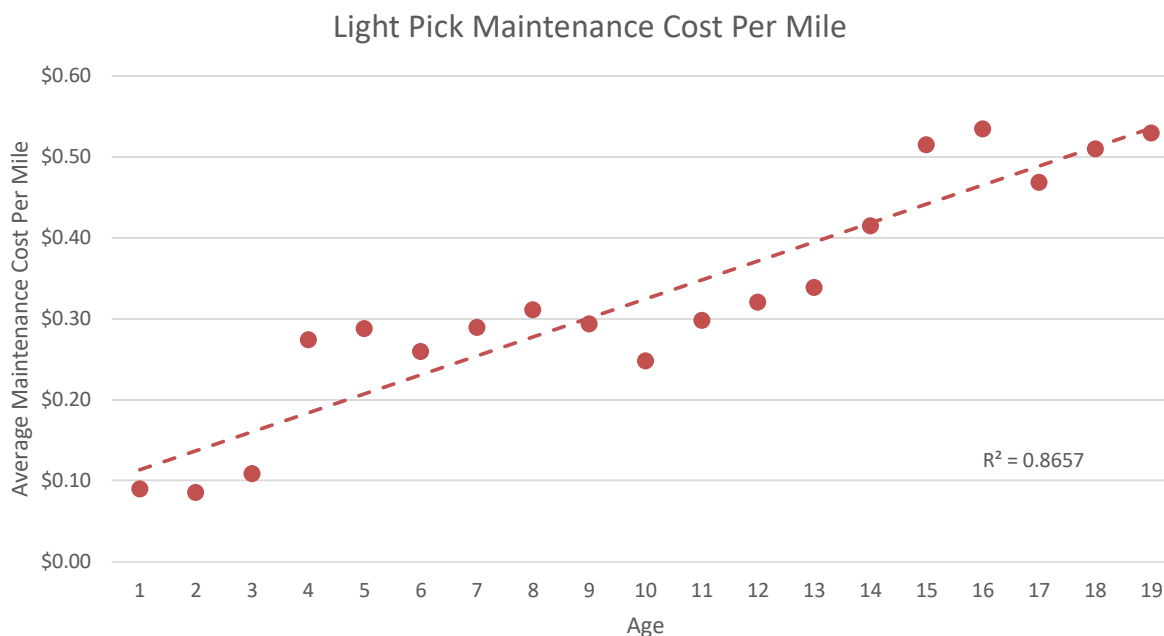
## Modeling Ownership Cost

The VRM uses an exponential decay model to project the ownership cost of an asset over its lifetime. Each asset is assumed to lose 16%-26% of its current book value every year as a cost of devaluation. This decay rate is established based on historical auction information from Consumers and from utility companies across the industry. *Annualized Ownership Cost* is calculated by taking the cumulative sum of each year of devaluation for the asset and dividing by the number of years the asset is in service. Continuing the example from the previous section, the graph below shows the annualized ownership cost for an average light pickup truck for each potential lifecycle option.

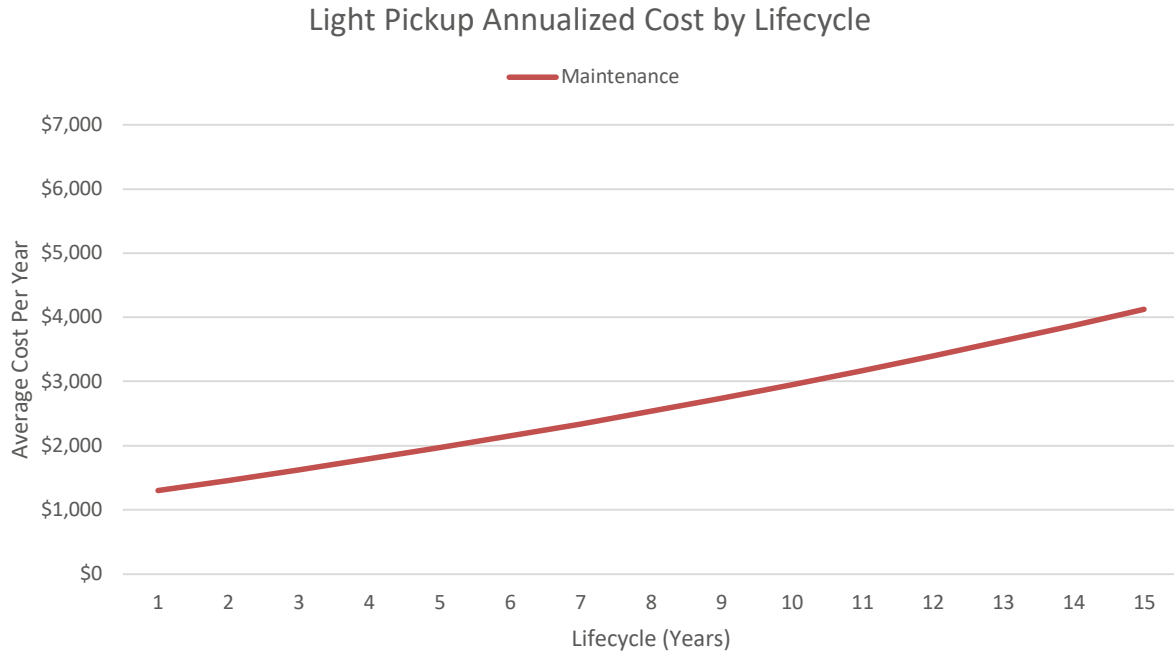


## Modeling Maintenance Cost

The VRM uses a linear regression model to project the maintenance cost of an asset over its lifetime. These class specific models are built using historical, maintenance cost per mile data from Utilimarc's database. In the graph below, the red dots represent the average historical maintenance cost per mile for a light pickup truck by age. The red dashed line represents the linear regression model used to estimate the maintenance cost of an average pickup. The linear regression model helps predict the increase the cost of maintenance associated with running older vehicles.

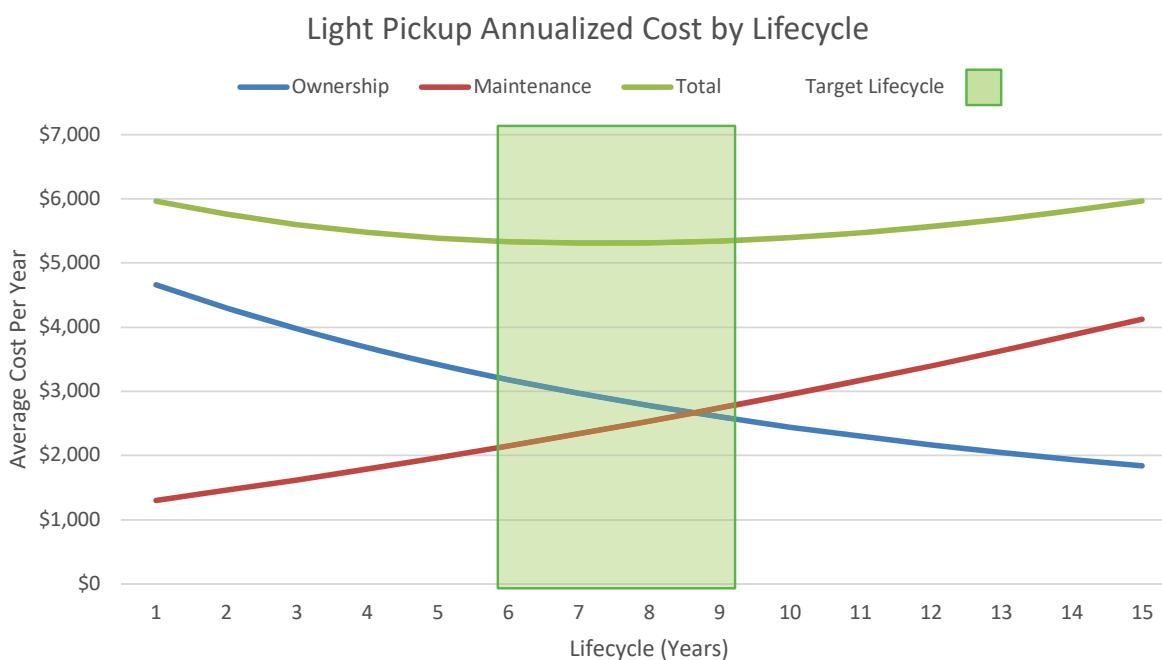


*Annualized Maintenance Cost* is calculated by taking the cumulative sum of each year of maintenance cost for the asset and dividing by the number of years the asset is in service. The graph below shows the annualized maintenance cost for an average light pickup truck, based on the linear regression model and a calculated average annual mileage.



## Modeling Annualized Total Cost

Annualized total cost is calculated by taking the sum of annualized maintenance and ownership cost. The graph below shows the annualized total cost for a light duty pickup truck. The target lifecycle is indicated by a green shaded zone. This is a visual representation of the table from pg. 18 and demonstrates how the model identifies each lifecycle.



## Assumptions

Below are key assumptions underpinning the VRM calculations:

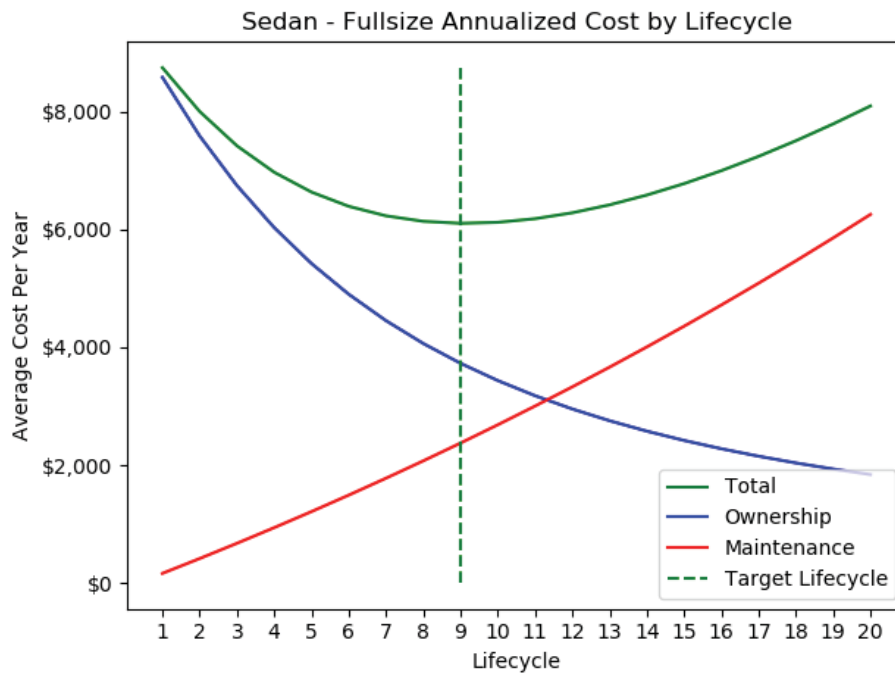
- Inflation is included on all future costs, set to 2%.
- Annual mileage is assumed to be consistent among all vehicles of a given class. No adjustments in annual mileage are made based on the vintage of the unit.
- No adjustments are made to anticipate future increases or decreases in funding or fleet size.

## Results

### Sedan - Fullsize

Variable	Value
<b>Lifecycle</b>	9
<b>Purchase Price</b>	\$ 37,000.00
<b>Average Salvage at Sale</b>	\$ 2,879.37
<b>Devaluation Rate</b>	24.7%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	15,600

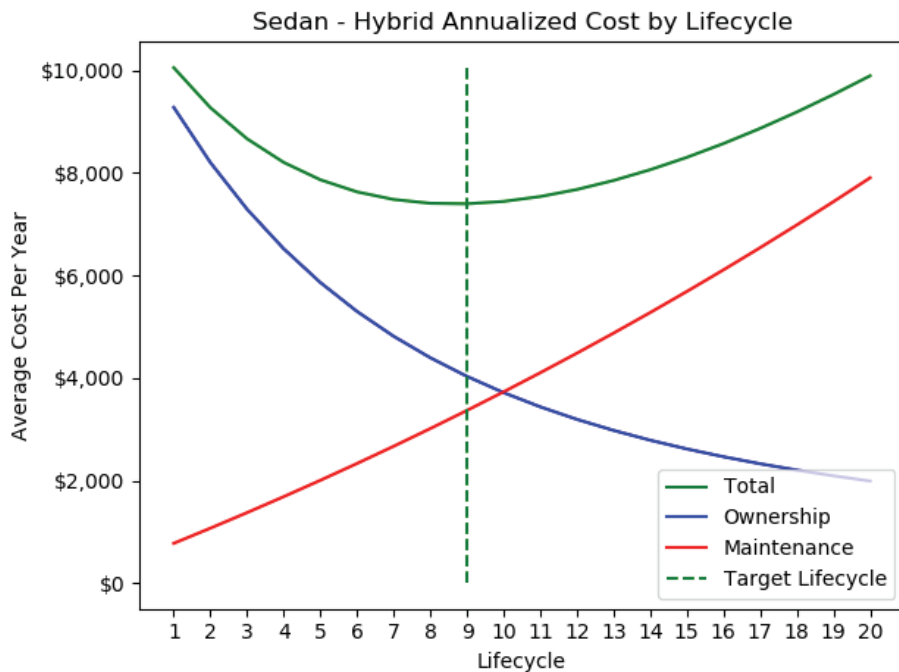
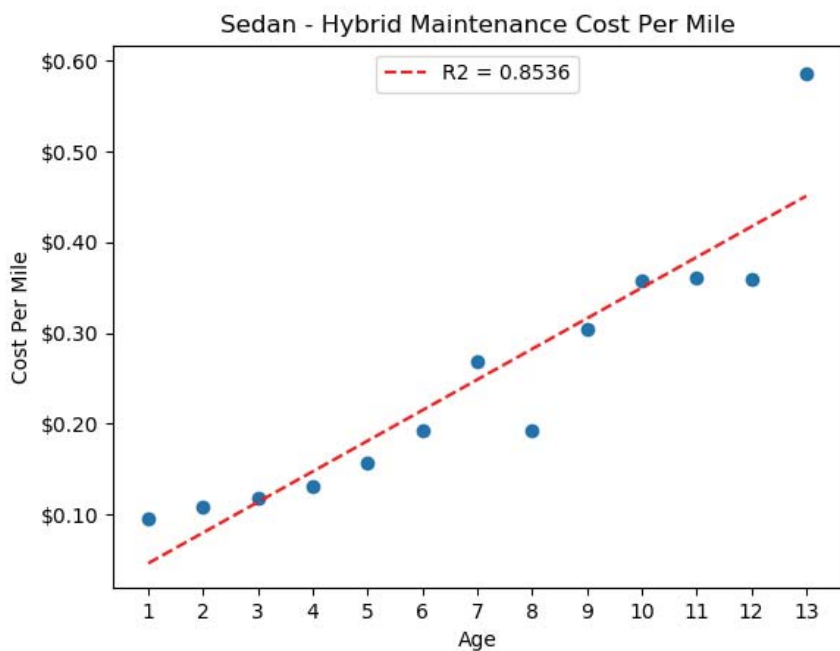
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 8,582.21	\$ 163.73	\$ 8,745.94	43.27%
2	\$ 7,586.88	\$ 415.71	\$ 8,002.59	31.09%
3	\$ 6,745.47	\$ 674.39	\$ 7,419.86	21.55%
4	\$ 6,031.19	\$ 939.92	\$ 6,971.11	14.20%
5	\$ 5,422.24	\$ 1,212.45	\$ 6,634.69	8.68%
6	\$ 4,900.82	\$ 1,492.15	\$ 6,392.96	4.72%
7	\$ 4,452.37	\$ 1,779.16	\$ 6,231.53	2.08%
8	\$ 4,064.96	\$ 2,073.65	\$ 6,138.61	0.56%
9	\$ 3,728.77	\$ 2,375.79	\$ 6,104.56	0.00%
10	\$ 3,435.71	\$ 2,685.76	\$ 6,121.46	0.28%
11	\$ 3,179.10	\$ 3,003.72	\$ 6,182.82	1.28%
12	\$ 2,953.41	\$ 3,329.85	\$ 6,283.27	2.93%
13	\$ 2,754.04	\$ 3,664.35	\$ 6,418.39	5.14%
14	\$ 2,577.17	\$ 4,007.38	\$ 6,584.54	7.86%
15	\$ 2,419.58	\$ 4,359.14	\$ 6,778.72	11.04%
16	\$ 2,278.59	\$ 4,719.83	\$ 6,998.42	14.64%
17	\$ 2,151.96	\$ 5,089.64	\$ 7,241.60	18.63%
18	\$ 2,037.78	\$ 5,468.78	\$ 7,506.56	22.97%
19	\$ 1,934.43	\$ 5,857.45	\$ 7,791.88	27.64%
20	\$ 1,840.56	\$ 6,255.86	\$ 8,096.42	32.63%



### Sedan - Hybrid

Variable	Value
<b>Lifecycle</b>	9
<b>Purchase Price</b>	\$ 40,000.00
<b>Average Salvage at Sale</b>	\$ 3,112.83
<b>Devaluation Rate</b>	24.7%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	16,400

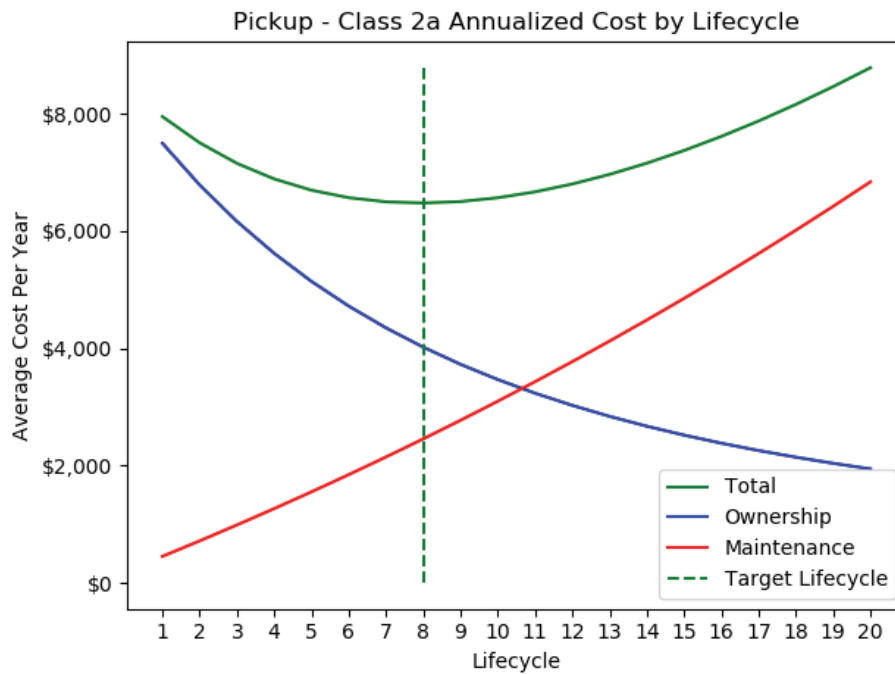
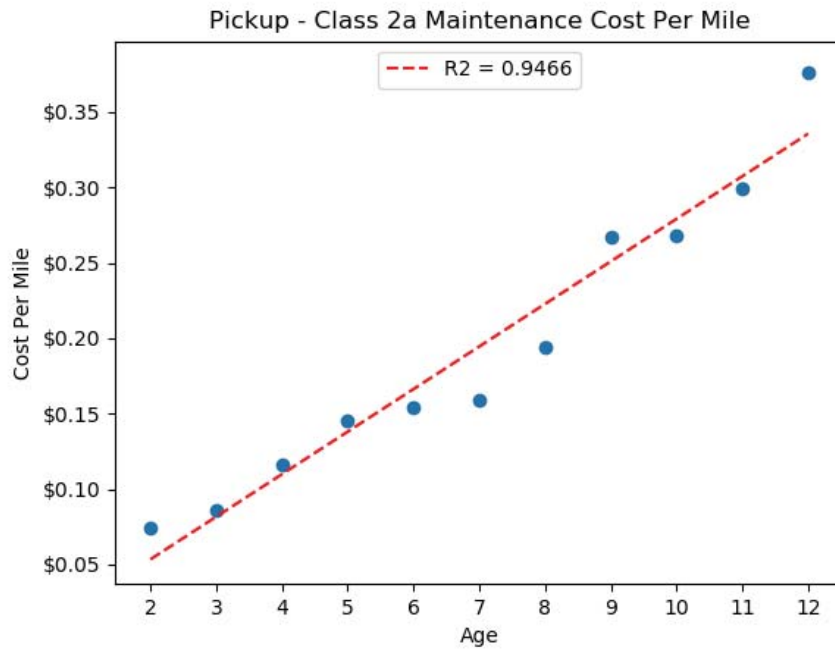
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 9,278.07	\$ 774.55	\$ 10,052.61	35.88%
2	\$ 8,202.04	\$ 1,070.11	\$ 9,272.14	25.33%
3	\$ 7,292.40	\$ 1,373.45	\$ 8,665.84	17.14%
4	\$ 6,520.20	\$ 1,684.74	\$ 8,204.94	10.91%
5	\$ 5,861.88	\$ 2,004.16	\$ 7,866.04	6.33%
6	\$ 5,298.18	\$ 2,331.90	\$ 7,630.08	3.14%
7	\$ 4,813.38	\$ 2,668.13	\$ 7,481.50	1.13%
8	\$ 4,394.55	\$ 3,013.05	\$ 7,407.60	0.13%
9	\$ 4,031.10	\$ 3,366.85	\$ 7,397.95	0.00%
10	\$ 3,714.28	\$ 3,729.73	\$ 7,444.01	0.62%
11	\$ 3,436.86	\$ 4,101.89	\$ 7,538.76	1.90%
12	\$ 3,192.88	\$ 4,483.54	\$ 7,676.42	3.76%
13	\$ 2,977.34	\$ 4,874.88	\$ 7,852.23	6.14%
14	\$ 2,786.12	\$ 5,276.14	\$ 8,062.26	8.98%
15	\$ 2,615.76	\$ 5,687.53	\$ 8,303.29	12.24%
16	\$ 2,463.34	\$ 6,109.27	\$ 8,572.62	15.88%
17	\$ 2,326.44	\$ 6,541.60	\$ 8,868.05	19.87%
18	\$ 2,203.00	\$ 6,984.75	\$ 9,187.75	24.19%
19	\$ 2,091.28	\$ 7,438.96	\$ 9,530.23	28.82%
20	\$ 1,989.80	\$ 7,904.46	\$ 9,894.26	33.74%



### Pickup - Class 2a

Variable	Value
<b>Lifecycle</b>	8
<b>Purchase Price</b>	\$ 39,500.00
<b>Average Salvage at Sale</b>	\$ 6,258.49
<b>Devaluation Rate</b>	20.57%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	17,700

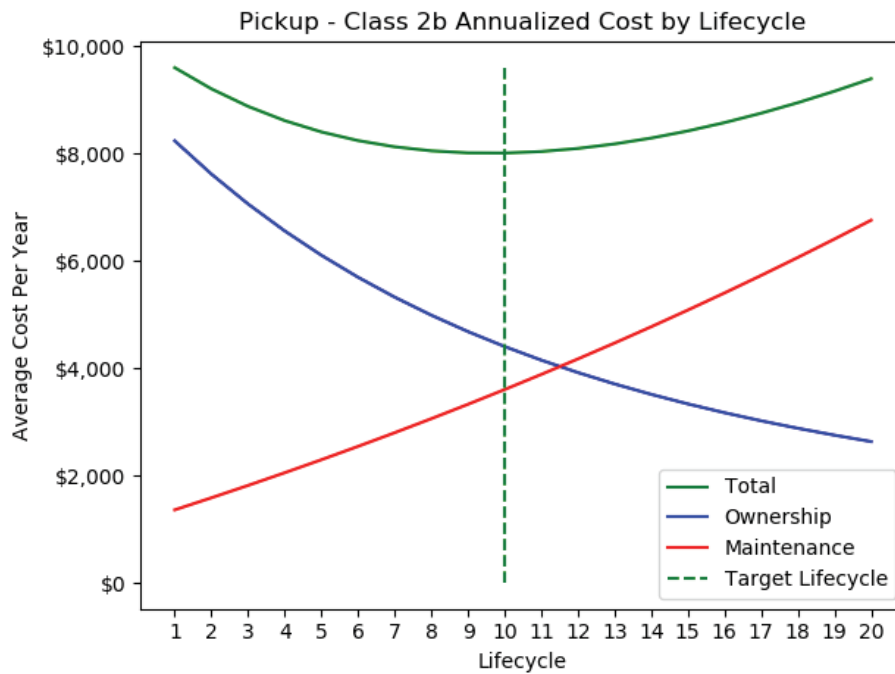
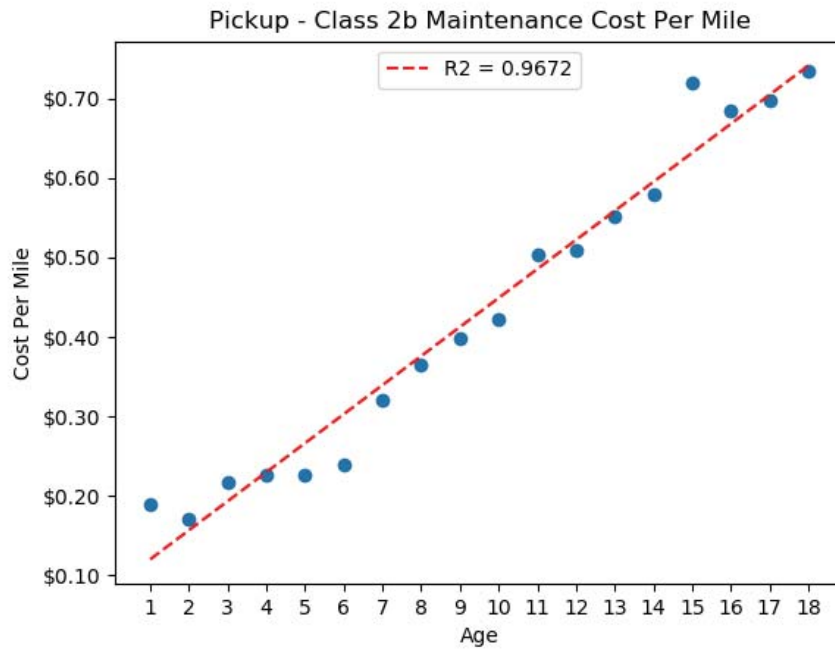
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 7,497.69	\$ 454.36	\$ 7,952.05	22.74%
2	\$ 6,786.10	\$ 718.82	\$ 7,504.92	15.84%
3	\$ 6,164.56	\$ 990.26	\$ 7,154.83	10.43%
4	\$ 5,620.25	\$ 1,268.86	\$ 6,889.11	6.33%
5	\$ 5,142.29	\$ 1,554.76	\$ 6,697.05	3.37%
6	\$ 4,721.45	\$ 1,848.14	\$ 6,569.59	1.40%
7	\$ 4,349.89	\$ 2,149.15	\$ 6,499.04	0.31%
8	\$ 4,020.90	\$ 2,457.98	\$ 6,478.88	0.00%
9	\$ 3,728.78	\$ 2,774.79	\$ 6,503.57	0.38%
10	\$ 3,468.67	\$ 3,099.76	\$ 6,568.43	1.38%
11	\$ 3,236.40	\$ 3,433.07	\$ 6,669.47	2.94%
12	\$ 3,028.38	\$ 3,774.92	\$ 6,803.30	5.01%
13	\$ 2,841.56	\$ 4,125.48	\$ 6,967.04	7.53%
14	\$ 2,673.30	\$ 4,484.96	\$ 7,158.26	10.49%
15	\$ 2,521.32	\$ 4,853.55	\$ 7,374.87	13.83%
16	\$ 2,383.67	\$ 5,231.45	\$ 7,615.12	17.54%
17	\$ 2,258.65	\$ 5,618.86	\$ 7,877.52	21.59%
18	\$ 2,144.80	\$ 6,016.01	\$ 8,160.81	25.96%
19	\$ 2,040.85	\$ 6,423.10	\$ 8,463.95	30.64%
20	\$ 1,945.67	\$ 6,840.35	\$ 8,786.03	35.61%



### Pickup - Class 2b

Variable	Value
<b>Lifecycle</b>	10
<b>Purchase Price</b>	\$ 54,800.00
<b>Average Salvage at Sale</b>	\$ 8,823.43
<b>Devaluation Rate</b>	16.69%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	11,100

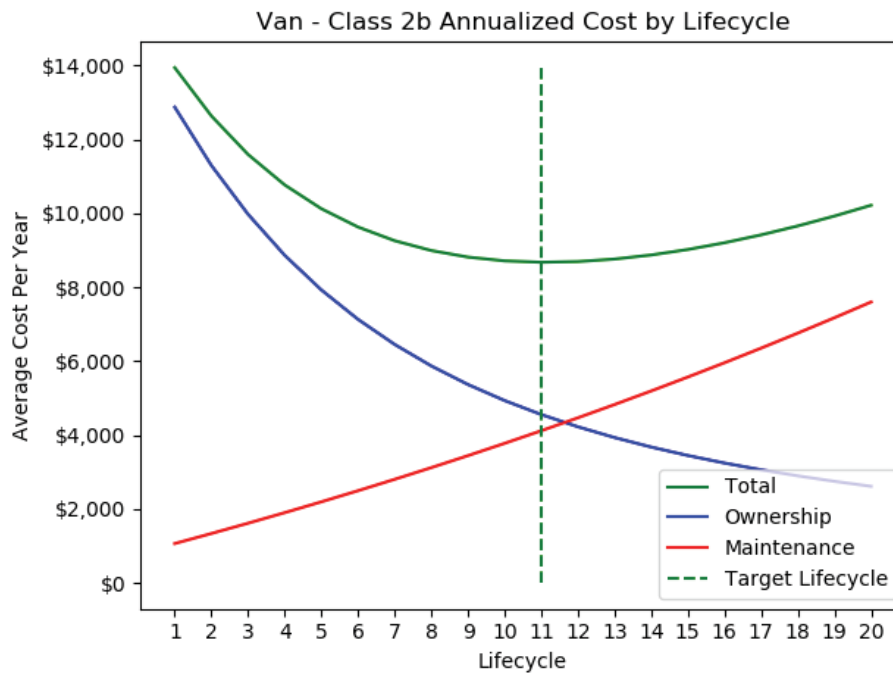
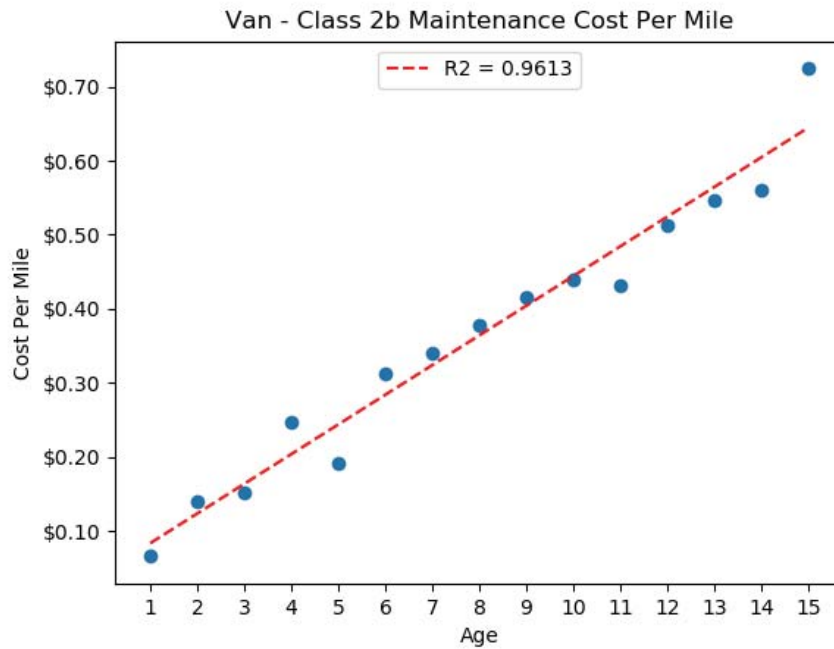
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 8,234.27	\$ 1,362.85	\$ 9,597.12	19.85%
2	\$ 7,615.63	\$ 1,587.31	\$ 9,202.94	14.93%
3	\$ 7,058.96	\$ 1,817.58	\$ 8,876.53	10.85%
4	\$ 6,557.27	\$ 2,053.78	\$ 8,611.05	7.54%
5	\$ 6,104.43	\$ 2,296.04	\$ 8,400.47	4.91%
6	\$ 5,695.03	\$ 2,544.51	\$ 8,239.53	2.90%
7	\$ 5,324.29	\$ 2,799.31	\$ 8,123.60	1.45%
8	\$ 4,988.01	\$ 3,060.59	\$ 8,048.60	0.51%
9	\$ 4,682.48	\$ 3,328.49	\$ 8,010.97	0.04%
10	\$ 4,404.43	\$ 3,603.16	\$ 8,007.59	0.00%
11	\$ 4,150.95	\$ 3,884.75	\$ 8,035.70	0.35%
12	\$ 3,919.48	\$ 4,173.41	\$ 8,092.89	1.07%
13	\$ 3,707.75	\$ 4,469.29	\$ 8,177.04	2.12%
14	\$ 3,513.74	\$ 4,772.56	\$ 8,286.30	3.48%
15	\$ 3,335.66	\$ 5,083.39	\$ 8,419.05	5.14%
16	\$ 3,171.93	\$ 5,401.92	\$ 8,573.85	7.07%
17	\$ 3,021.14	\$ 5,728.34	\$ 8,749.48	9.26%
18	\$ 2,882.02	\$ 6,062.82	\$ 8,944.84	11.70%
19	\$ 2,753.46	\$ 6,405.53	\$ 9,158.99	14.38%
20	\$ 2,634.45	\$ 6,756.66	\$ 9,391.11	17.28%



## Van - Class 2b

Variable	Value
<b>Lifecycle</b>	11
<b>Purchase Price</b>	\$ 52,500.00
<b>Average Salvage at Sale</b>	\$ 1,915.69
<b>Devaluation Rate</b>	25.99%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	12,500

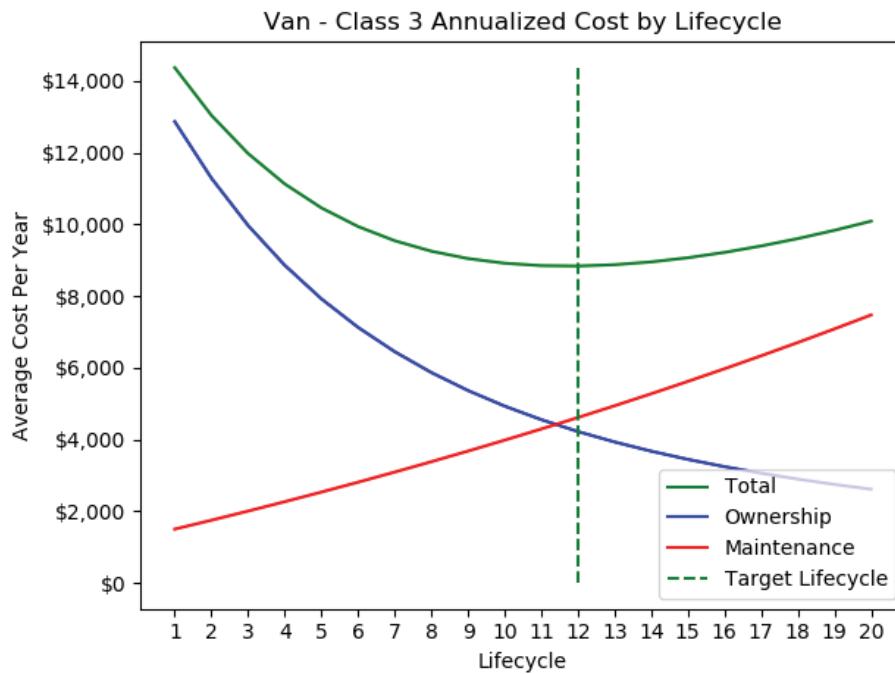
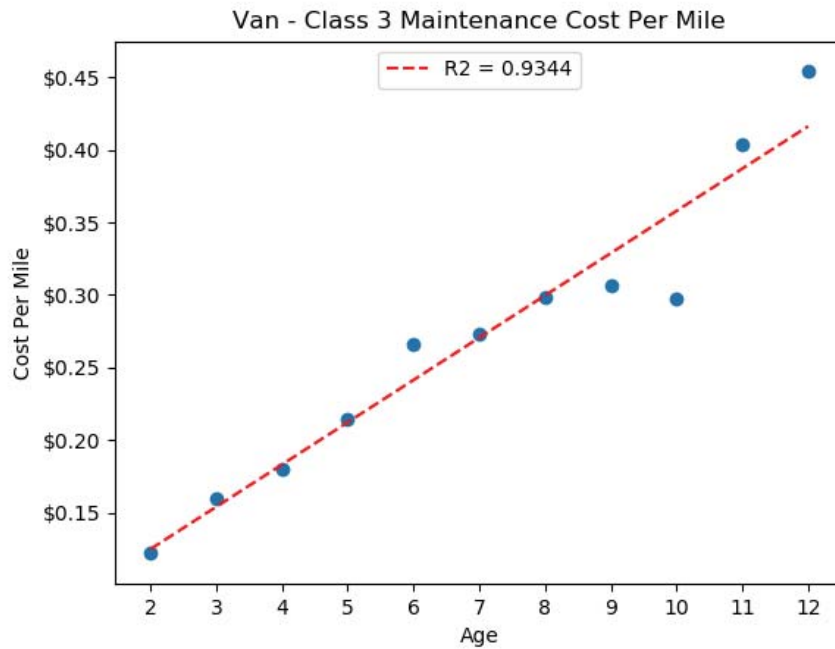
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 12,867.88	\$ 1,068.04	\$ 13,935.92	60.65%
2	\$ 11,290.90	\$ 1,339.21	\$ 12,630.11	45.60%
3	\$ 9,971.61	\$ 1,617.47	\$ 11,589.08	33.60%
4	\$ 8,862.63	\$ 1,902.97	\$ 10,765.60	24.10%
5	\$ 7,925.88	\$ 2,195.89	\$ 10,121.76	16.68%
6	\$ 7,130.67	\$ 2,496.37	\$ 9,627.04	10.98%
7	\$ 6,452.20	\$ 2,804.61	\$ 9,256.81	6.71%
8	\$ 5,870.39	\$ 3,120.75	\$ 8,991.15	3.65%
9	\$ 5,368.92	\$ 3,444.99	\$ 8,813.91	1.61%
10	\$ 4,934.47	\$ 3,777.50	\$ 8,711.97	0.43%
11	\$ 4,556.19	\$ 4,118.47	\$ 8,674.65	0.00%
12	\$ 4,225.16	\$ 4,468.07	\$ 8,693.23	0.21%
13	\$ 3,934.05	\$ 4,826.51	\$ 8,760.56	0.99%
14	\$ 3,676.81	\$ 5,193.98	\$ 8,870.79	2.26%
15	\$ 3,448.43	\$ 5,570.68	\$ 9,019.11	3.97%
16	\$ 3,244.75	\$ 5,956.81	\$ 9,201.56	6.07%
17	\$ 3,062.31	\$ 6,352.57	\$ 9,414.88	8.53%
18	\$ 2,898.18	\$ 6,758.20	\$ 9,656.38	11.32%
19	\$ 2,749.94	\$ 7,173.89	\$ 9,923.82	14.40%
20	\$ 2,615.52	\$ 7,599.87	\$ 10,215.39	17.76%



### Van - Class 3

Variable	Value
<b>Lifecycle</b>	12
<b>Purchase Price</b>	\$ 52,500.00
<b>Average Salvage at Sale</b>	\$ 1,417.80
<b>Devaluation Rate</b>	25.99%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	15,400

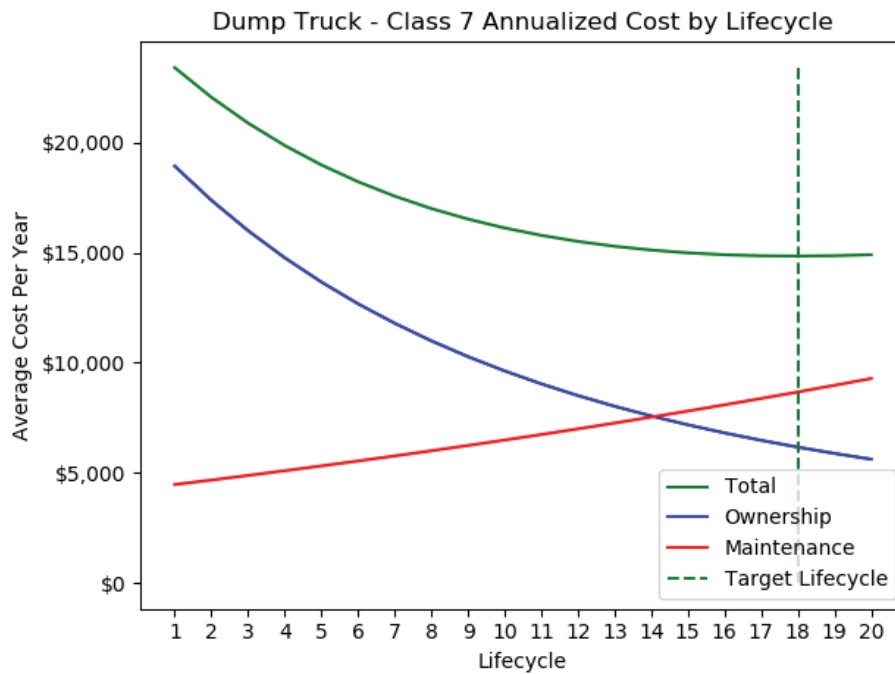
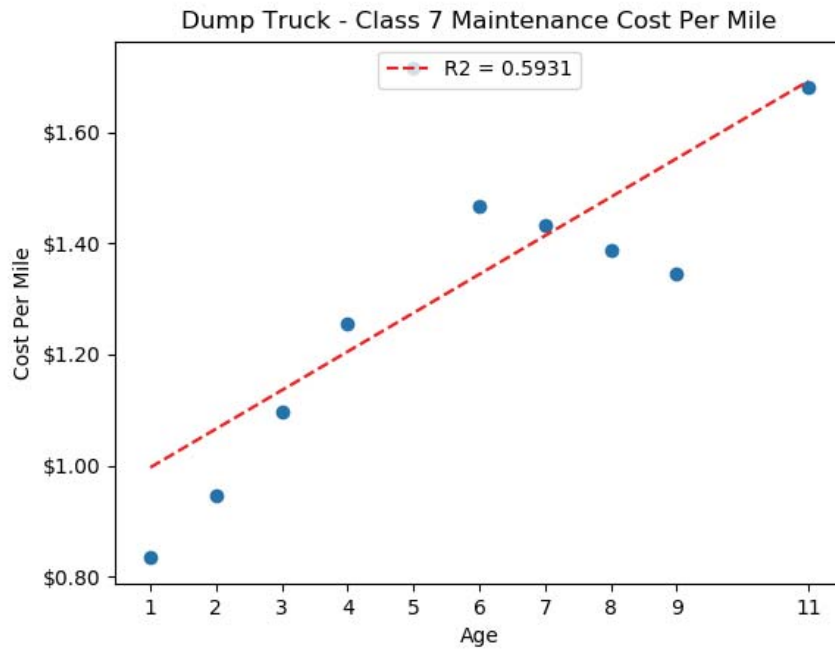
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 12,867.88	\$ 1,503.15	\$ 14,371.03	62.57%
2	\$ 11,290.90	\$ 1,751.67	\$ 13,042.57	47.54%
3	\$ 9,971.61	\$ 2,006.61	\$ 11,978.22	35.50%
4	\$ 8,862.63	\$ 2,268.13	\$ 11,130.75	25.91%
5	\$ 7,925.88	\$ 2,536.35	\$ 10,462.23	18.35%
6	\$ 7,130.67	\$ 2,811.45	\$ 9,942.12	12.47%
7	\$ 6,452.20	\$ 3,093.56	\$ 9,545.76	7.98%
8	\$ 5,870.39	\$ 3,382.85	\$ 9,253.24	4.67%
9	\$ 5,368.92	\$ 3,679.47	\$ 9,048.38	2.36%
10	\$ 4,934.47	\$ 3,983.58	\$ 8,918.05	0.88%
11	\$ 4,556.19	\$ 4,295.35	\$ 8,851.54	0.13%
12	\$ 4,225.16	\$ 4,614.95	\$ 8,840.11	0.00%
13	\$ 3,934.05	\$ 4,942.56	\$ 8,876.60	0.41%
14	\$ 3,676.81	\$ 5,278.34	\$ 8,955.15	1.30%
15	\$ 3,448.43	\$ 5,622.48	\$ 9,070.91	2.61%
16	\$ 3,244.75	\$ 5,975.17	\$ 9,219.92	4.30%
17	\$ 3,062.31	\$ 6,336.58	\$ 9,398.89	6.32%
18	\$ 2,898.18	\$ 6,706.92	\$ 9,605.10	8.65%
19	\$ 2,749.94	\$ 7,086.37	\$ 9,836.31	11.27%
20	\$ 2,615.52	\$ 7,475.15	\$ 10,090.67	14.15%



### Dump Truck - Class 7

Variable	Value
<b>Lifecycle</b>	18
<b>Purchase Price</b>	\$ 115,700.00
<b>Average Salvage at Sale</b>	\$ 3,250.74
<b>Devaluation Rate</b>	18.0%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	4,400

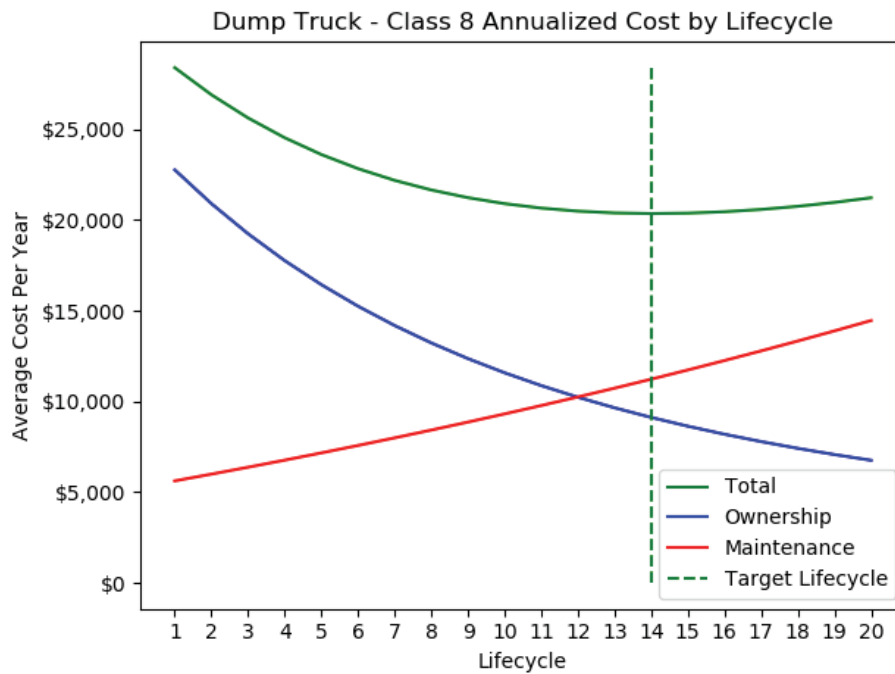
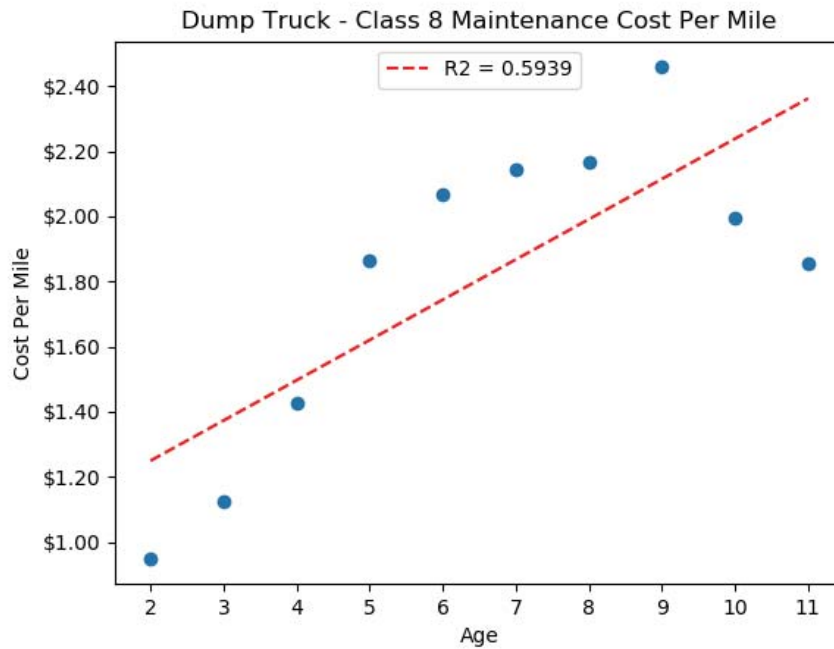
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 18,928.52	\$ 4,472.15	\$ 23,400.67	57.63%
2	\$ 17,380.17	\$ 4,676.14	\$ 22,056.31	48.58%
3	\$ 16,000.69	\$ 4,884.98	\$ 20,885.66	40.69%
4	\$ 14,769.36	\$ 5,098.76	\$ 19,868.12	33.84%
5	\$ 13,668.18	\$ 5,317.60	\$ 18,985.78	27.89%
6	\$ 12,681.47	\$ 5,541.60	\$ 18,223.07	22.75%
7	\$ 11,795.60	\$ 5,770.87	\$ 17,566.48	18.33%
8	\$ 10,998.68	\$ 6,005.54	\$ 17,004.21	14.54%
9	\$ 10,280.32	\$ 6,245.70	\$ 16,526.02	11.32%
10	\$ 9,631.47	\$ 6,491.49	\$ 16,122.96	8.61%
11	\$ 9,044.19	\$ 6,743.03	\$ 15,787.22	6.35%
12	\$ 8,511.56	\$ 7,000.43	\$ 15,511.98	4.49%
13	\$ 8,027.49	\$ 7,263.82	\$ 15,291.31	3.01%
14	\$ 7,586.64	\$ 7,533.33	\$ 15,119.97	1.85%
15	\$ 7,184.34	\$ 7,809.10	\$ 14,993.43	1.00%
16	\$ 6,816.45	\$ 8,091.25	\$ 14,907.70	0.42%
17	\$ 6,479.35	\$ 8,379.92	\$ 14,859.27	0.10%
18	\$ 6,169.84	\$ 8,675.25	\$ 14,845.10	0.00%
19	\$ 5,885.09	\$ 8,977.39	\$ 14,862.48	0.12%
20	\$ 5,622.60	\$ 9,286.48	\$ 14,909.08	0.43%



### Dump Truck - Class 8

Variable	Value
<b>Lifecycle</b>	14
<b>Purchase Price</b>	\$ 139,125.00
<b>Average Salvage at Sale</b>	\$ 8,645.68
<b>Devaluation Rate</b>	18.0%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	4,900

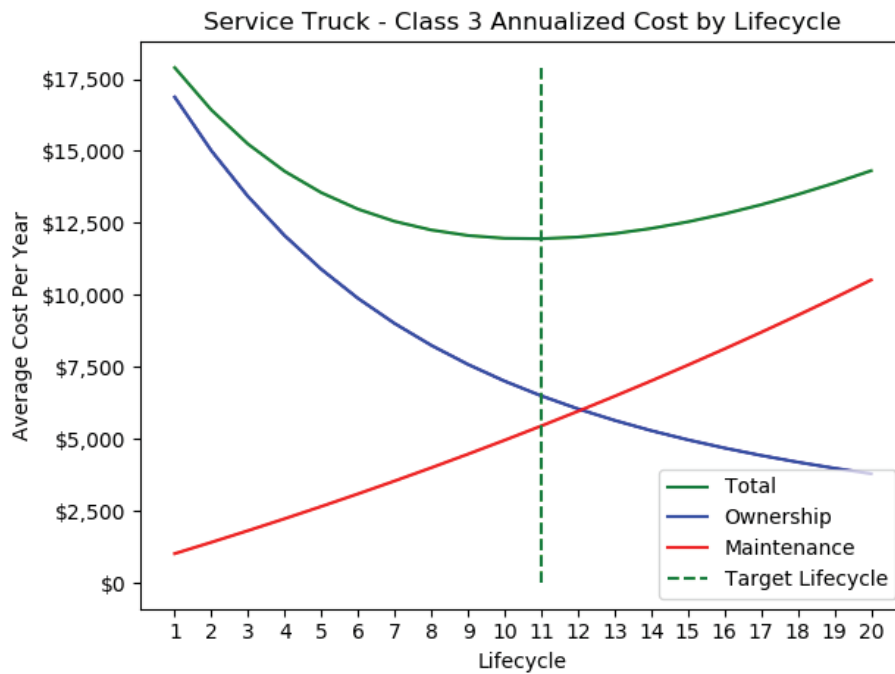
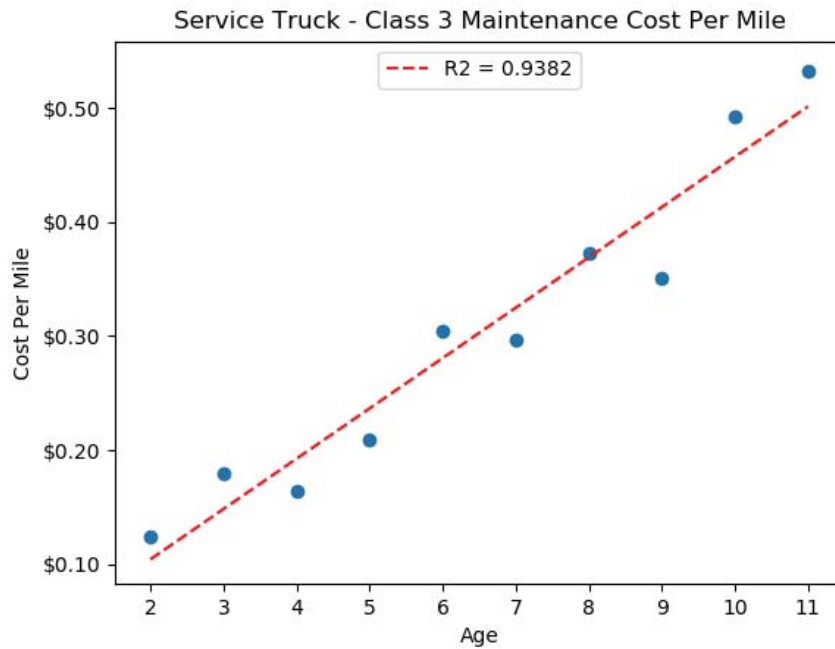
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 22,760.85	\$ 5,626.87	\$ 28,387.72	39.48%
2	\$ 20,899.01	\$ 5,998.26	\$ 26,897.27	32.16%
3	\$ 19,240.24	\$ 6,378.79	\$ 25,619.03	25.88%
4	\$ 17,759.61	\$ 6,768.68	\$ 24,528.30	20.52%
5	\$ 16,435.48	\$ 7,168.13	\$ 23,603.61	15.98%
6	\$ 15,249.01	\$ 7,577.35	\$ 22,826.35	12.16%
7	\$ 14,183.78	\$ 7,996.54	\$ 22,180.32	8.98%
8	\$ 13,225.51	\$ 8,425.94	\$ 21,651.44	6.39%
9	\$ 12,361.71	\$ 8,865.75	\$ 21,227.46	4.30%
10	\$ 11,581.48	\$ 9,316.21	\$ 20,897.69	2.68%
11	\$ 10,875.31	\$ 9,777.55	\$ 20,652.86	1.48%
12	\$ 10,234.84	\$ 10,250.01	\$ 20,484.84	0.65%
13	\$ 9,652.76	\$ 10,733.82	\$ 20,386.58	0.17%
14	\$ 9,122.66	\$ 11,229.24	\$ 20,351.89	0.00%
15	\$ 8,638.90	\$ 11,736.51	\$ 20,375.41	0.12%
16	\$ 8,196.53	\$ 12,255.89	\$ 20,452.42	0.49%
17	\$ 7,791.18	\$ 12,787.65	\$ 20,578.83	1.12%
18	\$ 7,419.01	\$ 13,332.05	\$ 20,751.06	1.96%
19	\$ 7,076.60	\$ 13,889.37	\$ 20,965.97	3.02%
20	\$ 6,760.97	\$ 14,459.88	\$ 21,220.85	4.27%



### Service Truck - Class 3

Variable	Value
<b>Lifecycle</b>	11
<b>Purchase Price</b>	\$ 76,401.26
<b>Average Salvage at Sale</b>	\$ 3,950.17
<b>Devaluation Rate</b>	23.61%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	16,700

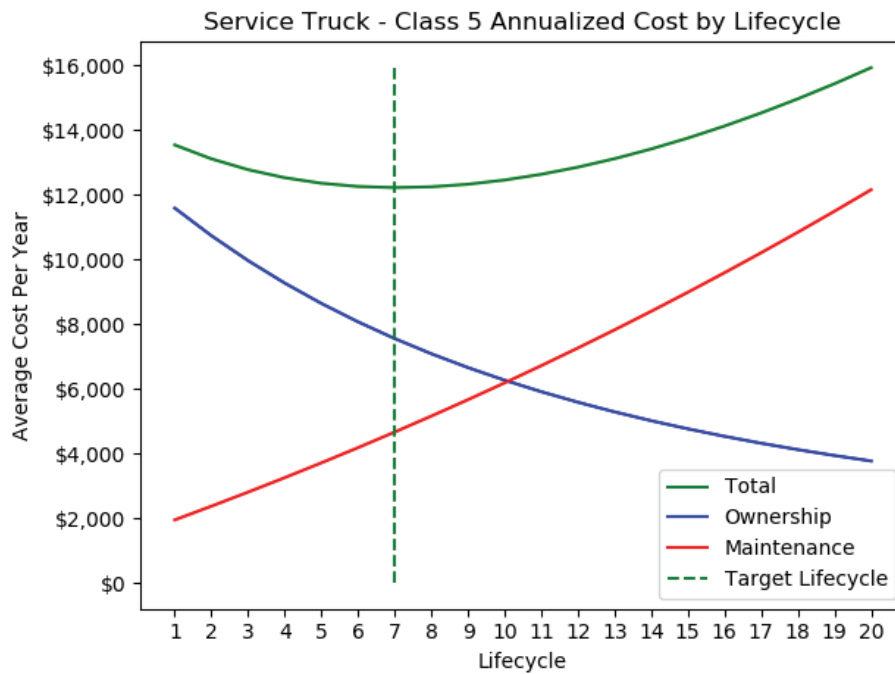
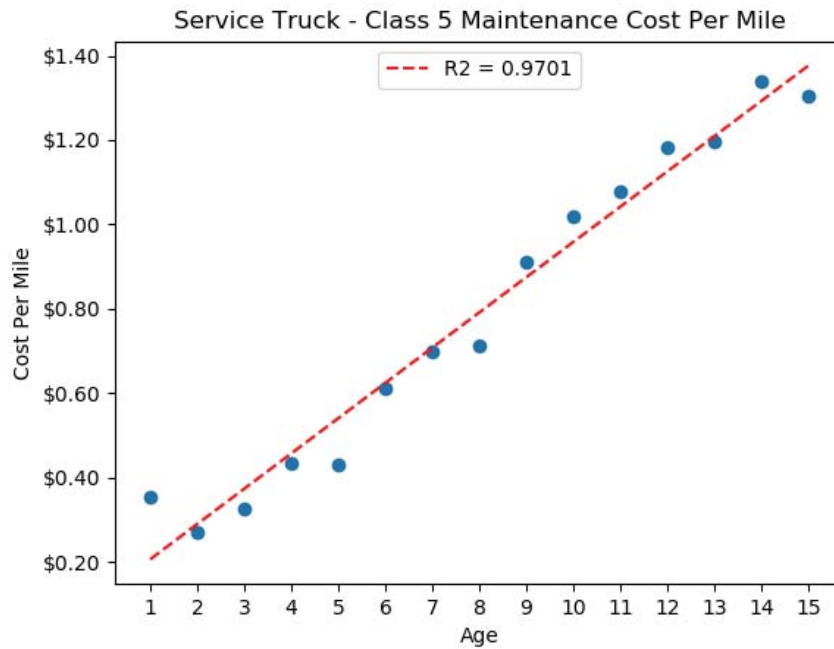
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 16,869.67	\$ 1,021.57	\$ 17,891.24	49.68%
2	\$ 15,007.23	\$ 1,415.32	\$ 16,422.54	37.39%
3	\$ 13,418.94	\$ 1,819.42	\$ 15,238.37	27.48%
4	\$ 12,059.41	\$ 2,234.13	\$ 14,293.54	19.58%
5	\$ 10,891.25	\$ 2,659.66	\$ 13,550.92	13.36%
6	\$ 9,883.63	\$ 3,096.27	\$ 12,979.91	8.59%
7	\$ 9,011.06	\$ 3,544.21	\$ 12,555.27	5.04%
8	\$ 8,252.42	\$ 4,003.71	\$ 12,256.14	2.53%
9	\$ 7,590.19	\$ 4,475.06	\$ 12,065.25	0.94%
10	\$ 7,009.79	\$ 4,958.49	\$ 11,968.28	0.12%
11	\$ 6,499.07	\$ 5,454.29	\$ 11,953.36	0.00%
12	\$ 6,047.85	\$ 5,962.74	\$ 12,010.59	0.48%
13	\$ 5,647.63	\$ 6,484.10	\$ 12,131.73	1.49%
14	\$ 5,291.26	\$ 7,018.67	\$ 12,309.93	2.98%
15	\$ 4,972.72	\$ 7,566.74	\$ 12,539.45	4.90%
16	\$ 4,686.91	\$ 8,128.60	\$ 12,815.51	7.21%
17	\$ 4,429.53	\$ 8,704.57	\$ 13,134.10	9.88%
18	\$ 4,196.93	\$ 9,294.96	\$ 13,491.89	12.87%
19	\$ 3,985.99	\$ 9,900.07	\$ 13,886.07	16.17%
20	\$ 3,794.06	\$ 10,520.25	\$ 14,314.31	19.75%



### Service Truck - Class 5

Variable	Value
<b>Lifecycle</b>	7
<b>Purchase Price</b>	\$ 78,700.00
<b>Average Salvage at Sale</b>	\$ 22,465.12
<b>Devaluation Rate</b>	16.4%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	9,300

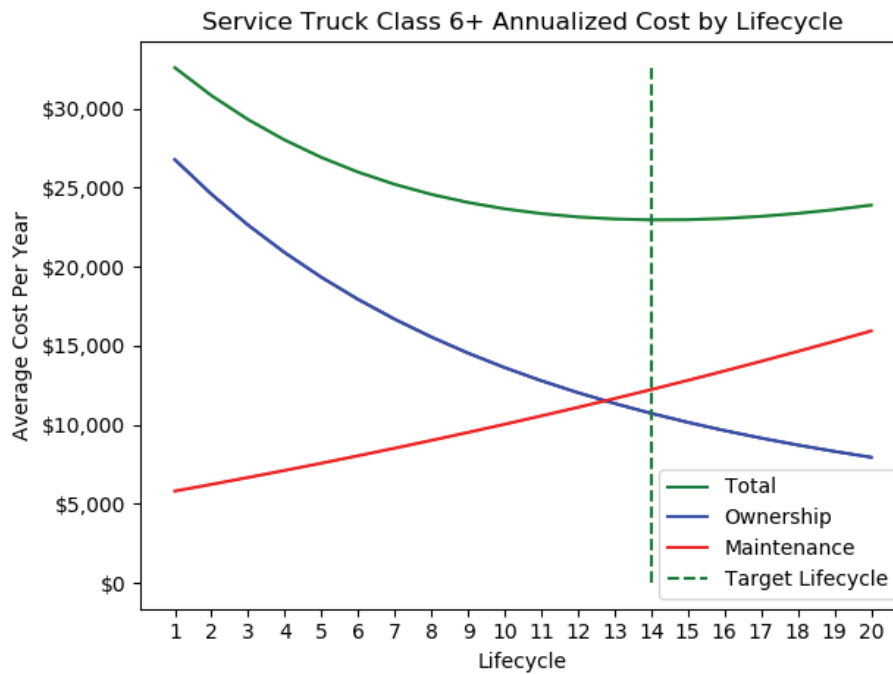
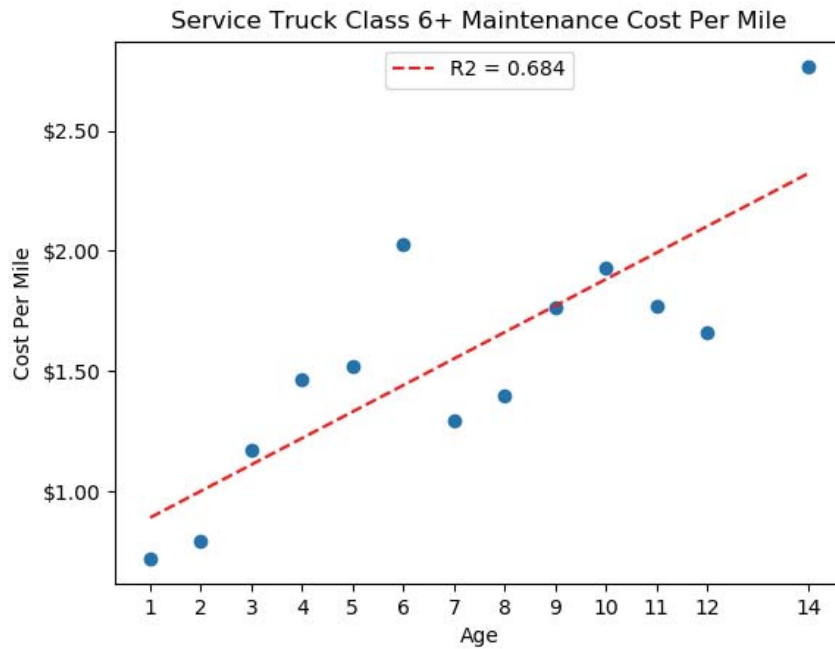
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 11,588.95	\$ 1,951.48	\$ 13,540.42	10.78%
2	\$ 10,735.68	\$ 2,375.46	\$ 13,111.14	7.27%
3	\$ 9,966.19	\$ 2,810.48	\$ 12,776.67	4.53%
4	\$ 9,271.20	\$ 3,256.80	\$ 12,528.00	2.50%
5	\$ 8,642.57	\$ 3,714.67	\$ 12,357.24	1.10%
6	\$ 8,073.08	\$ 4,184.33	\$ 12,257.42	0.29%
7	\$ 7,556.38	\$ 4,666.06	\$ 12,222.44	0.00%
8	\$ 7,086.83	\$ 5,160.13	\$ 12,246.95	0.20%
9	\$ 6,659.44	\$ 5,666.79	\$ 12,326.24	0.85%
10	\$ 6,269.82	\$ 6,186.35	\$ 12,456.17	1.91%
11	\$ 5,914.05	\$ 6,719.08	\$ 12,633.13	3.36%
12	\$ 5,588.66	\$ 7,265.26	\$ 12,853.93	5.17%
13	\$ 5,290.57	\$ 7,825.22	\$ 13,115.78	7.31%
14	\$ 5,017.04	\$ 8,399.23	\$ 13,416.27	9.77%
15	\$ 4,765.64	\$ 8,987.62	\$ 13,753.26	12.52%
16	\$ 4,534.19	\$ 9,590.71	\$ 14,124.90	15.57%
17	\$ 4,320.77	\$ 10,208.81	\$ 14,529.58	18.88%
18	\$ 4,123.65	\$ 10,842.26	\$ 14,965.91	22.45%
19	\$ 3,941.29	\$ 11,491.39	\$ 15,432.69	26.27%
20	\$ 3,772.32	\$ 12,156.56	\$ 15,928.88	30.32%



### Service Truck Class 6+

Variable	Value
<b>Lifecycle</b>	14
<b>Purchase Price</b>	\$ 163,600.00
<b>Average Salvage at Sale</b>	\$ 10,166.64
<b>Devaluation Rate</b>	18.0%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	6,400

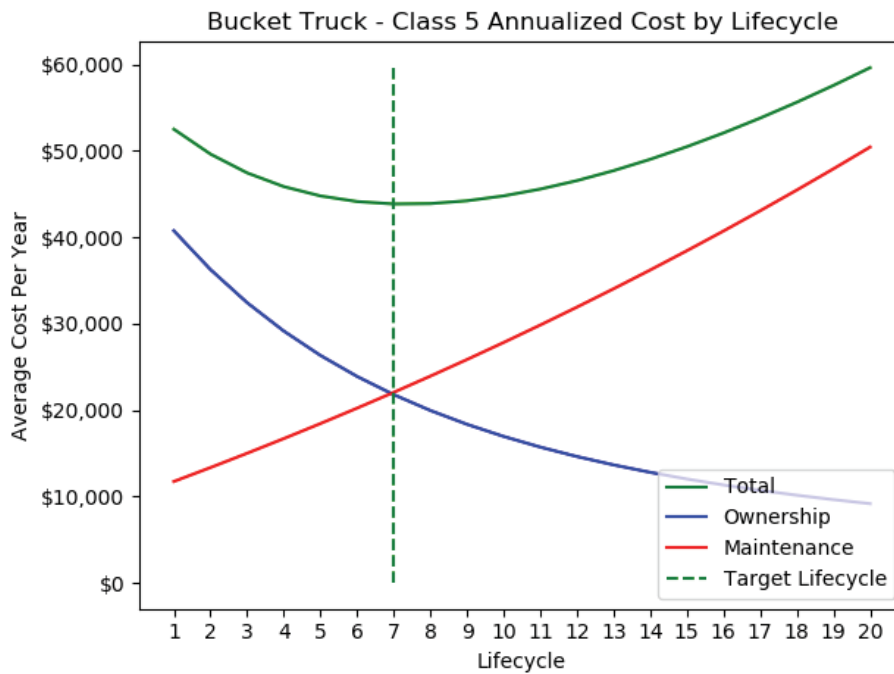
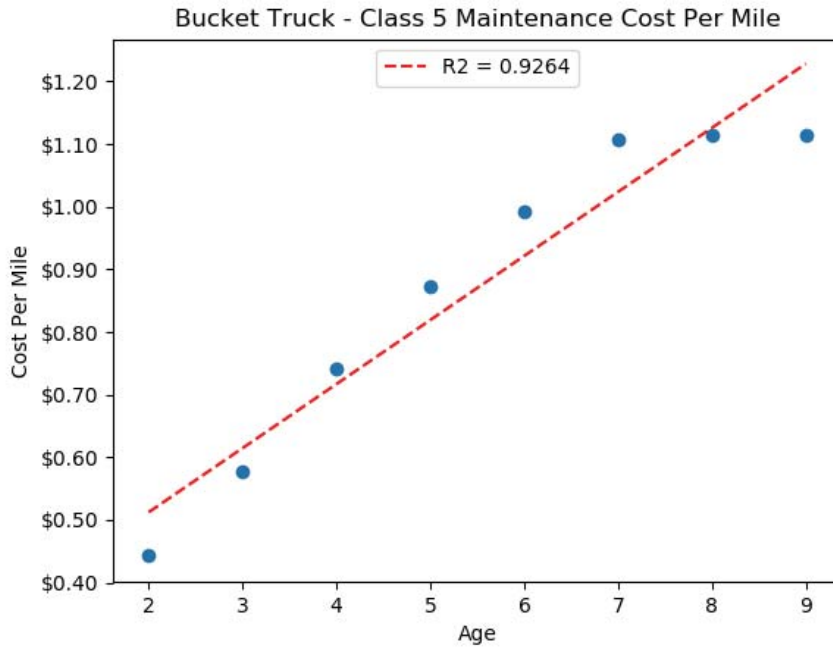
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 26,764.96	\$ 5,812.20	\$ 32,577.16	41.90%
2	\$ 24,575.59	\$ 6,237.16	\$ 30,812.74	34.22%
3	\$ 22,625.00	\$ 6,672.67	\$ 29,297.67	27.62%
4	\$ 20,883.90	\$ 7,118.98	\$ 28,002.88	21.98%
5	\$ 19,326.83	\$ 7,576.31	\$ 26,903.14	17.19%
6	\$ 17,931.63	\$ 8,044.91	\$ 25,976.54	13.15%
7	\$ 16,679.00	\$ 8,525.02	\$ 25,204.03	9.79%
8	\$ 15,552.15	\$ 9,016.90	\$ 24,569.05	7.02%
9	\$ 14,536.39	\$ 9,520.80	\$ 24,057.19	4.79%
10	\$ 13,618.91	\$ 10,036.99	\$ 23,655.90	3.04%
11	\$ 12,788.50	\$ 10,565.73	\$ 23,354.23	1.73%
12	\$ 12,035.36	\$ 11,107.30	\$ 23,142.66	0.81%
13	\$ 11,350.88	\$ 11,661.98	\$ 23,012.86	0.24%
14	\$ 10,727.52	\$ 12,230.04	\$ 22,957.57	0.00%
15	\$ 10,158.67	\$ 12,811.80	\$ 22,970.46	0.06%
16	\$ 9,638.47	\$ 13,407.53	\$ 23,046.00	0.39%
17	\$ 9,161.82	\$ 14,017.54	\$ 23,179.36	0.97%
18	\$ 8,724.17	\$ 14,642.15	\$ 23,366.32	1.78%
19	\$ 8,321.53	\$ 15,281.68	\$ 23,603.20	2.81%
20	\$ 7,950.37	\$ 15,936.43	\$ 23,886.80	4.05%



### Bucket Truck - Class 5

Variable	Value
<b>Lifecycle</b>	7
<b>Purchase Price</b>	\$ 185,000.00
<b>Average Salvage at Sale</b>	\$ 28,198.49
<b>Devaluation Rate</b>	23.56%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	28,100

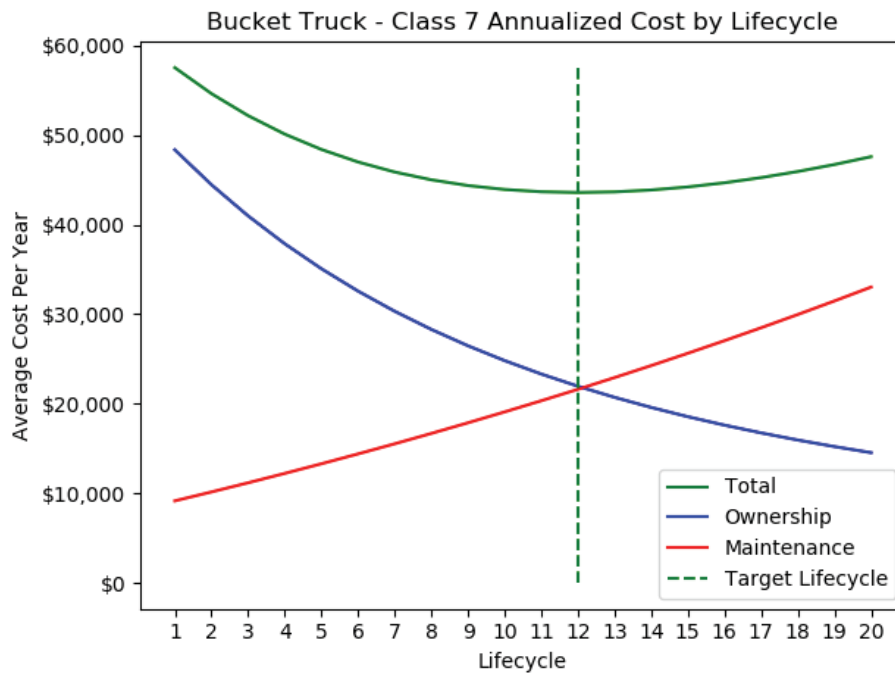
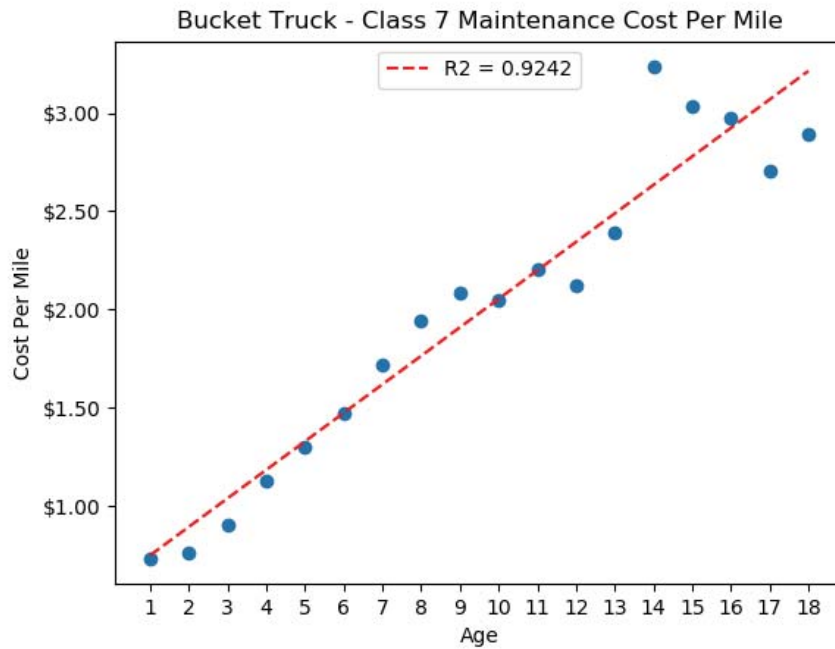
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 40,766.76	\$ 11,751.52	\$ 52,518.28	19.72%
2	\$ 36,275.06	\$ 13,364.25	\$ 49,639.31	13.15%
3	\$ 32,443.23	\$ 15,018.41	\$ 47,461.63	8.19%
4	\$ 29,162.20	\$ 16,714.93	\$ 45,877.13	4.58%
5	\$ 26,342.14	\$ 18,454.75	\$ 44,796.90	2.11%
6	\$ 23,908.93	\$ 20,238.84	\$ 44,147.77	0.63%
7	\$ 21,801.26	\$ 22,068.16	\$ 43,869.42	0.00%
8	\$ 19,968.32	\$ 23,943.72	\$ 43,912.04	0.10%
9	\$ 18,367.94	\$ 25,866.55	\$ 44,234.49	0.83%
10	\$ 16,965.00	\$ 27,837.69	\$ 44,802.69	2.13%
11	\$ 15,730.23	\$ 29,858.20	\$ 45,588.43	3.92%
12	\$ 14,639.14	\$ 31,929.17	\$ 46,568.31	6.15%
13	\$ 13,671.21	\$ 34,051.71	\$ 47,722.92	8.78%
14	\$ 12,809.19	\$ 36,226.97	\$ 49,036.16	11.78%
15	\$ 12,038.56	\$ 38,456.09	\$ 50,494.65	15.10%
16	\$ 11,347.05	\$ 40,740.27	\$ 52,087.31	18.73%
17	\$ 10,724.26	\$ 43,080.70	\$ 53,804.96	22.65%
18	\$ 10,161.37	\$ 45,478.63	\$ 55,640.00	26.83%
19	\$ 9,650.86	\$ 47,935.31	\$ 57,586.17	31.27%
20	\$ 9,186.32	\$ 50,452.03	\$ 59,638.35	35.95%



### Bucket Truck - Class 7

Variable	Value
<b>Lifecycle</b>	12
<b>Purchase Price</b>	\$ 300,000.00
<b>Average Salvage at Sale</b>	\$ 28,704.04
<b>Devaluation Rate</b>	17.76%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	12,000

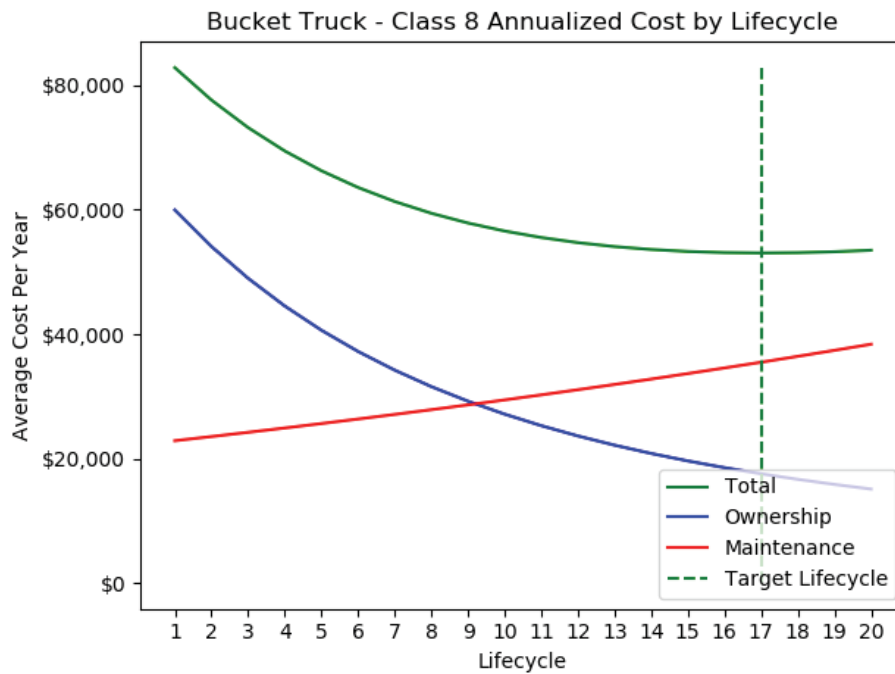
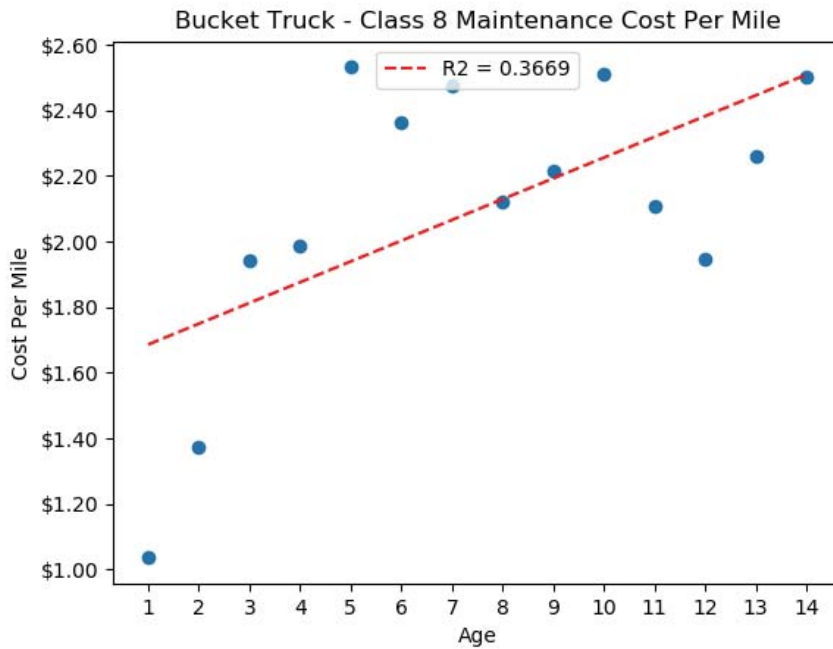
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 48,354.07	\$ 9,172.39	\$ 57,526.46	31.97%
2	\$ 44,457.21	\$ 10,168.98	\$ 54,626.19	25.31%
3	\$ 40,979.08	\$ 11,190.91	\$ 52,169.99	19.68%
4	\$ 37,869.06	\$ 12,238.76	\$ 50,107.83	14.95%
5	\$ 35,083.07	\$ 13,313.10	\$ 48,396.17	11.02%
6	\$ 32,582.66	\$ 14,414.51	\$ 46,997.16	7.81%
7	\$ 30,334.27	\$ 15,543.58	\$ 45,877.86	5.24%
8	\$ 28,308.62	\$ 16,700.94	\$ 45,009.57	3.25%
9	\$ 26,480.08	\$ 17,887.20	\$ 44,367.29	1.78%
10	\$ 24,826.22	\$ 19,103.01	\$ 43,929.23	0.77%
11	\$ 23,327.39	\$ 20,349.00	\$ 43,676.39	0.19%
12	\$ 21,966.36	\$ 21,625.84	\$ 43,592.20	0.00%
13	\$ 20,727.99	\$ 22,934.21	\$ 43,662.20	0.16%
14	\$ 19,598.98	\$ 24,274.81	\$ 43,873.79	0.65%
15	\$ 18,567.61	\$ 25,648.33	\$ 44,215.95	1.43%
16	\$ 17,623.58	\$ 27,055.50	\$ 44,679.09	2.49%
17	\$ 16,757.78	\$ 28,497.06	\$ 45,254.84	3.81%
18	\$ 15,962.16	\$ 29,973.76	\$ 45,935.92	5.38%
19	\$ 15,229.62	\$ 31,486.36	\$ 46,715.98	7.17%
20	\$ 14,553.87	\$ 33,035.65	\$ 47,589.52	9.17%



### Bucket Truck - Class 8

Variable	Value
<b>Lifecycle</b>	17
<b>Purchase Price</b>	\$ 306,000.00
<b>Average Salvage at Sale</b>	\$ 5,363.39
<b>Devaluation Rate</b>	21.17%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	13,300

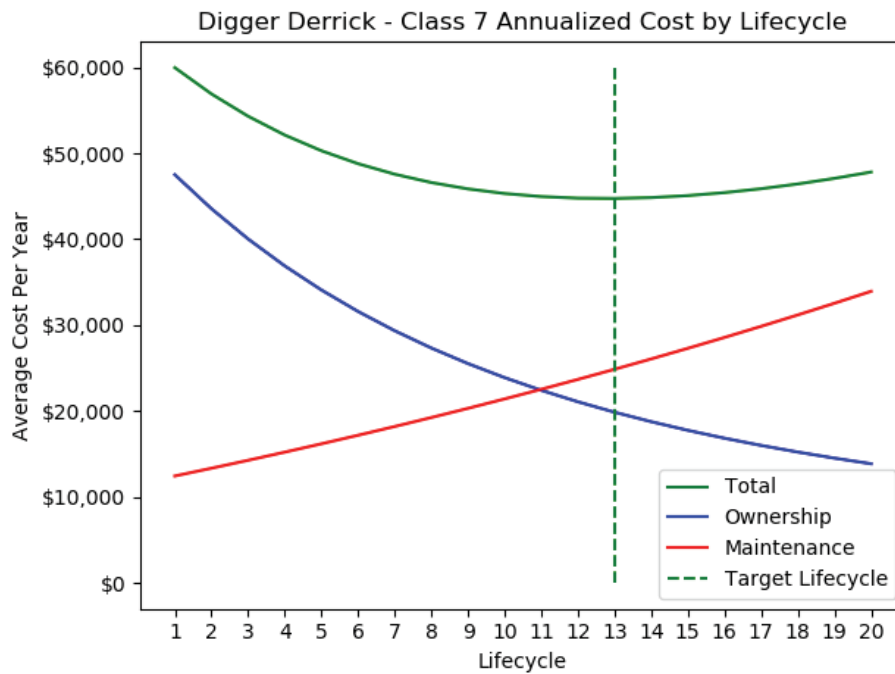
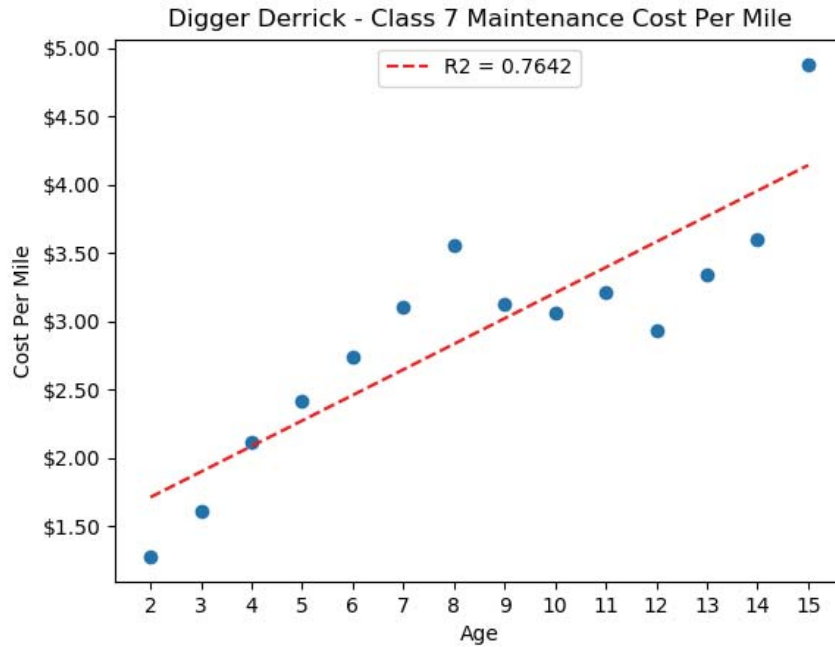
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 59,957.07	\$ 22,875.85	\$ 82,832.92	56.14%
2	\$ 54,083.13	\$ 23,542.46	\$ 77,625.59	46.32%
3	\$ 48,976.48	\$ 24,223.79	\$ 73,200.27	37.98%
4	\$ 44,524.36	\$ 24,920.17	\$ 69,444.52	30.90%
5	\$ 40,631.68	\$ 25,631.89	\$ 66,263.57	24.90%
6	\$ 37,218.17	\$ 26,359.28	\$ 63,577.45	19.84%
7	\$ 34,215.90	\$ 27,102.67	\$ 61,318.57	15.58%
8	\$ 31,567.37	\$ 27,862.40	\$ 59,429.77	12.02%
9	\$ 29,223.78	\$ 28,638.79	\$ 57,862.58	9.07%
10	\$ 27,143.66	\$ 29,432.22	\$ 56,575.88	6.64%
11	\$ 25,291.72	\$ 30,243.02	\$ 55,534.74	4.68%
12	\$ 23,637.85	\$ 31,071.56	\$ 54,709.41	3.12%
13	\$ 22,156.36	\$ 31,918.21	\$ 54,074.57	1.93%
14	\$ 20,825.22	\$ 32,783.36	\$ 53,608.58	1.05%
15	\$ 19,625.59	\$ 33,667.38	\$ 53,292.96	0.45%
16	\$ 18,541.24	\$ 34,570.67	\$ 53,111.91	0.11%
17	\$ 17,558.23	\$ 35,493.63	\$ 53,051.86	0.00%
18	\$ 16,664.53	\$ 36,436.67	\$ 53,101.19	0.09%
19	\$ 15,849.72	\$ 37,400.21	\$ 53,249.92	0.37%
20	\$ 15,104.80	\$ 38,384.67	\$ 53,489.47	0.82%



### Digger Derrick - Class 7

Variable	Value
<b>Lifecycle</b>	13
<b>Purchase Price</b>	\$ 285,000.00
<b>Average Salvage at Sale</b>	\$ 20,582.36
<b>Devaluation Rate</b>	18.3%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	8,000

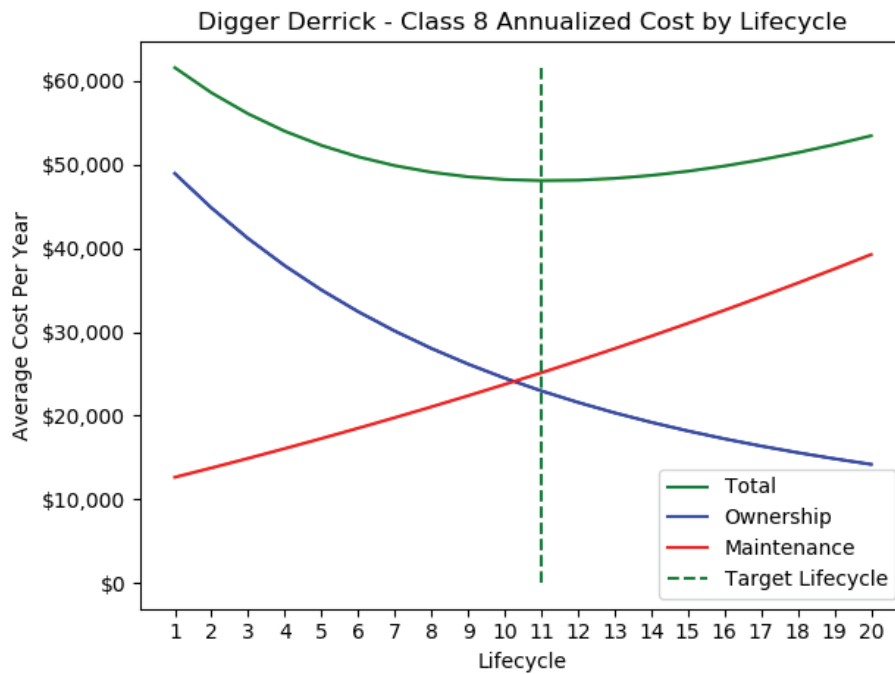
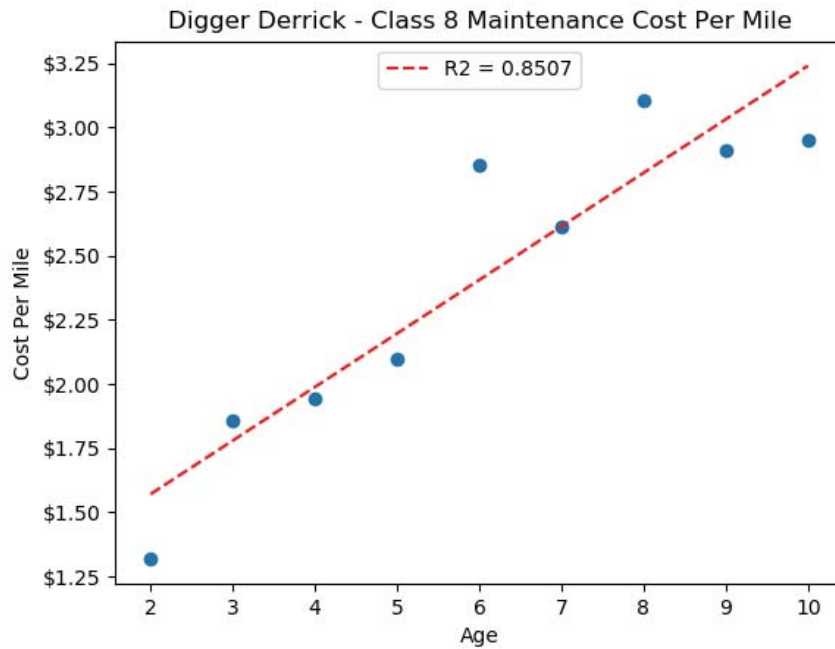
Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 47,508.04	\$ 12,455.09	\$ 59,963.13	34.01%
2	\$ 43,548.37	\$ 13,357.14	\$ 56,905.50	27.17%
3	\$ 40,028.73	\$ 14,281.57	\$ 54,310.30	21.37%
4	\$ 36,894.12	\$ 15,228.89	\$ 52,123.01	16.49%
5	\$ 34,096.86	\$ 16,199.60	\$ 50,296.46	12.40%
6	\$ 31,595.58	\$ 17,194.21	\$ 48,789.79	9.04%
7	\$ 29,354.37	\$ 18,213.24	\$ 47,567.61	6.31%
8	\$ 27,342.01	\$ 19,257.23	\$ 46,599.23	4.14%
9	\$ 25,531.32	\$ 20,326.71	\$ 45,858.04	2.49%
10	\$ 23,898.65	\$ 21,422.26	\$ 45,320.91	1.28%
11	\$ 22,423.34	\$ 22,544.43	\$ 44,967.77	0.50%
12	\$ 21,087.36	\$ 23,693.82	\$ 44,781.18	0.08%
13	\$ 19,874.96	\$ 24,871.00	\$ 44,745.96	0.00%
14	\$ 18,772.35	\$ 26,076.58	\$ 44,848.93	0.23%
15	\$ 17,767.42	\$ 27,311.19	\$ 45,078.62	0.74%
16	\$ 16,849.58	\$ 28,575.46	\$ 45,425.04	1.52%
17	\$ 16,009.50	\$ 29,870.02	\$ 45,879.52	2.53%
18	\$ 15,238.98	\$ 31,195.54	\$ 46,434.52	3.77%
19	\$ 14,530.79	\$ 32,552.68	\$ 47,083.47	5.22%
20	\$ 13,878.55	\$ 33,942.14	\$ 47,820.69	6.87%



### Digger Derrick - Class 8

Variable	Value
<b>Lifecycle</b>	11
<b>Purchase Price</b>	\$ 291,000.00
<b>Average Salvage at Sale</b>	\$ 30,880.05
<b>Devaluation Rate</b>	18.45%
<b>Inflation Rate</b>	2.0%
<b>Average Annual Miles</b>	9,100

Lifecycle	Ownership	Maintenance	Total	Total
1	\$ 48,937.14	\$ 12,642.56	\$ 61,579.69	28.06%
2	\$ 44,822.29	\$ 13,756.86	\$ 58,579.15	21.82%
3	\$ 41,168.76	\$ 14,899.20	\$ 56,067.96	16.59%
4	\$ 37,918.38	\$ 16,070.18	\$ 53,988.56	12.27%
5	\$ 35,020.78	\$ 17,270.44	\$ 52,291.22	8.74%
6	\$ 32,432.33	\$ 18,500.63	\$ 50,932.96	5.92%
7	\$ 30,115.21	\$ 19,761.39	\$ 49,876.60	3.72%
8	\$ 28,036.57	\$ 21,053.41	\$ 49,089.98	2.08%
9	\$ 26,167.85	\$ 22,377.36	\$ 48,545.22	0.95%
10	\$ 24,484.22	\$ 23,733.96	\$ 48,218.18	0.27%
11	\$ 22,964.05	\$ 25,123.91	\$ 48,087.96	0.00%
12	\$ 21,588.45	\$ 26,547.94	\$ 48,136.40	0.10%
13	\$ 20,340.96	\$ 28,006.80	\$ 48,347.77	0.54%
14	\$ 19,207.17	\$ 29,501.26	\$ 48,708.43	1.29%
15	\$ 18,174.45	\$ 31,032.08	\$ 49,206.54	2.33%
16	\$ 17,231.77	\$ 32,600.07	\$ 49,831.84	3.63%
17	\$ 16,369.41	\$ 34,206.03	\$ 50,575.43	5.17%
18	\$ 15,578.83	\$ 35,850.79	\$ 51,429.62	6.95%
19	\$ 14,852.55	\$ 37,535.19	\$ 52,387.74	8.94%
20	\$ 14,183.93	\$ 39,260.10	\$ 53,444.03	11.14%



STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**  
  
**OF**  
  
**JEFFREY D. TOLONEN**  
  
**ON BEHALF OF**  
  
**CONSUMERS ENERGY COMPANY**

March 2021



# Digital Three-Year Plan

2021 - 2023

2021 - 2023

## Digital Three-Year Plan



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2021 - 2023

## Digital Three-Year Plan



### Acronyms

**ADMS** – Advanced Distribution Management System  
**AMI** – Advanced Metering Infrastructure  
**AMR** – Automated Meter Reading  
**API** – American Petroleum Institute  
**ARP** – Asset Refresh Program  
**BYOD** – Bring Your Own Device  
**CD** – Continuous Delivery  
**CI** – Continuous Integration  
**CIP** – Critical Infrastructure Protection  
**C&I** – Commercial & Industrial  
**CARE** Program - Consumers Affordable Resource for Energy  
**CRM** – Customer Relationship Management  
**CXI** – Customer Experience Index  
**D3YP** – Digital Three-Year Plan  
**DER** – Distributed Energy Resources  
**DERMS** – Distributed Energy Resources Management System  
**DIMP** – Distribution Integrity Management Program  
**DR** – Demand Response  
**DRMS** – Demand Response Management System  
**DSCADA** – Distribution Supervisory Control and Data Acquisition  
**EDIIP** – Enhanced Distribution Infrastructure Investment Plan  
**EIRP** – Enhanced Infrastructure Replacement Program  
**eSOMS** – Electronic Shift Operations Management System  
**ETR** – Estimated Time to Restoration  
**EUC** – End User Computing  
**EWR** – Energy Waste Reduction  
**FERC** – Federal Energy Regulatory Commission  
**GIS** – Geographic Information System  
**GSMS** – Gas Safety Management System  
**IAAS** – Infrastructure as a Service  
**IoT** – Internet of Things



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## Digital Three-Year Plan

**IRP** – Integrated Resource Plan  
**IVR** – Interactive Voice Response  
**IWP** – Interval Web Portal  
**MARSEC** – Maritime Security  
**MISO** – Midcontinent Independent System Operator  
**MPSC** – Michigan Public Service Commission  
**MV90** – Multi Vendor 90  
**NERC** – North American Electric Reliability Corporation  
**O&M** – Operations and Maintenance  
**OT** – Operational Technology  
**OTSRA** – OT Security Reference Architecture  
**PAAS** – Platform as a Service  
**PBs** – Peta Bytes  
**PCI** – Payment Card Industry  
**RDBMS** – Relational Database Management System  
**SaaS** – Software as a Service  
**SAIDI** – System Average Interruption Duration Index  
**SCADA** – Supervisory Control and Data Acquisition  
**SOX** – Sarbanes Oxley Act  
**TMD** – Technical Master Data  
**TOD** – Transmission Operated by Distribution (Natural Gas)  
**TSA** – Transportation Security Administration

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## Digital Three-Year Plan



### I. Vision, Drivers and Goals

#### A. Introduction

The mission of Consumers Energy is to provide world class performance and hometown energy service to our customers, with a focus on people, the planet, and Michigan's prosperity. Delivering safe, reliable, affordable, and clean energy, and an exceptional customer experience through operational excellence and a talented workforce can only be achieved with digital solutions as a component.

Our vision for Information Technology (IT) is to be an integral part of the Company's vision for a changing energy world that transforms from a traditional dispatching-centric model to a real-time operation and optimization model.

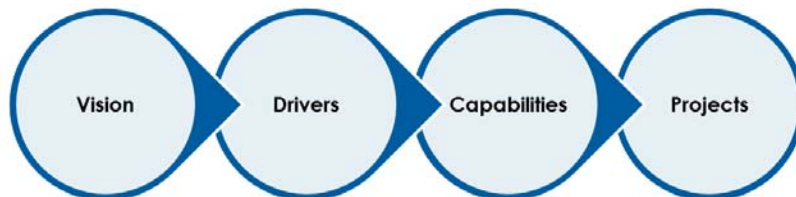
The Digital Three-Year Plan relies on information in Consumers Energy's core business plans, as described in the *Integrated Resource Plan* (IRP), the *Electric Distribution Infrastructure Investment Plan* (EDIIP) and the *Natural Gas Delivery Plan* (NGDP). Key objectives to successfully implementing these plans include:

- Building new systems, enhancing existing systems, and implementing processes to enable the Company to gain knowledge of customers and energy systems. This is necessary to maneuver the delicate balance between energy demand and energy supply safely, reliably, affordably, and cleanly.
- Protecting those systems and processes, ensuring they remain secure.
- Operating and maintaining current systems well to keep them high-performing and reliable.

This plan highlights dependencies on the **foundational** technologies needed to achieve overarching outcomes, which requires the use of new and rapidly-advancing digital capabilities in the market as well as new ways of both delivering and accessing digital capabilities to accelerate our ability to meet employee and customer expectations.

The journey from vision to project identification is depicted below in Figure 1.

**Figure 1 Overview**



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## Digital Three-Year Plan



### B. Business Drivers

In a rapidly changing energy landscape, digital capabilities are essential to achieve the objectives of the Company's business plans for electric and gas delivery to our customers. These business plans are detailed in the Company's NGDP, Electric Grid Integration plans (which encompass the EDIIP and IRP), Customer plans, and supporting business plans of enabling functions across the Company.

The key challenges driving<sup>1</sup> IT for the Company include:

#### 1. Natural Gas

Four key external drivers are proving critical for natural gas service over the next decade—safety, increasing regulation, changing supply and demand patterns, and environmental focus. These external drivers are the impetus for emerging requirements, which can accelerate the need to implement technology.

The NGDP outlines the need to invest in both IT and Operational Technology (OT) to provide the following essential digital capabilities that will enable the Company to provide a safe, reliable, affordable, and clean gas supply to Customers:

- Expanding system monitoring to support 24/7 system control
- Improving data analytics to support asset reliability and optimization
- Achieving the outcomes of optimizing compression and storage assets
- Modernizing the distribution and transmission system
- Incorporating predictive and condition-based maintenance
- Transforming work and asset management
- Ensuring physical and cybersecurity of Company assets
- Achieving methane reductions

This requires investments in new technology, as well as enhancing existing technology assets and processes to keep them operating safely and securely, specifically in the areas of asset management, work management, system automation, billing, security and privacy, and advanced analytics.

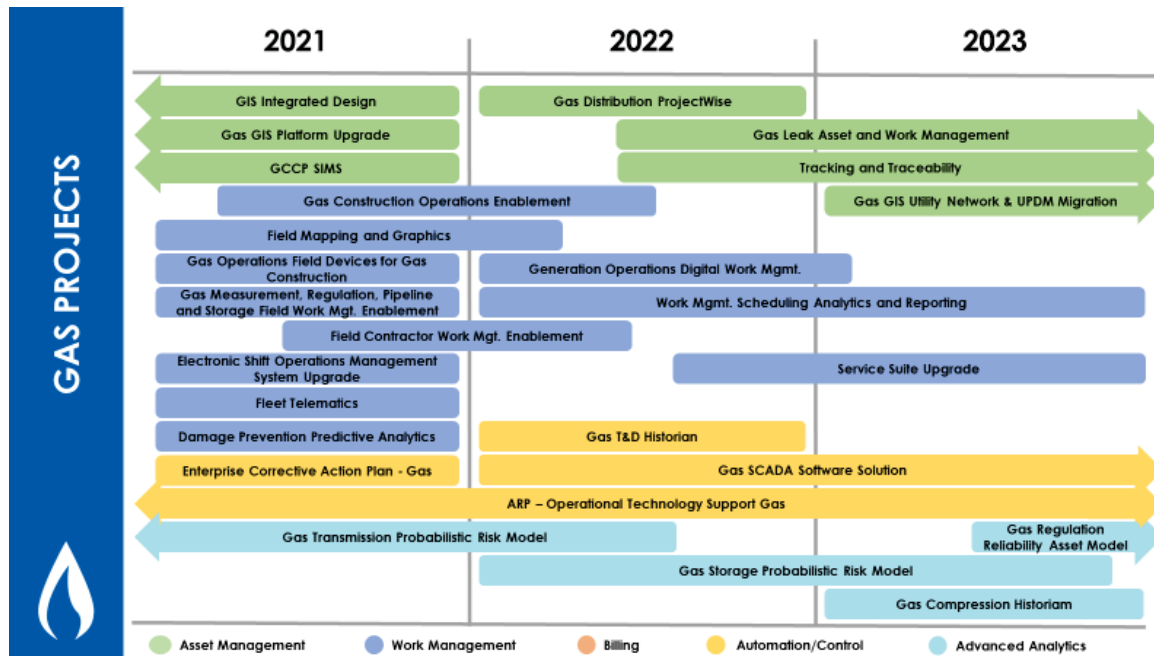
<sup>1</sup> See Appendix A for additional information.

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## Digital Three-Year Plan



Figure 2: Gas Projects



## 2. Electric

The Company's Electric Grid Integration business plan comprises two sub-plans: 1) Electric Distribution and 2) Electric Generation. The key objectives of these two plans and the digital capabilities needed to achieve them are described below.

### Electric Distribution

Five key objectives were identified for electric distribution within the EDIIP<sup>2</sup> (page 1):

- **Enhance cybersecurity, physical security, and safety**
- **Improve reliability and resilience:** Harden key areas of the system, improving system visibility to more proactively operate the system, minimize the number and duration of outages, and better manage voltage.
- **Optimize system cost over the long term**
- **Increase sustainability and reduce waste in the system:** Build more modular and targeted generation units and explore opportunities to promote lower carbon resources where economical.
- **Enable greater control:** Provide customers with data and tools to take greater control over energy supply and consumption, using a more robust communications network to facilitate two-way flows of information.

<sup>2</sup> Filed in March 2018 in Case No. U-17990

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As highlighted in the EDIIP (page 48), achieving these objectives will require integration of distributed energy resources (DERs), and increasing automation of the system, using advanced grid technologies and analytics.

Over the next three years, the needs of electric distribution will require:

- Expanding our foundational capabilities to manage distribution assets
- Building out cyber security and data management capabilities to support OT
- Continuing to build out operational platform capabilities
- Automating interconnection billing functionality, all while continuing to support and upgrade existing systems

### Electric Generation

The Company's generation plan focuses on providing safe, reliable, regulatory-compliant and economic energy and capacity for customers, within the construct of the Company's clean energy objectives and its IRP.

Work that will involve support from IT systems includes:

- **Safety** of employees and the public.
- **Operationally** transform from a traditional dispatching-centric model to a real-time operation and optimization model. Integrated Systems Planning across the traditional generation and distribution resources and DERs will require further integration between resource planning, systems planning, and asset investment planning.
- **Cybersecurity** will become even more important. As more distributed resources are connected at the grid edge, and as supply and demand become more dynamic, more control decisions will be automated either locally or centrally through OT.
- **Communications** infrastructure will be a key component to future grid performance at all levels. Future distribution infrastructure will require modern substations and circuit designs with digital intelligent devices and distributed automation.

The Grid Services Platform spans the electric ecosystem, from customers to back office and OT applications, to field devices, and the connecting infrastructure and networks. The logical architecture and its maturity from the current state to 2-year, 5-year, and 10-year views are shown in Figures 3 and 4 below.

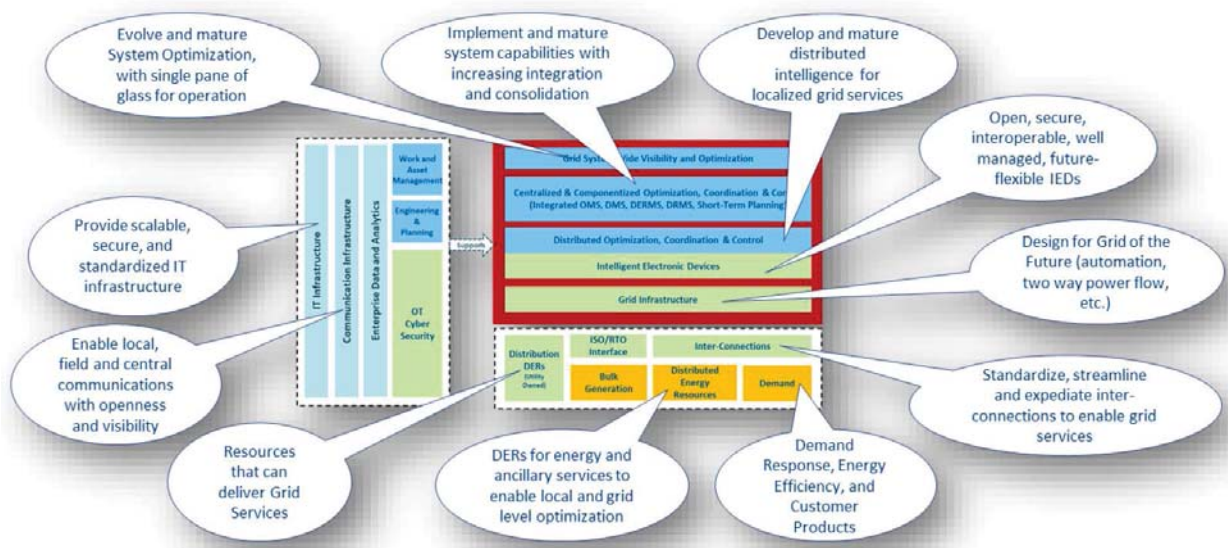
The Grid Service Platform Architecture in Figure 3 includes guidelines the Company will use to achieve the lowest total cost of ownership and maximum value. The EDIIP includes information on capital plans for advanced capabilities for automation and advanced technology. In addition to our standard Investment Planning approach, using approaches that leverage more limited, phased implementations, such as that for DERMS, will allow the Company to gain experience and make the best platform decisions from a cost-benefit perspective.

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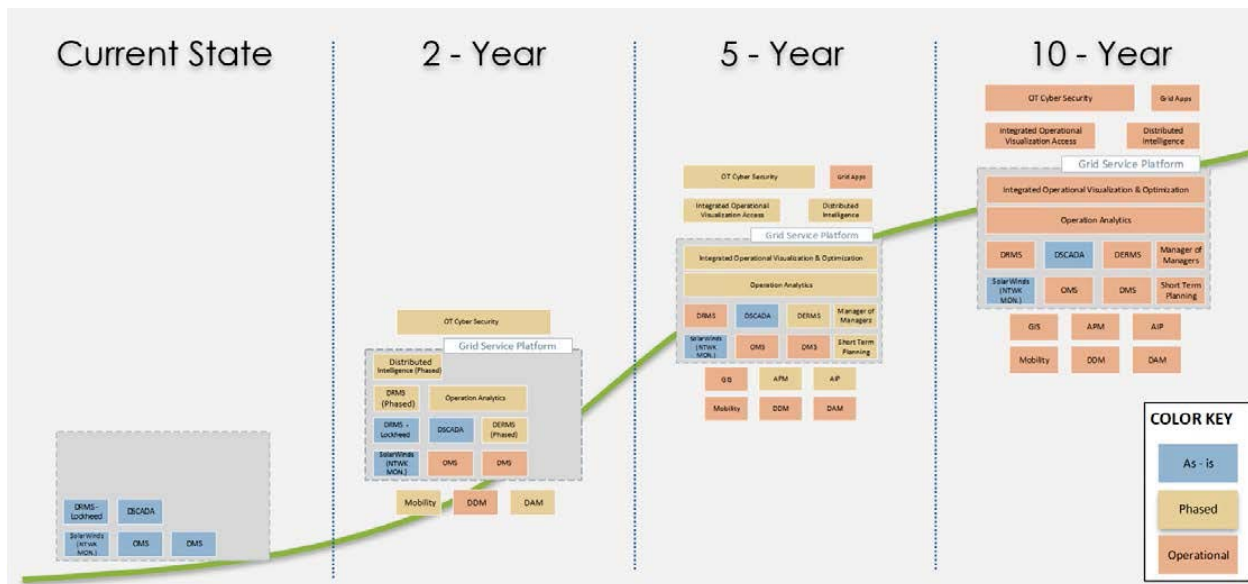
## Digital Three-Year Plan



**Figure 3: Grid Service Platform Architecture**



**Figure 4: Grid Service Platform Maturity**

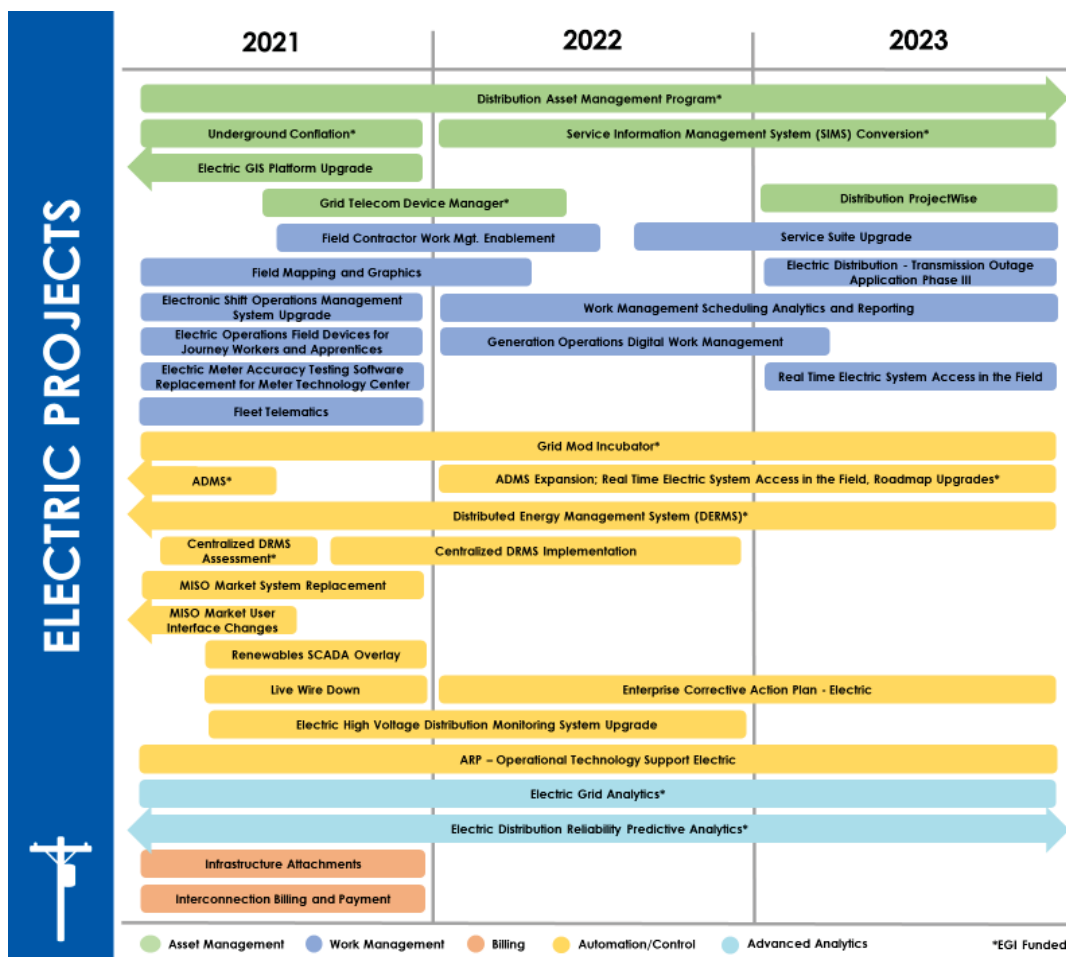


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## Digital Three-Year Plan



Figure 5: Electric Projects



### 3. Work Management Common to Gas and Electric

Improved Work Management digital capabilities are needed across both the NGDP and Electric Plans:

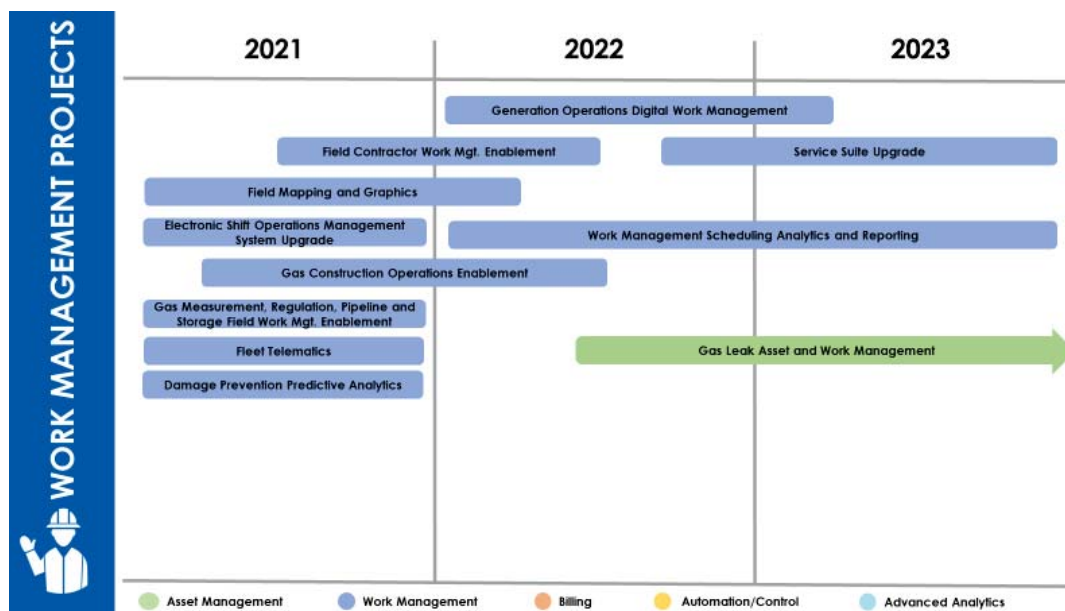
- Scheduling, work forecasting, resource and work planning improvements
- Assigning work to external contractors
- New field mapping and graphics
- High-performing, intuitive and supported applications for field workers
- Telematics for vehicles
- Standardized digital solutions for communication and collaboration
- Continuous improvement, and leveraging new technologies

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## Digital Three-Year Plan



Figure 6: Work Management Projects



### 4. Customer

Our plan to maintain a high level of service to our customers relies heavily on digital investments, specifically in three areas:

- lower cost of service
- increased customer engagement and enrollment in programs supporting IRP targets
- increased reliability of customer digital platforms

The Company keeps a daily score of performance through a Customer Experience Index (CXI), based on surveys of our customers following their interactions with the Company, allowing insight into and direction for digital experiences.

- The quality of service will increase through enhanced digital platforms and options that allow the customer to receive service in **the channel of their choice**.
- Intuitive, faster, and tailored options will reduce cost and support the Company's goal to assist customers in transitioning live calls to digital transactions from 2017 to 2023. Roughly 40% of customers that are served by live agents each year desire to complete their transactions in a digital channel.
- Energy Waste Reduction (EWR) and Demand Response (DR)** programs and products enable the customer to manage their usage to directly impact their bill. This requires stable integrations to connect the customer and the Company, a robust analytics engine to understand usage patterns, and automated digital communication.
- Each customer platform must be available during critical times of need. Our goal for the Customer Portal is a 99.6% completion rate on key customer transactions, and only allowing downtime for routine maintenance. **Automating upgrades and maintenance** on supporting systems reduces this downtime.

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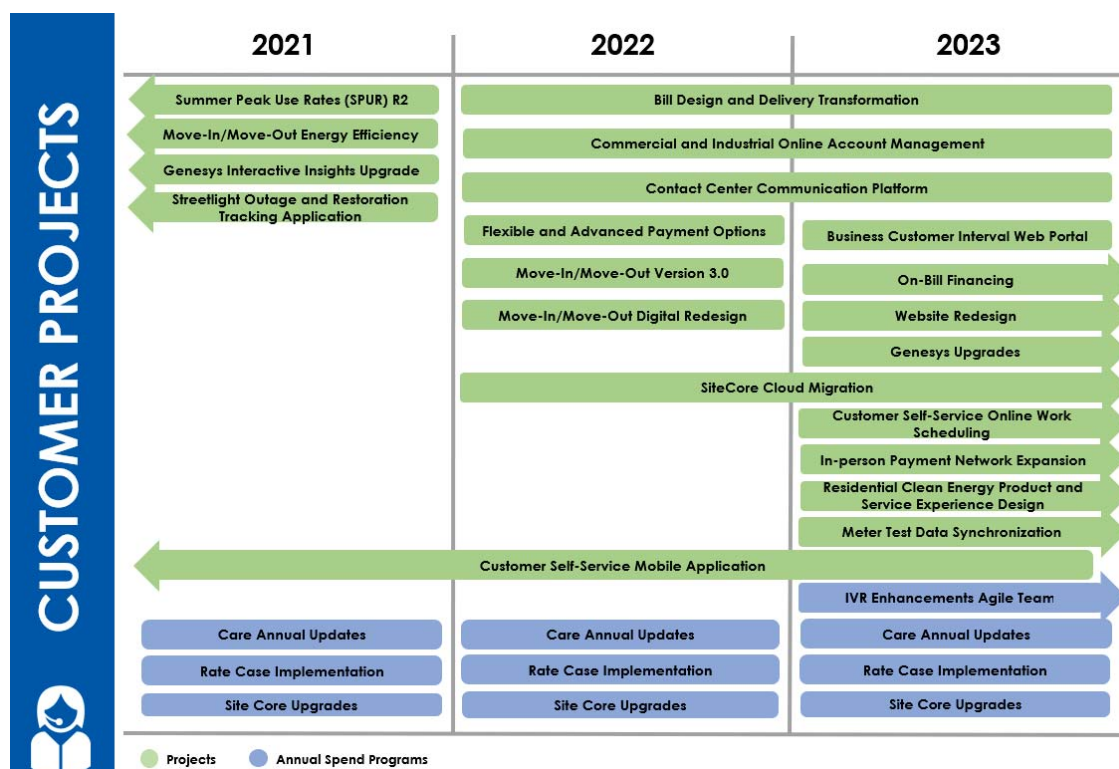
## Digital Three-Year Plan



Additionally, using **appropriate cloud and integration solutions** can ensure systems remain available during high customer load times in storm situations.

- Keeping our systems **secure** is paramount for customer facing applications. Customer data is treated with the utmost sensitivity, and our website is routinely tested for security deficiencies.

Figure 7: Customer Projects



### 5. Corporate

Beyond the utility-specific business plans of Gas, Electric, and Customer are plans for areas that provide the core shared service business functions and corresponding key capabilities necessary to operate a world-class, public, regulated utility company.

These include Finance, Supply Chain, Environmental, Human Resources, General Counsel, Legal, and Risk Management and Governmental and Public Affairs.

- Finance plans to expand the use of digital to enable integrated business planning and improved financial transparency and operational reporting.
- Supply Chain plans to use digital to enhance sourcing and procurement, optimize inventory, automate warehouse and logistics management, track and trace materials, and manage supplier non-conformances.
- Environmental aims to expand use of digital systems to reduce water usage, reduce waste sent to landfills, and improve land protection and enhancement.

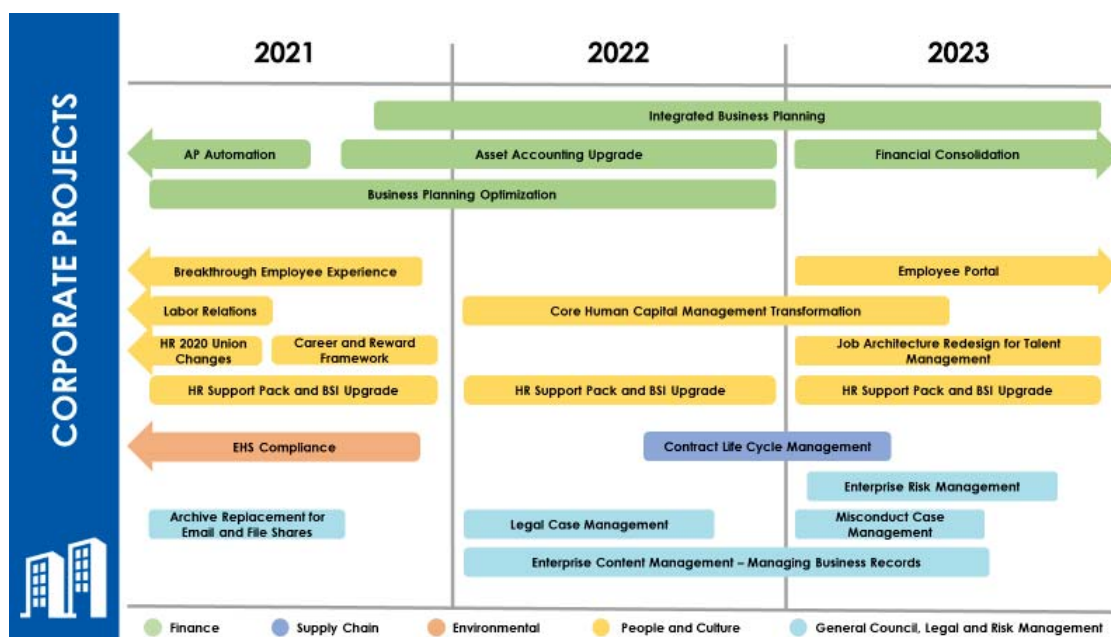
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- Human Resource (recently retitled as *People and Culture*) plans to use automation to improve the employee experience, build new skillsets internally at scale, and provide consistent communication to all co-workers Company-wide using enhanced digital communication capabilities.
- Legal plans to leverage digital capabilities for better records management.

Figure 8: Corporate Projects



## 6. Technology

Our business plans have a high dependence on a core set of foundational technologies to achieve our targeted outcomes:

- As part of our annual planning process, we look for opportunities to optimize subscription, licensing, and support costs. We also evaluate past decisions in the light of available and upcoming solution options. We then select the best options from cost, benefit, architecture, and risk perspectives. Any changes in direction are reflected in business cases and plans for upcoming years. From an architecture perspective, we look for inter-operability, standards compliance, and fit with existing solutions to future-proof the solution we choose as much as possible. This approach applies broadly to technology choices and especially to cloud and analytics.
- The use of public cloud services changes the investment mix and operating model for technology solutions.
  - Cloud services shift the IT cost model from heavier capital investment in hardware and software to O&M subscription costs that scale up with each level of service subscribed.

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- Cloud services also require new operational models, upgrade plans, and costs to administer Company use of the various service platforms. While cloud vendors can update some solutions with little noticeable impact to Company users, other vendors employ frequent upgrade schedules.
- As more of these services are integrated with other applications, more upgrade projects will be required to ensure continued interoperability.
- Appendix A, under section 6. Technology, 1. a. Cloud (page 52) describes some of the advantages offered by cloud, and are reasons to consider a cloud solution over an on-premise option.
- The Company's business plans highlight the criticality of having the insights provided by data and analytics to achieve the desired outcomes for our customers.
  - Complete, accurate data is foundational to reliable reporting and analytics. Data management tools will enable us to systematically address data quality gaps.
  - Currently, we do not have the high-computing hardware needed for advanced analytics or the platforms to build analytics at scale. These capabilities are readily offered by cloud platforms. Building the integration capabilities to transfer data at scale to cloud platforms is a prerequisite.
  - The enterprise data lake and visualization tools need to scale up to meet demand.
- Our technology landscape consists of a complex set of integrated systems. Enabling integration and maintaining the interoperability between frequently changing systems are significant cost components in building and operating digital solutions.
  - We need to evolve and enhance our existing integration tools to connect new internal and external systems, services and data. These include APIs (Application Programming Interface), streaming data integration, and ETL (Extract, Transform, Load) capabilities for large data sets.
- Digital capabilities rely on robust, ubiquitous, and secure network access and infrastructure. We will ensure our networks continue to support expanding communications needs by doing the following:
  - Maintaining our Core Network and Local Area Network upgrade plans
  - Addressing our needs and current system risks with the Michigan Public Safety Communication System (MPSCS) for real time voice communications
  - Scaling highly secure critical networks to support real-time OT communications
  - Improving field communication by researching options
- Automation Platforms allow employees without specialized IT knowledge or training to take advantage of tools to automate common tasks that would normally require repetitive and time-consuming human interaction.
- No-Code / Low-Code Solutions allow for the creation of IT applications using drag-and-drop visual design tools instead of traditional programming. We have begun to empower employees outside of IT to make use of these tools, to become what we refer to as 'Digital Producers.'

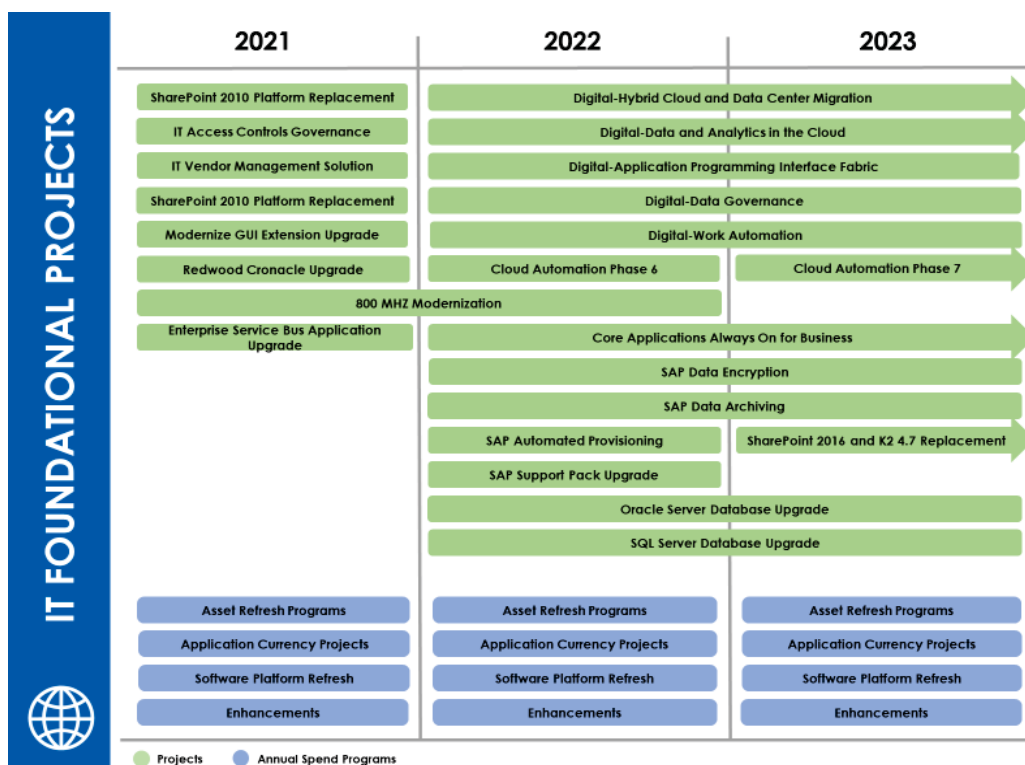


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- Due to the pace of change, the planning horizon for technology is short. We can plan for some opportunities with the best information known at the time. However, our ability to provide detailed estimates in longer time horizons is limited. The often-accelerated advancement of new digital capabilities also requires the ability to invest in unplanned, yet prudent emergent projects.
  - Investments, both planned and unplanned, in data and analytics, automation, self-service, and other cloud services multiply the benefits provided by existing technology assets by layering on new digital capabilities.
- The need to digitize and modernize utility systems in both IT and OT environments creates and magnifies cyber security concerns. Modernization efforts and increased threats require resourcing, investment, new standards development, and maturity of cyber security programs.
  - As security threats continue to rise, so does concern from both state and federal regulators. Security teams are facing a significant increase in regulatory requirements and the associated scrutiny.
  - At the state level, the Michigan Public Service Commission (MPSC) has added cyber security requirements to both the gas and electric technical standards.
  - At the federal level, the North American Electric Reliability Corporation / Critical Infrastructure Protection (NERC/CIP) standards continue to evolve and increase requirements and scrutiny. The most recent iteration of the standards brought many more assets into scope, and the Company expects additional requirements will continue to be added.

Figure 9: IT Foundational Projects





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## Digital Three-Year Plan

### C. Final Overview

Digital capabilities are key to maturing the capabilities needed by the Company's plans for our gas and electric systems. The focus over the next three years includes:

- Expanding our foundational capabilities to manage our Company assets
- Building out operational platform capabilities, with a focus on cyber security and data management
- Enhancing customer digital platforms
- All while continuing to support and upgrade existing systems

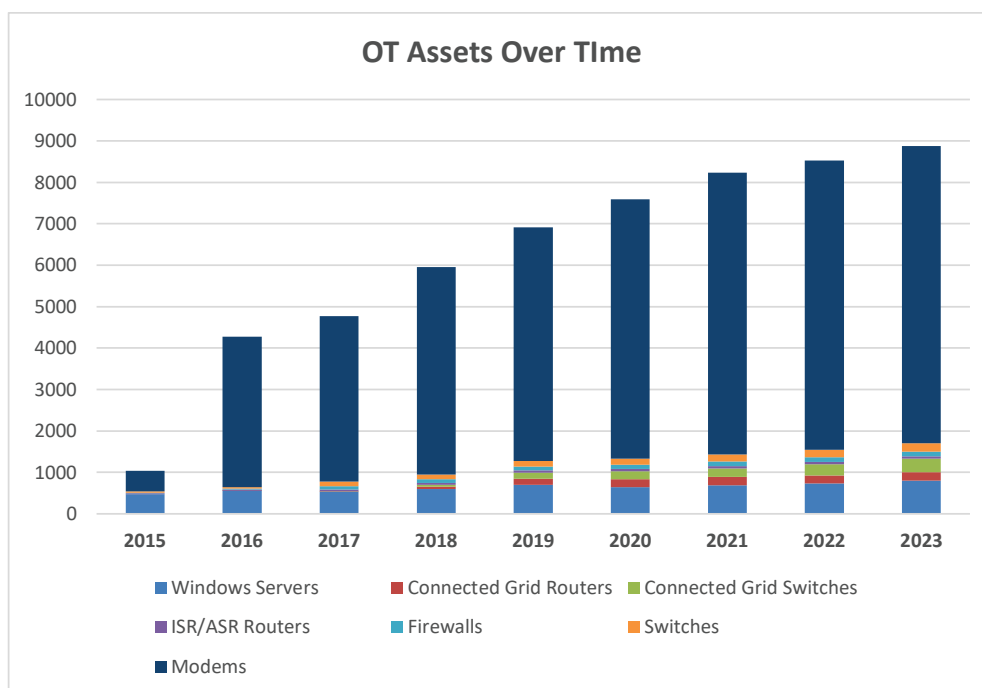
The Company's investments in the digital capabilities outlined above will be delivered on top of a digital asset base that has seen a significant pattern of growth in the last five years. It is this growing and evolving asset base that makes the business and technical capabilities we have today possible.

As this digital asset base expands to support critical business operations in an environment of expanding cyber threats, so do the requirements and resources necessary to ensure those assets remain high-performing, reliable, and secure.

**NOTE:** For an overview of the Company's current digital assets, refer to section II. *Digital Asset Overview*, and for even greater detail, refer to Appendix B: *Digital Asset Overview Details*.

A good example of historic and future asset growth is in the OT domain. As illustrated in Figure 10, since 2015, digital assets in OT have increased by more than 700% due to deployment of new capabilities. In addition, the number of assets is projected to continue to increase year-over-year through the next three years as a result of additional grid-connected devices, DERs, gas remote control valves, and other system telemetry.

**Figure 10: High Growth of Operational Technology Assets (Historic and Projected)**





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## Digital Three-Year Plan

The following goals have been set with metrics to ensure that the Company meets the needs of those we serve. While closely aligned with business needs, these goals target the IT needs of the Company. The first three goals in **bolded text** are specific to IT, and the rest are business goals where IT is a key contributor.

**Table 1: Goals and Metrics**

Goals	2021 Target	2022 Target	2023 Target	Digital Needs <sup>1</sup>
<b>Customer Portal Availability<sup>2</sup> (% of successful online transactions)</b>	99.6%	99.6%	99.6%	<b>Web platform, Underlying foundational capabilities (network, data center, server, storage, databases, security), IT Operations</b>
<b>Mean Time To Restore<sup>3</sup> (MTTR, in days, across all IT incidents)</b>	3.5	3.2	3.0	<b>IT/OT Asset refreshes, Upgrades, IT Ops automation, Service Management</b>
<b>Patches On-time<sup>4</sup> (average number of patches not applied)</b>	2 or less	2 or less	2 or less	<b>Cloud (Nimbus) automation, Upgrades, IT Ops automation</b>
Electric reliability SAIDI (System Average Interruption Duration Index) <sup>5</sup>	194	189	183	Analytics, Preventative vegetation management, Asset management, Work management, Field mobility, Fleet, Scheduling and Planning
Demand Response (DR) Annual targets at peak <sup>6</sup>	531 MW	607 MW	687 MW	Analytics, CRM, DRMS systems, Integration
Energy Waste Reduction (EWR) Annual generation targets at peak <sup>7</sup>	665 MW	718 MW	756 MW	Analytics, CRM, Data management
Distributed Energy Resources Integration (% of DERMS-enabled solar penetration) <sup>8</sup>	1%	2%	3%	Grid Mod projects, DERMS phased implementations, Cloud, Integration, Networks, Analytics
Customer Experience Index (CXI - daily score based on customer surveys after their interaction) <sup>9</sup>	78	79	80	Customer Digital platforms (Web, IVR, Mobile), CRM, IWP, Work Management, Data and Analytics, Integration, Cloud
Gas Demand Response Pilots (number of events) <sup>10</sup>	10	TBD	TBD	Analytics, CRM, DRMS systems, Integration
Gas Safety Management System Maturity Level (score in the range of 1 to 5) <sup>11</sup>	3.0	3.15	3.3	Data and Analytics to align with API (American Petroleum Institute) standards, Probabilistic Risk Models, SCADA, Work Management



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## Digital Three-Year Plan

### Table 1 Footnote Details

<sup>1</sup> For each goal, the key digital capabilities needed to achieve the goal are listed in the *Digital Needs* column. IT contributes to the business goals by successfully implementing and operating the digital capabilities the goals are dependent on. Sign-off on User Acceptance Testing (UAT), go-live of the feature release(s), and smooth operations thereafter measured by system up-time and/or number of production incidents, are gates and measures to confirm IT's contribution to a goal was successful.

<sup>2</sup> Customer Portal Availability is an aggregate percentage that measures the successful completion of four key transactions on the Consumers Energy website: *Login, Pay Bill, Move-in/Move-out, and Report Outage*. Measuring the website in this fashion ensures that it is available, and that common business transactions are operational for our customers, providing a direct correlation of this metric to the CXI scores that we receive daily. The target was 99.4% in 2020, and was increased to 99.6% for 2021.

<sup>3</sup> Mean Time to Restore (MTTR), also referred to as Mean Time to Repair, is an industry standard used to measure the time it takes to restore or repair an asset. IT Infrastructure Library (ITIL) is a widely accepted approach to running effective IT services. ITIL defines an incident as a single, unplanned event that causes a service disruption. In our case, MTTR is the time to restore any IT incident, whether it is a severe incident such as an outage of the Company website or a minor incident such as a single employee facing a disruption with one application on their laptop. MTTR is calculated by summing up the time it takes to restore all incidents for the year divided by the number of incidents. While this goal applies to all incidents, we have a greater focus on reducing high priority incidents. Our targets for this goal are based on planned continuous improvements to past values, namely, timely upgrades and asset refreshes, automation, and process improvements. In 2019, our baseline was 5.27 days and we improved it to 4.22 days in 2020.

<sup>4</sup> Patches are software updates that address security vulnerabilities and performance issues within a product. The Patches On-Time goal is measured as an average of the number of patches that are available and have not yet been applied to various IT systems such as operating systems, databases, and applications. The target of keeping the average number of pending patches below two was set by Security.

<sup>5</sup> Reference Case No. U-20963, direct testimony of Richard T. Blumenstock Figure 1, and corresponding Q&A for reliability metrics and rationale. 2021-2023 figures represent performance glidepath to 2025 projection of 170.

<sup>6</sup> Reference Case No. U-20165 Exhibit A-60 (PCE-1) – 2018 IRP Demand Response.

<sup>7</sup> Reference Case No. U-20165 Settlement Agreement paragraph 2.

<sup>8</sup> Represents a reasonable early glidepath based on the assumption that 25% of solar capacity in the next 10 years will be 'DERMS capable'.

<sup>9</sup> Customer Experience Index (CXI) is a daily score as well as open-ended comments that we receive directly from our customers for our digital and live channels. CXI is an industry standard from Forrester, and a two-point lift from one year to the next is considered as world class performance improvements. We ended 2019 at 69, and 2020 at a 76, hence the two-point increased target of 78 for 2021. On the Forrester scale, the range of 75-85 is considered "good", while 85+ is considered "excellent". Scores and comments are used to determine areas of digital and live projects, enhancements, and fixes to improve customer service.

<sup>10</sup> The target of 10 events was selected to align with Electric Demand Response Programs, as the current programs operate between 10-14 events.

<sup>11</sup> Reference Case No. U-20650, Exhibit A-36 (CCD-1) – *Natural Gas Delivery Plan Section IX*, subsection A. Gas Safety Management System.



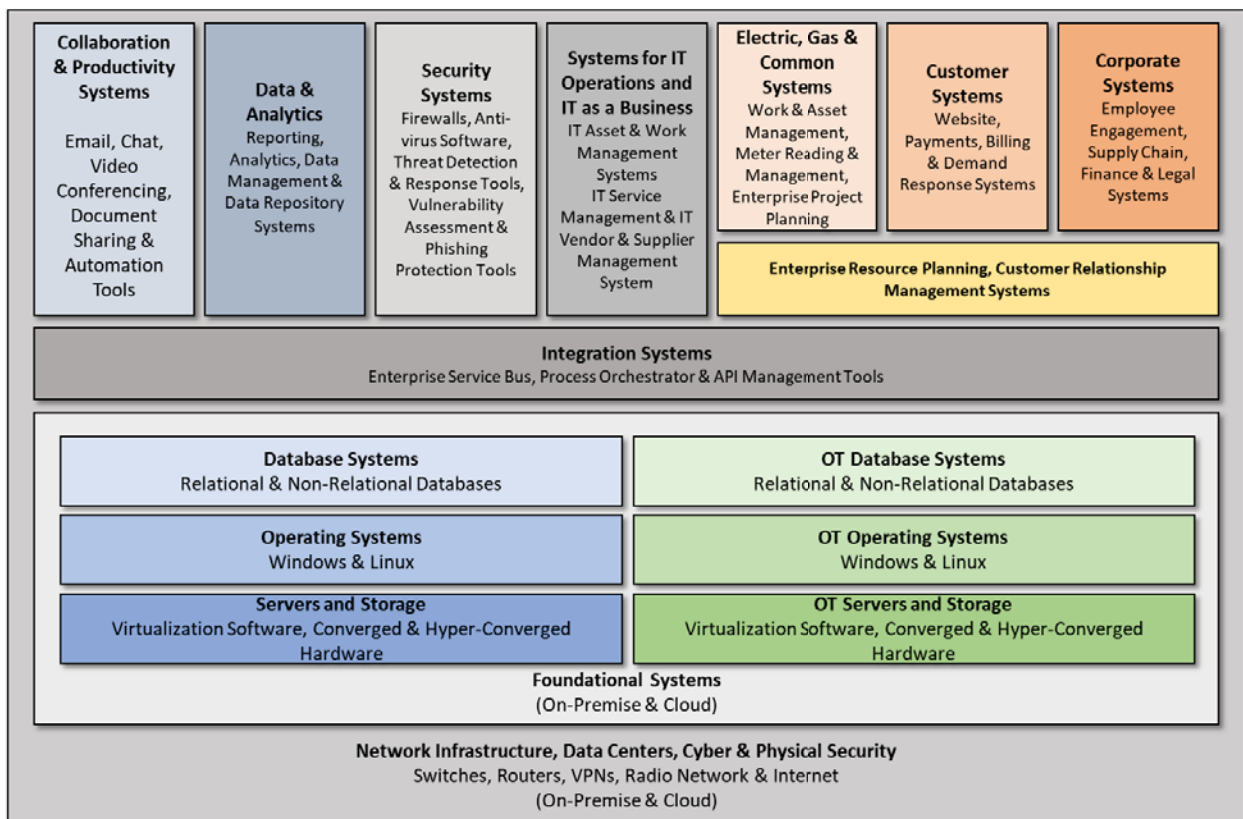
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## Digital Three-Year Plan

### II. Digital Asset Overview

The Company's current digital landscape is depicted in Figure 11. This logical architecture representation takes a layered or building-blocks approach, where each layer builds upon the ones below. Core components like networks and data centers are at the bottom, upon which foundational infrastructure like servers and storage can host the more independent systems in the uppermost layers.

**Figure 11: Digital Landscape Major Components**



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## Digital Three-Year Plan



The Company's digital assets are described below. Further detail can be found in Appendix B: *Additional Detail on Digital Asset Overview*.

**Network Infrastructure** - delivers data and voice communication capabilities across the Company's facilities and territory.

- The **LAN** (Local Area Network) connects devices within a building. **Switches** are the key network infrastructure components used in a LAN.
- The **WAN** (Wide Area Network) connects buildings to the Core Network. **Routers, Fiber Rings, the Company's Virtual Private Network (VPN) and telecommunications carrier-provided services** are the key network infrastructure components in a WAN.
- The **Core Network** is where all the network traffic from the WANs, the server, and storage infrastructure at the data centers, public cloud vendors, and the Internet intersect.
- The **Radio Network** enables real time voice communications between the Company's dispatchers and field crews.
- **The Internet** is the conduit for access and connectivity to customers and external partners.

**Data Centers** – These are the dedicated spaces that house the Company's computer systems and associated components. The Company has two data centers: one at the Company's Parnall location and another co-located data center hosted by a third-party data center provider in Grand Rapids.

**Server Infrastructure** refers to the combination of computer, memory, and data storage hardware and software that collectively form a 'server.' The Company's business-critical systems are comprised of software applications installed and operated on servers. The Company uses almost entirely converged and hyper-converged infrastructure today.

**Storage Infrastructure** refers to the data storage systems—**Block storage** for data from most business-critical applications like our Enterprise Resource Planning system and **File storage** for files on shared drives. **Back-up / Data back-up** copies computer data and stores it elsewhere for retrieval and restoration after a data loss. Disaster Recovery systems provide recovery of business-critical systems if the primary data center is offline.

**Cloud Computing Services** – Cloud computing offers computing resources to host applications in an automated, self-service fashion. The Company uses two types of cloud computing services—private and public.

**Collaboration and Productivity Systems** – The Company's Collaboration and Productivity systems can be grouped into three general categories: Telephone Communications Systems, Multimedia & Video Conference Hardware, and Collaboration Software and Hardware.

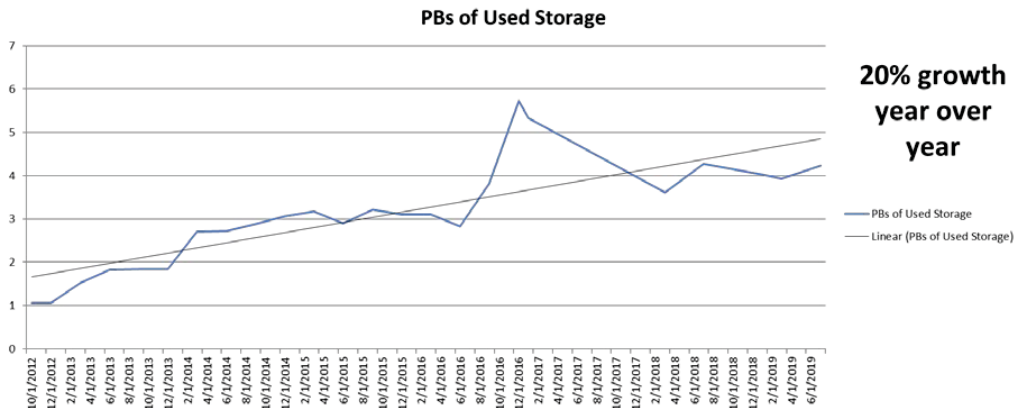
**End User Computing** – EUC is comprised of Service Desk, desktop, and IT purchasing services.

**Database Systems** – Roughly 175 of the Company's business applications rely on an underlying Relational Database Management System (RDBMS) to store, retrieve and update data. The amount of data stored, measured in Peta Bytes (PBs), has been growing steadily as shown in Figure 12.

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## Digital Three-Year Plan

**Figure 12: Storage Usage and Growth**

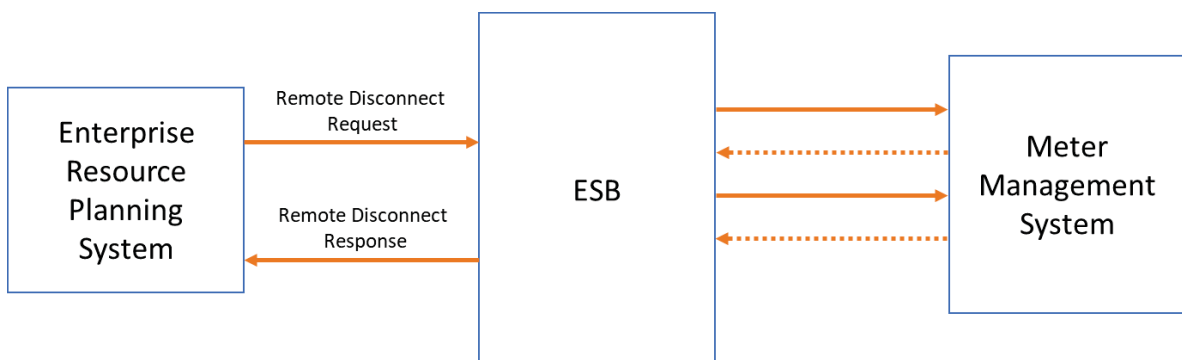


**Data and Analytic Systems** – Consumers Energy has a variety of integrated technologies to support both *reporting* (the ability to use pre-organized data to monitor a business function) and *analytics* (using data to answer a quantitative business question). Capabilities include analytics in the cloud; machine learning; integration systems; extract, transform and load tools; and automation platforms.

**Integration systems** provide the capabilities of application and data integration, i.e., connecting different systems (internal and cloud) to orchestrate business workflows and synchronizing data.

- *Process Orchestration* refers to the capability of integrating two or more applications together to automate a process, while *Data Orchestration* refers to the timely synchronization of data across multiple systems.
- The Enterprise Service Bus (ESB), Electronic Data Interchange (EDI), Secure File Transfer, ETL (extract, transform and load) tools and API Management are some of the key integration technologies used.

**Figure 13: Process Orchestration Example**

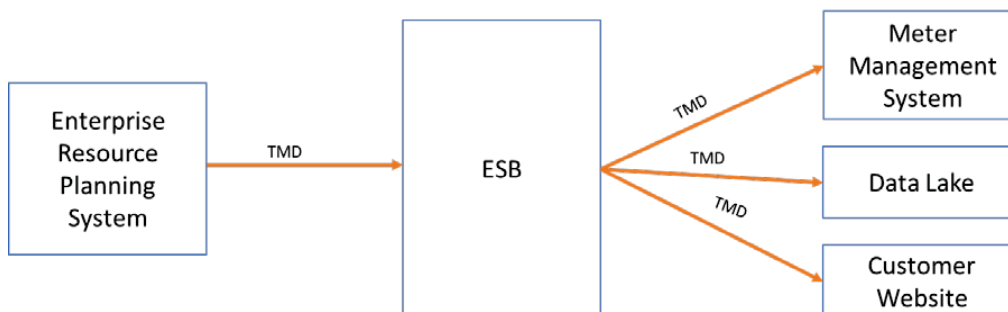


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**Figure 14: Data Orchestration Example**



**Security Systems** – Security is a separate peer organization to IT within the Consumers Energy organizational structure. Security systems are represented into three broad categories – Cyber Security, Governance, Risk and Compliance, and Physical Security.

**Enterprise Resource Planning (ERP) / Customer Relationship Management (CRM) systems** – The Company uses ERP and CRM systems for financial management processes, payroll and timekeeping, work order management, asset management, customer billing, contact center interactions, supply chain management, and many other business functions.

**Operational Technology** – OT at the Company is hardware and software that directly monitors and/or controls industrial equipment and assets, including generation plants, electric and gas infrastructure and smart meters. This technology includes:

- **Network Infrastructure** – LAN and WAN OT components that are separate and distinct to meet specific compliance and information security requirements.
- **Field Area Network (FAN)** architecture that supports multiple gas and electric distribution devices, using well-established carrier-based wireline and cellular networks.

**Server and Storage** – The Company operates 750 servers and 10 storage systems in the OT security zones, which are commensurate with the level of access and control most appropriate for Industrial Control System/Distribution Control System (ICS/DCS) networks.

**Common Systems** – digital capabilities needed to support electric and gas

- Work Management - used to manage, plan, and schedule all Electric and Gas work orders
- Asset Management – maintains Company assets, monitors system integrity, and assesses risk
- Meter Management – captures customer energy usage
- Investment Planning and Project Management – estimates and models construction projects

**Electric Systems** support business process for electric engineering and operations

- Energy Portfolio Planning – provide for economic and reliable integration with MISO, energy dispatch and operations, and demand response
- Asset Management – monitors and tracks electric assets such as substations and lines
- Work Management – provides for inspections, customer outages, and restoration
- Transmission, Distribution and Generation – allows for real-time monitoring and control
- Compliance and Risk – used for FERC compliant filings

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**Gas Systems** support business processes for gas engineering and operations

- Energy Portfolio Planning – provide for gas dispatch, operations and load forecasting
- Work and Asset Management – used for modeling and analyzing of gas distribution systems
- System Automation and Control – enables planned and unplanned event management, real time monitoring control, and system optimization
- Advanced Analytics – reporting and modeling systems on gas data

**Customer Systems** – customer facing as well as back office processing for customers

- Customer Experience and Design – website used for payments, reporting outages, energy waste reduction, demand response programs, and more
- Customer Experience Communication – paper and digital presentment of bills and other customer correspondence documents
- Payment and Billing – provides for secure digital payments, nightly batch bill processing, low income payment assistance, direct payment offices, and collections
- Customer Contact Center – enables customer call-in inquiries and requests
- Customer Analytics and Outreach – platforms and data to enable energy waste reduction and demand response communications
- Customer Analytics Data Lake – customer data used for modeling, analysis, and problem solving
- Energy Waste Reduction and Demand Response – gives customers the ability to reduce consumption and enroll in energy reduction during high usage times

**Corporate Systems** enable key functions of Human Resources, Finance, Supply Chain, Governmental, Regulatory, Public Affairs, and other centralized functions

- Talent – supports activities associated with HR such as benefits, compensation, onboarding, and employee performance management
- Finance – includes payroll, financial planning and analysis, accounts payable, tax, budgeting, portfolio planning, forecasting, and sales and revenue forecasting
- Legal – provides for investigations, government and regulatory reporting, legal holds, and managing enterprise risk
- Rate Design and Cost of Service – enables rate design proposals in general rate case filings, reconciliation and surcharge filings, and internal analyses
- Supply Chain – facilitates procurement, materials, and inventory management
- Fleet – monitoring and maintaining of Company vehicles and equipment
- Facilities and Real Estate – manages Company buildings and land
- Safety and Environmental – ensures compliance and adherence to environmental, health, and safety standards

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**Systems for IT Operations and IT as a Business** – manages and runs the IT department for projects, enhancements, break/fix work, and many other day-to-day operations

- Intelligent Operations – uses artificial intelligence and virtual agents for resolution of common IT issues without human intervention
- Infrastructure and Application Monitoring - uses several disparate monitoring toolsets to identify issues within the infrastructure and application environments
- Data Availability and Vulnerability Response – enables data back-up and restoration
- Systems for IT as a Business – includes technology project tracking, resource management, risk tracking, managing hardware and software assets, software contract compliance, disaster recovery, vendor management, and system incident notification.

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### III. Financial Summary

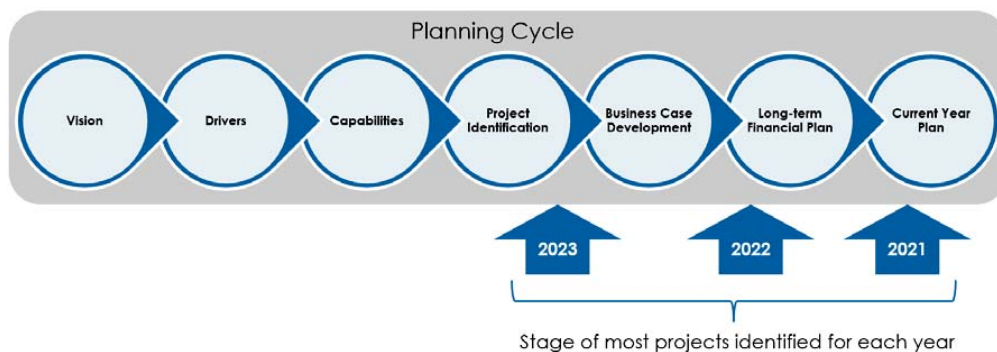
#### A. Overview

This section includes the financial summary of projected IT and Information Security (IS) costs by planning category over the three years of the Plan to enable the Company's plans, including the EDIIP, IRP and NGDP. Expenditures are broken down by Capital Investment, O&M Investment, and Operational O&M. Appendix C contains the project list detail that corresponds to the summary information.

We have included Security costs in the three-year summaries due to the interdependence between Security and IT spending, and the consolidation of testimony and exhibits in Company rate cases. This approach may change as the three-year plans evolve.

Figure 15 depicts in general where the projections are in the planning cycle for each given year, along the path from Vision to the current year plan for execution.

**Figure 15: Planning Cycle from Vision to Current Year**



The nature of the projected investment costs for each year are described below:

- 2021 – Reflects the Year One projected plan for projects. The estimates are based on a combination of business case estimates, plan-level estimates, and detailed definitive estimates for project execution, depending on the stage of the project at the time of budget completion.
- 2022 – Reflects the Year Two projected plan for projects. Project costs are developed during Investment Planning through a combination of factors, including but not limited to:
  - Estimates based on similar prior projects
  - Estimates based on information gathered from potential solution providers
  - Estimates based on resource quantity and unit costs projections
  - Software, hardware, and other infrastructure cost estimates
- 2023 – Reflects the Year Three projected costs by planning category. The Company is at the start of its annual planning cycle. At this stage, the Company has identified most of the projects required to deliver business plan capabilities and desired outcomes, but has not completed the Investment Planning cycle for a majority of the projects. This is an essential activity to develop and/or refine the business case information, including cost projections, required to make critical decisions regarding prudence and the priority of each investment. Information about the projects, their associated cost estimates, and total cost projections for 2023 will evolve as we complete investment planning during the year.





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### C. Investments O&M

Following is the financial summary for IT and IS Investments O&M, which is used to fund the O&M portion of upgrade projects, asset refresh projects, and digital and security investments to provide new and sustained business plan capabilities. Investments O&M is also used to complete critical Investment Planning work.

**Table 3: Projected IT and IS Investments O&M – Digital Capabilities**

<b>Total Company Projected IT/IS Investments O&amp;M (\$M)</b>					
Line No.		(a)	(b)	(c)	
		12 Mos. Ending 12/31/2021	12 Mos. Ending 12/31/2022	12 Mos. Ending 12/31/2023*	
1	<b>Investments Planning</b>	\$ 1.6	\$ 1.6	\$ 1.0	
2	<b>Investments O&amp;M</b>	\$ 25.2	\$ 32.1	\$ 35.0	
3	IT/Digital Foundation	\$ 14.1	\$ 15.0	\$ 17.7	
4	Electric	\$ 1.1	\$ 0.1	\$ 0.7	
5	Gas	\$ 1.1	\$ 1.4	\$ 1.2	
6	Electric & Gas Shared	\$ 1.7	\$ 3.1	\$ 1.5	
7	Customer	\$ 2.6	\$ 7.4	\$ 7.4	
8	Corporate	\$ 3.2	\$ 3.2	\$ 4.3	
9	Security	\$ 1.4	\$ 1.7	\$ 2.2	
10	<b>Total Investments O&amp;M</b>	<b>\$ 26.7</b>	<b>\$ 33.6</b>	<b>\$ 36.0</b>	

\*Note: Investment Planning cycle in process.

### D. Operations O&M

Operations O&M expense is used to provide the required level of operational support, reliability, and security for approved technology investments, and is made up of both fixed and variable ongoing costs. Unlike many of the new electric and gas assets in the field that require less maintenance than older infrastructure, new IT assets introduce immediate incremental maintenance costs, including:

- Software vendor maintenance agreements and license contracts
- Cloud subscription contracts
- Application support and break/fix activity, through managed services contracts and internal labor
- Monitoring
- Disaster recovery testing
- Security improvements and patching

Software and cloud solution vendors typically increase maintenance agreement and subscription costs on an annual basis.

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The projected IT and IS Operations O&M to sustain and secure our digital assets for 2021-2023 is listed in Table 4.

**Table 4: Projected IT and IS Operations O&M – Sustain and Secure**

Total Company Projected IT/IS Operations O&M (\$M)				
		(a)	(b)	(c)
Line		12 Mos. Ending	12 Mos. Ending	12 Mos. Ending
No.		12/31/2021	12/31/2022	12/31/2023*
1	Total Operations O&M	\$ 75.1	\$ 77.2	\$ 78.8

\*Note: Investment Planning cycle in process.

Operational O&M requirements are a lagging indicator of prior investments. The level of expense required for the first two years of this plan is highly dependent on digital investments that were already approved in prior rate cases and either implemented or under development, and less dependent on IT future plans.

IT operational expense is also impacted by technology investments where investment funding occurs outside of IT. The primary example of this is the Advanced Distribution Management System (ADMS) implementation and other Grid Modernization investments. These investments are adding a large set of IT and OT assets, which will contribute to IT operating cost increases.

Key drivers for increases from 2020 through 2023 that illustrate shifts in IT and IS operating costs include:

- (1) Increase in labor for merit increases and additional resources (\$2.2 million).
- (2) Increase due to centralizing individual electronic document signing licensing to enterprise level licensing (\$0.3 million).
- (3) Subscribing to Security Analytics Defender, online workplace collaboration tools, online Office automation tools and moving to higher level of licensing that provides field workers with the same collaboration tools as office workers (\$4.8 million).
- (4) Renewal of IT Service Management solution (\$2.5 million).
- (5) Migration of Data Center to the cloud (\$4.2 million).
- (6) Average increase in Operations based on new investment (\$2.5 to \$3 million). The Company also has annual increases in existing IT contracts of about \$2 million annually.

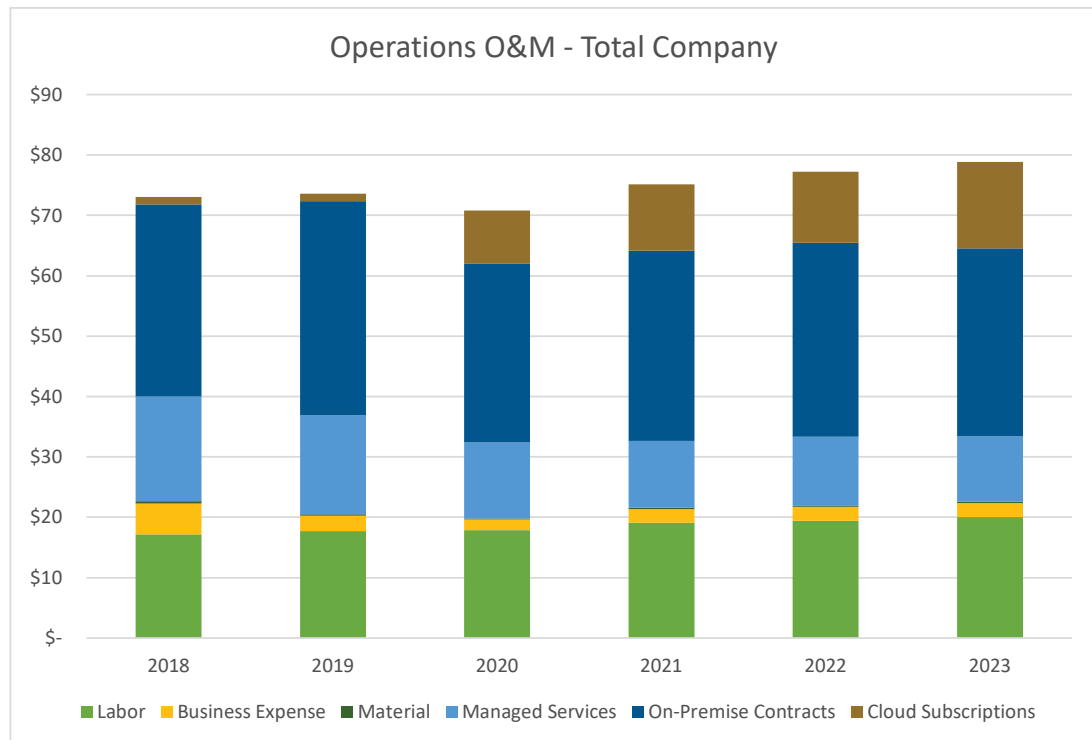
Table 4 shows Total Company IT and IS Operations O&M, with actual and projected costs by category. The costs include offsets from our cost optimization efforts (see next section). The graph demonstrates a marked shift in operations costs from on-premise contracts to cloud subscriptions and services. This trend will continue as both new cloud solutions are implemented, and existing cloud agreements end their periods of capitalization and shift to O&M subscriptions.

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**Figure 16: Shifting IT and IS Operations O&M by Category**



### E. Cost Optimization

We recognize we must strive to offset increased operational costs associated with a growing technology asset base. From 2017 through 2019, we were able to offset cost increases by \$10.7 million. As shown in Figure 17 below, we are projecting another \$9.9 million in cost reductions through 2021 to offset increases.

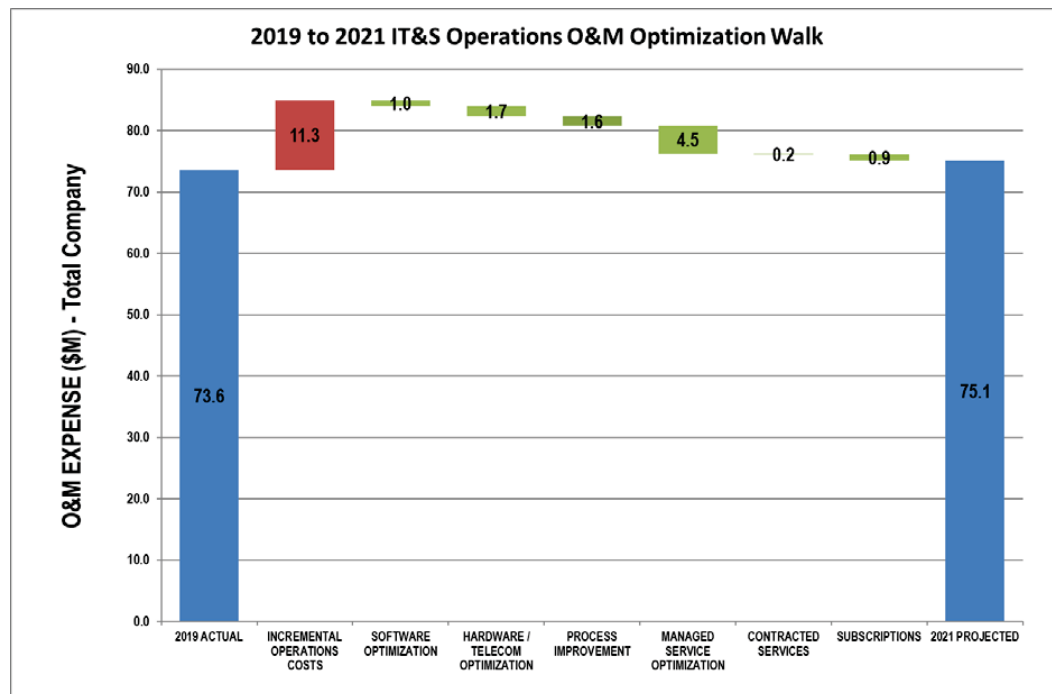
Although we will continuously examine operational cost drivers for cost saving opportunities, the Company does not anticipate cost optimization reductions at the same level going forward with the backdrop of a growing digital asset base, increasing cyber-security requirements, and cost shift to cloud O&M expense, as described in earlier sections of the Plan.

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Figure 17: 2019-2021 IT&S Operations O&M Optimization





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### IV. Appendices

#### Appendix A: Additional Information on 'Vision, Drivers and Goals'

##### A. Business Drivers

In a rapidly changing energy landscape, digital capabilities are essential to achieve the objectives of the Company's business plans for electric and gas delivery to our customers. These business plans are detailed in the Company's *Natural Gas Delivery Plan*, Electric Grid Integration plans (which encompass the *Electric Distribution Infrastructure Investment Plan* and *Integrated Resource Plan*), Customer plans, and supporting business plans of functions across the Company.

While these business plans look forward up to 10 and more years, technology planning horizons are far shorter. We have built our technology plan on digital capabilities expressly needed by our Company's business plans.

The digital capabilities needed for Natural Gas, Electric, Work Management, Customer and Corporate business plans are described in more detail below.

##### 1. Natural Gas

Drivers for the Company's Gas business are thoroughly documented in its *Natural Gas Delivery Plan* (NGDP). Four key external drivers continue to prove critical to the natural gas business over the next decade—safety, increasing regulation, changing supply and demand patterns, and environmental focus.

The NGDP documents the Company's analysis and stakeholder input on these drivers and is built on four objectives that provide flexibility to adapt and continue to perform as an energy provider that customers, regulators, and the people of Michigan can count on. The four objectives are simply stated in the NGDP Vision Statement - Provide a **safe, reliable, affordable, and clean** gas supply to customers.

To fully enable the goals and outcomes of the NGDP, we must invest in both new digital capabilities, and the operations of existing technology assets to keep them safe, secure, operating, and maintained. Both are essential for optimizing compression and storage assets, modernizing the distribution and transmission systems, incorporating predictive and condition-based maintenance, transforming work management, and ensuring physical and cybersecurity of assets.

The NGDP shows the need to invest in both IT and OT to provide digital capabilities essential for:

- Expanding system monitoring to support 24/7 system control
- Improving data analytics to support asset reliability and optimization
- Achieving the outcomes of optimizing compression and storage assets
- Modernizing the distribution and transmission system
- Incorporating predictive and condition-based maintenance
- Transforming work and asset management
- Ensuring physical and cybersecurity of Company assets
- Achieving methane reductions

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Overall, these operational capabilities will enhance the Company's workforce, processes, and technologies to successfully execute the NGDP. In addition, these capabilities will allow the Company to routinely assess the gas system and update the integrated plan on an annual basis and/or as needed.

### Digital Capabilities for Gas

The NGDP includes digital investments in asset management, work management, system automation, security and privacy, and advanced analytics:

- a. **Asset management** investments include the ability to store, manage and track the Company's gas assets in a consistent manner to ensure visibility, transparency as part of asset life cycle management, and predictive maintenance practices (see advanced analytics below).
  - Simplify asset management and analysis of Transmission Operated by Distribution (TOD) assets.
  - Enforce a higher level of gas data integrity.
  - Develop geospatial insight on a more granular asset level and more accurately define how each part of the utility system is connected.
  - Create a single source for gas asset location and critical asset metadata in order to simplify processes, reduce opportunities for inconsistencies in data sources, and increase public safety by enhancing our ability to interrogate and improve the data.
  - Create a management of change process for gas engineering design and gas system configuration changes.
  - Increase public and employee safety and regulatory compliance by extending and standardizing content management across all gas assets with complete and accurate records that are easily accessible and searchable.
  - Evaluate advanced leak detection technology to optimize, prioritize and plan for the accelerated pace of vintage material remediation along with implementing risk-based leak surveys.
  - Digitize records and performance of all assets to enable predictive maintenance capabilities and machine learning to uncover correlations between asset health and driving factors.
  - Provide the additional functionality and analytics that are needed from our foundational information systems, including more reliable and advanced SCADA and PI Historian systems. These are necessary to streamline data access and to allow for more timely and accessible operational analytics that will enable better asset management, troubleshooting, and support.
- b. **Work management** and field service management solutions provide electronic capabilities for work forecasting; resource and work planning; work scheduling, dispatch, field execution, and closure; tracking performance and work trends; and reacting / responding to emergencies. These technologies provide more accurate and timely information for field and office employees. See Work Management below for more details.
- c. **Gas SCADA** is comprised of software and hardware components used to monitor, analyze, and control real-time data from field devices on the gas system. Field data from measuring devices (sensors, valves, meters, etc.) is collected using a Remote Terminal Unit (RTU) and then relayed to Gas Control where software is used to display for operators to analyze and interact with.

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The current Gas SCADA software solution has outgrown the current capabilities. As the solution ages, there is increased effort required to address obsolete application and database software architecture, and the ability to make enhancements to the system is limited.

To address the capability gaps, custom interim fixes and integrations have been developed, and each requires maintenance and support. This environment adds complexity and cost to solution upgrades and troubleshooting issues. The current Gas SCADA solution will limit the Company's ability to invest in digital solutions for increased system health monitoring and preventative maintenance capabilities due to its inherent complexity.

The investment in a more advanced gas SCADA software system will enable:

- Integration with GIS for system control reliability
- Gas system visibility and transparency
- Deployment of RCVs integrated with the gas SCADA system
- The future ability to control and perform remote shut-off to preserve safety and reliability of the gas system

d. **Security and privacy investments** secure key Company assets, including physical locations with card access.

- Transitioning from a lock-and-key system at the Company's city gates to card access will centralize access control and enhance security. We will evaluate two-factor for gas facilities over time, as security and regulatory requirements mature.
- Continued implementation of security infrastructure to enable more visibility and protection of critical infrastructure, including but not limited to, perimeter fencing and security cameras.
- Implementation of API 1164 Cyber Security Upgrades - we will work to implement major modifications to the gas SCADA environment to ensure compliance with API 1164 and Transportation Security Administration (TSA) cyber security standards and our OT Security Reference Architecture (OTSRA). These are also collectively referred to as the "Gas Security Standards." The project will design, acquire, install, and implement network equipment, processes and site modifications needed for the Company to comply with the Gas Security Standards. Key objectives include:
  - Modernizing and standardizing the Gas SCADA networks at the gas compressor stations and control rooms.
  - Mitigating cyber security vulnerabilities in the gas SCADA networks.
  - Enabling Consumers Energy to fully comply with the Gas Security Standards.
  - Fulfilling the Company's commitment to provide a secure gas system to meet customer needs.

e. **Advanced analytics** investments include data collection, standardization and analytical model frameworks. We plan to:

- Transition from existing indexed risk model to probabilistic risk models that calculate quantitative risk scores including measures of probability, frequency or expected loss of events to better inform decisions on project improvements and integrity management.

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- Apply advanced statistical and predictive modeling tools and techniques for deriving insights from gas system data. Such projects will enable damage prevention predictive analytics and customer-level load profiling and predictive models with propensity ranking for future gas demand response programs.
- Enable corrective action plans, which are necessary to fix problems and sustain results, identify issues that are reviewed, rank them to find the root cause problem and then put corrective actions into place. Corrective action plans will empower the Company's workforce to make a difference through finding and fixing issues with sustainable solutions that generate repeatable and predictable performance and customer satisfaction.
- Integrate operational gas system data into a consolidated data repository that will strengthen operational reporting and analytical capabilities. For example, customer value modeling efforts revealed the need to also invest in a repeatable capability for rapid system configuration modeling to run scenarios as future supply states and customer demand evolve.
- Move maintenance practices toward predictive or prescriptive levels. The Company's current maintenance practices vary among assets. Compressor units currently use a mix of usage-based and time-based maintenance for large parts. This means parts are replaced based on throughput or time since last replacement, while select smaller parts use a break-fix approach.

In summary, in order to provide **safe, reliable, affordable, and clean** gas supply to our customers, we must invest in **both new** digital capabilities described above, **and** in the operations of **existing** technology assets to keep them safe, secure, operating, and maintained.

## 2. Electric

The Company's Electric Grid Integration business plan comprises two sub-plans: 1) Electric Distribution and 2) Electric Generation. The key objectives of these two plans and the digital capabilities needed to achieve them are described below.

### Electric Distribution Plans and Drivers

The Company defined five key objectives for its electric distribution system when it filed its *Electric Distribution Infrastructure Investment Plan* (EDIIP) in March 2018 in Case No. U-17990:

- **Enhance cybersecurity, physical security, and safety:** Introduce new technologies and new work processes to support the deployment and operation of those technologies, designing the system to ensure that security and safety of customers and employees are maintained and ultimately enhanced.
- **Improve reliability and resilience:** Harden the system where necessary, improve system visibility to more proactively operate the system, minimize outages, respond with speed and effectiveness to minimize outage duration, and better manage voltage.
- **Optimize system cost over the long term:** Meet objectives in a manner that is cost-effective and equitable for the entire customer base over the long term.
- **Increase sustainability and reduce waste in the system:** Reduce waste by building more modular and targeted investments and explore opportunities to promote lower carbon resources where economical, such as through non-wires alternatives to integrated distributed generation.

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- **Enable greater control:** Configure the system to provide customers with data, technology, and tools to take greater control over energy supply and consumption, using a more robust communications network to facilitate two-way flows of information.

The Company pursues these objectives through its long-term electric plans, which focus on two key areas—excelling at the basics, and building for the future (i.e., modernizing the electric grid infrastructure and systems).

When considering the electric distribution system, “excelling at the basics” consists of investment in and maintenance of core traditional infrastructure, like poles, wires, and substations. “Building for the future” consists of enabling the transition to cleaner energy resources, including integration of distributed energy resources (DERs), and increasing automation of the system, using advanced grid technologies and analytics.

In addition to the EDIIP, the Company’s 2018 Integrated Resource Plan (IRP) established the Company’s long-term Clean Energy Plan, which includes significant investment in distributed solar generation in future years and a transition away from traditional coal power generation to increased levels of renewable energy, energy efficiency, demand response, conservation voltage reduction, and energy storage. These longer-term plans provide a solid starting point for how the Company plans for the future of its electric distribution system.

Over and above investments in traditional infrastructure, the Company makes investments in grid modernization and other technologies to facilitate the Company’s IRP through interconnection of distributed solar generation and other future DER integration.

Investments in grid modernization use system automation and advanced technology to improve reliability, equipment condition, and performance monitoring while also improving efficiency and preparing the system to accommodate DERs in the future.

### Electric Generation Plans and Drivers

The Company’s generation plan focuses on providing safe, reliable, regulatory-compliant, and economic energy and capacity for customers, within the construct of the Company’s clean energy goals and its IRP.

Generation investments focus on generating assets that provide the most economic benefit to customers through their energy and capacity value in Midcontinent Independent System Operator (“MISO”) markets.

The Company will invest differently in an asset that the Company plans to operate for another 20 years than it will invest in an asset scheduled to be retired in three years.

In the former case, the Company may pursue investments to upgrade the asset, while in the latter case investments will likely only be made to keep the asset operating safely and in regulatory compliance until retirement.

To fully enable the vision and long-term plans, there is a need to mature a set of business capabilities over time in the areas of:

- **Safety:** Employee and customer safety will be a primary focus of continuous improvement. The ability to address emerging changes in the electrical grid and improve safety response with new technologies is an important responsibility. Improved sensor technology will be leveraged to help determine fault locations and ensure public safety.
  - Reduction of damages is also a key priority for the Company, increasing the use of predictive and forecasting tools to reduce risk to employees and customers.

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- Improved visibility of electric grid by Operations will also reduce potential employee risk while improving emergency response.
- **Operations:** Transform the business from a traditional dispatching-centric model to a real-time operation and optimization model with unified visibility and control across its grid, including enabling distributed intelligence and control where needed through operational technology (OT).
- **Cybersecurity:** As the grid technology deployment scales up, OT cybersecurity becomes an ever more critical part of the overall design, deployment and operation of the grid infrastructure. The continued integration of cybersecurity standards and control frameworks into the future grid modernization deployment is essential to reduce cyber risk and avoid future system rework.
- **Planning:** Integrated Systems Planning across the traditional generation and distribution resources and DERs will require further integration between resource planning, systems planning and asset investment planning, as the Company evolves towards managing and coordination a more diverse energy supply. This will require more granular and integrated data and information to address regulatory needs, as the amount of DER increases over time.
- **Work Management and Field Service Management:** As Consumer Energy's distribution grid evolves to enable more resources and more dynamic demand at the edge of the grid, the grid operation will become more modular, distributed and dynamic. This will require increased frequency and accuracy of data and information from the field. Digital transformation of field work and asset management will be an integral part of enabling grid modernization investments to realize their full benefits.
- **Telecommunications:** Field communication infrastructure will be critical to the future grid performance at all levels (i.e., local device automation, field automation and central grid operations and control). Having a secure, robust and resilient communication infrastructure is a must. Consumers Energy will review its long-term telecommunication plan, especially regarding the security and resiliency of its networks.
- **Engineering, Design and Standards:** Future distribution infrastructure will require modern substations and circuit designs with digital intelligent devices and distributed automation.
- **Data:** As more distributed resources are connected at the grid edge and as supply and demand become more dynamic, more control decisions will be automated either locally or centrally through OT. This will require a much higher level of granularity, fidelity and speed of data and information to drive operational optimization. Data management and governance across the distribution business will be essential to meet the operational requirements of the future.

### Digital Capabilities for both Electric Distribution and Generation

The Digital Three-Year Plan will be a key enabler for maturing the capabilities needed by Electric Distribution and Generation plans. The focus over the next three years includes:

- Expanding our foundational capabilities to manage distribution assets
- Building out cyber security and data management capabilities to support OT
- Continuing to build out operational platform capabilities
- Automating interconnection billing functionality, all while continuing to support and upgrade existing systems.

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### a. Distribution Asset and Work Management

As the Company increases its investments ensuring a safe, clean, reliable, and affordable electric system, we have begun to identify where there are deficiencies in its asset and work management processes, supporting systems and data. To address these gaps, investments are planned for both Distribution Asset Management and Work Management areas.

- Distribution Asset Management considers traditional assets that make up the distribution electric grid such as Transformers, Poles, Conductors, Meters, Reclosers and Regulators. It also considers device management of new grid devices (e.g., Line Sensors).
- Field work is a key interdependency since it provides the best opportunity to capture accurate data on assets and the work performed on them. The quality of the work and asset data collected in the field has a direct impact on multiple asset management processes and supporting applications, such as Asset Performance Management and Investment Planning.

The initial set of programs are focused on improving the quality of our asset data and how we plan to leverage it for both engineering and work management activities. This will enable electric designers and field resources to collect and manage asset data in a more consistent method and increase the level of data quality.

The next set of programs will focus on implementing an asset repository, tools to optimize investment planning, and a solution for the development and management of asset health conditions.

The high-level digital scope for Distribution Asset and Work Management includes:

- Implementation of a common Electric Utility Asset Data Model across the Company's electric business systems
- Further integration of Design Tools into the Electric GIS system
- Integration of the Asset Management solution to GIS and field systems
- Implementation of a solution to manage grid device data schemes, software and firmware updates, configuration and version control
- Implementation an Asset Repository where all Asset records can be stored for a single record of truth
- Implementation of an Asset Investment solution that uses asset condition data, maintenance costs, criticality, budgets and risks, and then analyzes it to produce plans on where and when to invest capital over extended time horizons
- Implementation of an Asset Performance solution that includes the concepts of asset condition monitoring, predictive forecasting, and reliability-centered maintenance (RCM)
- Ability for field personnel to use field devices to access and manage asset information, access real time data (e.g., SCADA, ADMS) on the mobile device, and have visibility to other crews and workers close by

### b. OT and Cyber Security

Over the last decade, the Company has significantly increased its deployment Distribution Automation and Substation Automation devices. As a result, it is critical for the Company to continue to maintain and implement policies, procedures, and controls to provide configuration management, standardized security hardware, configuration control, and access control.

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As grid device deployments continue to grow, so does the data they produce. The ability to process and interpret the data for decision making requires us to implement digital capabilities to enable surveillance of remote device configuration, settings, and access logs to detect unauthorized access or unscheduled changes.

To address data management challenges, we plan to invest in the tools and analytics that will be required to manage all distribution related data effectively allowing for improved Electric Planning and Electric Operations decision making.

The digital scope for OT Cyber Security and Data Management includes:

- Evaluation of present data, network, and device security status, along with an evaluation of the present policies and practices to determine present risk profile
- Policy, procedure, and controls updates
- Deployment of technology solutions
- Data management tools and methods to support reporting and analytics

### c. Operational Platforms

For the Company to enable its vision where more diverse supply and demand resources will be connected to its distribution grid, the need for coordinating and managing our grid assets across our entire system is becoming more important. To address this, we will continue to expand our operational capabilities with advance applications enabling increased visibility, system automation and control of its grid assets.

The Company will continue to develop its Operation Centers and field workers with greater distribution visibility, enhance its ability to leverage Demand Response (DR) resources for overall system benefits and look to provide a more integrated view for operating its renewable generation assets.

Further, the Company will look to provide a holistic view of device and data network health and performance in real-time. As the number of grid connected devices increases on our system, operational decision making and actions become more reliant on these devices and the data they provide to maintain the safety, reliability, and security of our distribution system.

The high-level digital scope for Operational Platform Capabilities includes:

- Complete the Advanced Distribution Management System (ADMS) Implementation
- Extend the ADMS system to allow our entire low voltage distribution work force to be working from the same view of the system on their work tools
- Implement improved ADMS operation of our grid devices in the field and our switching capabilities to increase reliability
- Implement a DERMS solution to control and manage company owned and customer owned DERs interconnected in front of or behind the utility meter
- Implement a new centralized Demand Response Management System (DRMS)
- Integrate and coordinate between DERMS, DRMS and ADMS
- Implement an integrated SCADA view and advance functions in a single application for renewable generation
- Implement a solution that allows the management of data network devices connected to grid infrastructure

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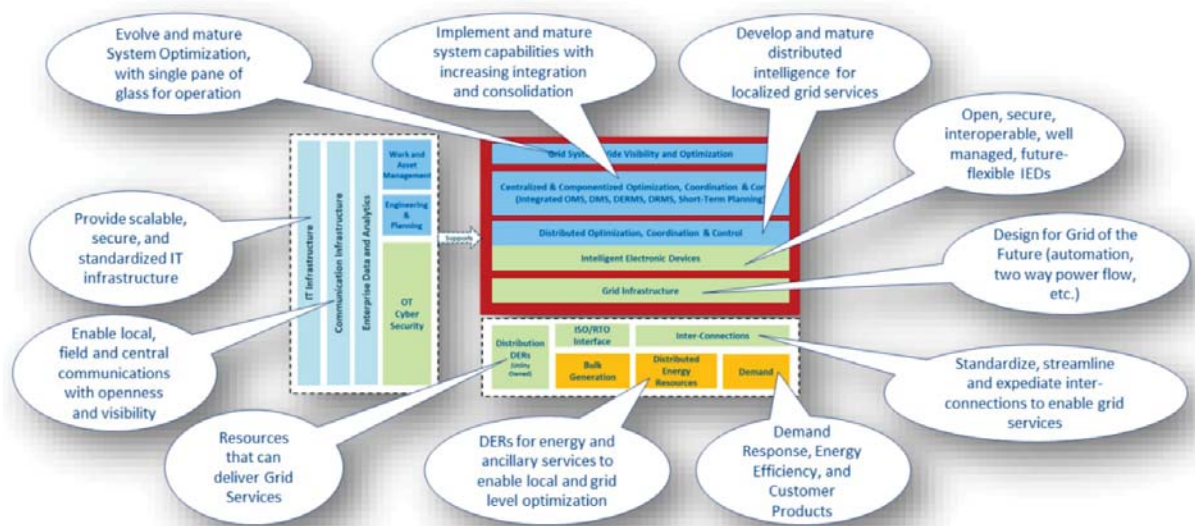
## Digital Three-Year Plan



Consumers Energy has been developing a Grid System Orchestrator approach for its future distribution business model (see Figure 18). The Grid Services Platform will provide the technical enablement of the Grid System Orchestrator strategy. Together, they provide the common strategic framework to align the overall grid modernization plan with digital investments, providing a clear path forward to meeting its Grid System Orchestrator key functions.

The Grid Services Platform spans the electric ecosystem, from customers to back office and OT applications, to field devices, and the connecting infrastructure and networks. The Company developed a conceptual architecture. The logical architecture is shown in stages synchronized with the milestones in the Grid Modernization plan at the current state, 2-year, 5-year, and 10-year views.

**Figure 18: Grid Service Platform Architecture**

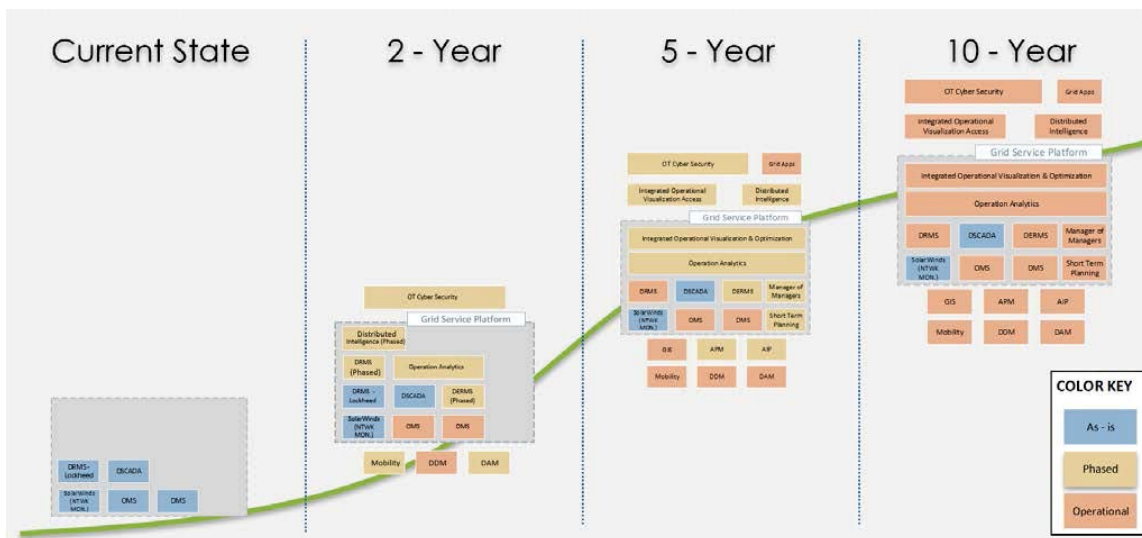


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**Figure 19: Grid Service Platform Maturity**



To achieve the lowest total cost of ownership and maximum value, the Grid Service Platform must be open, interoperable, secure, reliable, flexible, and able to optimize at each level of grid participation.

### d. Interconnection Billing

With the growth in DERs, interconnection requests have continued to grow. Billing and payments that are associated with the requests and related studies use a manual process, requiring applicants to mail a physical check to the Company. Interconnection Billing and Payments will automate this process.

- The Company currently collects \$5.6 million per year as revenue from over 400 third party entities that have attached equipment to Company infrastructure, primarily on distribution poles.
- There has been exponential growth in attachment requests as Internet providers continue to build out their broadband cable networks.
- The Electric Infrastructure Attachments (IA) project will implement a technology solution that automates manual processes and supports current and future information storage, processing and reporting needs.

The Company is committed to delivering a safe, affordable, reliable, and clean electric system while enabling greater control and visibility of system health and operations as a grid system orchestrator.

We will accomplish these outcomes by shaping electric demand, optimizing distribution and supply assets, modernizing grid infrastructure, and integrating our organizational capabilities, i.e., people, processes, and technology.

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### 3. Work Management Drivers Common to Gas and Electric

The Company will continue to gain value for its customers from Work Management and related investments made for both its Gas and Electric business areas. Work Management improvements will continue to be key to the successful delivery of solutions enabling the workforce to increase productivity and provide improved Customer Service.

Future improvements include:

- **Scheduling, work forecasting, resource and work planning** improvements targeted on workforce and resource optimization, including equipment and materials.
  - Improved efficiency and effectiveness of operations scheduling will enable higher utilization rates of limited workforce resources and completion of workload levels commensurate with requested spending levels and provide robust data insights and work order status for customers.
  - The changes are planned to reduce the complexity for schedulers who currently use manual, Excel-based processes for work planning and scheduling.
  - New technology for automatic scheduling and optimizations, new data analysis and faster processing will help enable the work management improvements.
- The addition of digital systems for work management for projects and work orders assigned to **external contractors**. The visibility of work performed by contractors will enable greater flexibility and agility to respond to emergent or changing conditions for workforce assignments for the Operations teams and provide real time updates for back office personnel and customers. The improvements reduce handoffs and risk for defects, and support faster and accurate records completion.
- **New field mapping and graphics** functionality, increases visibility of maps and drawings in the field, including the ability for field redlines and edits to ensure accurate and real-time asset records updates. This improves efficiency and accuracy of planning and design functions for asset upgrades and other projects.
- High-performing, intuitive, and supported applications for **field workers** will continue to be an important success factor supporting mission critical systems. Changes in employee technology needs, usability requirements, and security requirements make continued system updates necessary for field work to be safe, accurate and efficient. System maintenance to ensure high availability is critical for field operations to eliminate down time which negatively impacts real time updates for customers.
  - Additionally, the Operations teams require systems to remain updated with employee status changes, employee skills and qualifications, and field conditions to improve safety and compliance.
- **Telematics for vehicles** will enable improved safety and customer service for electric and gas customers. The revised technology will provide improved location information as well as vehicle telemetry for fleet management and asset health monitoring. Improvements in telemetry support employee and customer safety through more efficient dispatching and fewer vehicle breakdowns with lost time.
- Recent impacts of the COVID-19 pandemic and related safety protocols for sharing of equipment, hand offs and social distancing have also reinforced the need for standardized digital solutions for **communication and collaboration**.

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- Overall work management processes continue to need **periodic improvements** related to compliance changes and efficiencies to meet the needs of **Operations**. Application of emerging technologies including augmented reality, drones, and wearables are anticipated to improve the quality of work in the future.
- Advancements in data collection methods are driving the need for additional fail-safe methods to **protect employees** such as lock-out/tag-out systems. In addition, detection of damages through **enhanced predictive analytics** will reduce risk to employees, customers, and the public.

The Company has been able to leverage a common set of core work management technologies as well as a common work management methodology across operating units. Leveraging a common set of technologies provides reduced investments, employee training, and consistency when interacting with customers.

Work management functions improve cross-functional metrics for safety, on-time delivery of customer projects and service commitments, waste reduction, and customer experience improvements. Digital investments described above are key to improvements needed in work management solutions.

#### 4. Customer

Our plan to maintain a high level of service to our customers relies heavily on digital investments, specifically in three areas - lower cost of service, increased customer engagement and enrollment in programs supporting IRP targets, and increased reliability of customer digital platforms.

Maintaining a high level of service is woven into every aspect of how the Company interacts with our customers.

The Company keeps a daily score of how we are performing with our customers through a Customer Experience Index (CXI). These surveys are submitted directly by customers following their interactions with the Company. They allow insight and direction to digital experiences that did not meet their needs or were not simple to use.

We are committed to serving customers seamlessly in their channel of choice, and to moving more of our services to digital platforms for self-service at a time that is convenient for the customer. With digital products, these services can be delivered with an exceptional customer experience at a lower cost than traditional in-person or live agent offerings.

Customer needs vary widely from reducing energy for environmental concerns, asking questions about their bill, or setting up the right day and time for their move-in. Furthering our digital presence enables us to serve a variety of customer options across multiple technology platforms while containing costs. In addition, the Company is committed to engaging customers in our IRP through products and services to help reduce their energy consumption while maintaining a high level of comfort.

Keeping our systems secure and operational is paramount for customer facing applications. Customer data is treated with the utmost sensitivity, and our Web site is routinely tested for security deficiencies. Vendor solutions are vetted as well to ensure a high level of security. Operational performance of our Web site, contact centers, and billing system is monitored daily, and we are especially cognizant of system performance during storm situations.

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### Digital for Customer

- **Customer Service** – The Company’s goal over the coming years is to reduce customer service costs while increasing customers’ level of education around energy usage, clean energy products, energy waste reduction, and creating options that fit their lifestyle.
  - Quality of service will increase through **enhanced digital platforms** and options that allow the customer to receive service in the **channel of their choice**. Our commitment to the customer experience hinges on the ability to provide immediate options to customers’ requests, but more than this, the options for future opportunities. This has increased the Company’s focus on automation, waste elimination, and improving existing customer platforms and offerings.
  - Providing more intuitive, faster, and tailored options will reduce costs and support the Company’s goal to assist customers in transitioning live calls to digital transactions from 2017 to 2023. Roughly 40% of customers that are served by live agents each year desire to complete their transactions in a digital channel.
    - a. Improve internal process efficiency to reduce waste in customer centric activities such as repeated truck rolls, appointment scheduling efficiency, and reduction of vendor supplied products.
    - b. **Process Automation** enables internal resources to focus on higher value add opportunities while routine tasks are completed without manual effort. Using **Artificial Intelligence and Analytical Modeling** generates real-time and accurate output for better decision-making regarding customer needs and next best offers.
    - c. Improving Customer Experience requires transactions to be intuitive and increase completion rate. The Company focuses on changes to **IVR and Customer Portal** transactions based on customer feedback, eliminating waste in the process, and automating steps to reduce redundant activity.
    - d. Customer electric usage directly impacts the costs associated with their account and can lead to higher bills. **Energy Waste Reduction (EWR) and Demand Response (DR)** programs and products allow the Company to educate and enable the customer to manage their usage to directly impact their bill. These programs use the Customer Portal and other platforms to provide information and enrollment options to customers regarding usage and Gas, Electric, and Renewable programs. Customer EWR targets will be 2% and 1% of prior year sales for Electric and Gas, respectively, while growing Customer Subscribed Renewables from 250,000 MWh to 400,000 MWh between 2021 and 2023.
    - e. Customers need the ability to acquire and use products that support their energy reduction needs. The Company can support this through connecting customers to the following: providing rebates for energy saving products, assisting in installing products, utilizing **Internet of Things (IoT) technologies** to understand product usage, and providing details to the customer on the products. This requires stable integrations to connect the customer and the Company, a robust analytics engine to understand usage patterns, and automated digital communication to keep customers informed.

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- The **Advanced Analysis Hub (AAH)** project establishes the foundation for analytics capabilities within the organization. Initial models will be built while developing the discipline to establish and incorporate analytics into other Company investments that have corresponding cost-benefit analyses.
- The implementation of the **Customer Relationship Management (CRM)** technology is expected to be a four-year project (2020-2023) with major releases each year accounting for value realization. The expected completion date is December 2023. CRM is a cloud software product suite connecting to the Company's back end data and other data sources to drive the expansion of EWR and DR. CRM will provide account managers with pertinent information matching customers to their desired energy saving products and services. As displayed in Table 5 below, the cost-benefit analysis from the original business case indicates expected avoided costs and operational efficiency. Avoided costs include vendor services and additional software replaced by the new CRM product suite. Operational efficiency consists of process efficiencies, reduced customer acquisition costs, and reduced manual rework. The project benefits year-over-year are expected to be realized in 2023.

**Table 5 CRM Technology**

Type	2020	2021	2022	2023	2024
Avoided Costs	\$20,000	\$190,000	\$193,610	\$197,289	\$201,037
Operational Efficiency	\$155,800	\$1,226,000	\$1,287,507	\$1,311,969	\$1,336,897
Costs	\$5,436,590	\$2,645,809	\$1,622,482	\$790,273	\$558,671

- **Customers are a key part of the success of the Company's IRP.** Ensuring customers' engagement with the Company increases the likelihood they will participate in programs supporting the IRP targets. The Company needs the ability to communicate, educate, and interact with customers within the channel of their choice.
- **CXI targets** are increasing 2 points per year for the next 3 years to drive digital platforms to superior customer service, and to receive a daily score and feedback directly from customers on how the Company is performing.
- Improving Customer Engagement and Interactions across the Company's communication channels enables additional opportunities to increase CXI and drive enrollment in EWR and DR programs. This includes:
  - Engaging customers within the **channel of their choice** improves customer experience and improves the quality of the interaction. The Company uses the Customer Portal, IVR, SMS Text, Email, and physical mail to interact with customers based on their preference.

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## Digital Three-Year Plan



- b. **DR megawatt targets** will double between 2020-2025, additionally targeting residential enrollment increases of 50% in the same time frame. The Company needs increased customer engagement to support targets within the IRP and Clean Energy plan. Understanding the customer's perspective through feedback from all customer channels is key in identifying the needs of the customer base. The focus increases for analytics and products supporting gathering accurate customer information.
- c. The Company will use vendor partners to better serve customers within their channel of choice with information relevant to managing their energy usage and utility account. **Integration and cloud technologies** ensure information is shared quickly and securely across the various customer service channels. Customers should receive the same high levels of service regardless of the channel they are choosing.
- d. Improvements to the digital platforms supporting the Company's programs and offerings are required, focusing on **reducing the number of Web pages** a customer may need to visit to enroll.
- e. **Increased self-service completion rates** enable customers to complete activities in the channel of their choice, such as bill payment, move-in move-out, and signing up for EWR and DR programs. Digital channels support these customer activities, requiring consistent upgrades and enhancements to continue supporting customer needs and to maintain a high level of security for customer data at rest and in transit.
- **Increase reliability of customer-used platforms.** Customers expect the tools and interaction channels provided work as expected. The platforms in place need to be secure and operationally sound to increase reliability and ensure consistent performance during times of high customer loads in a storm situation. The following items support the need for increased reliability and availability:
  - **Reducing Cyber Security risks** to support safe and secure transactions such as bill payment and outage reporting. The digital platforms supporting these transactions must be updated with the latest security features found in upgrades or patches and follow industry best practices to defend against potential threats.
  - Ensure our **customer platforms remain stable and available**. Operational stability of our customer systems ensure customers can continue to interact with the Company without experiencing slowness, transaction failures, or system outages. Improving data quality reduces failure points in automated solutions due to poor data conditions. Reliability supports customer self-service, leading to reduced calls to contact centers and improvements to CXI.
  - Each customer platform must be available during critical times of need. The Company SLA for the Customer Portal is 99.4% availability, allowing downtime only for routine maintenance. **Automating upgrades and maintenance** on supporting systems reduces this downtime. Additionally, using **appropriate cloud solutions** can ensure systems remain available during high customer load times in storm situations.

In summary, our plans to increase CXI, increase enrollment in EWR and DR programs, and lower the cost of customer service, while increasing the reliability and security of our customer platforms requires digital investments in existing platforms and new capabilities as described above.

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### 5. Corporate

Beyond the utility-specific business plans of Gas, Electric, and Customer, are the business areas categorized here as Corporate. These areas provide the core shared service business functions and corresponding key capabilities necessary to operate a world-class, public, regulated utility company. Additionally, they provide foundational support to planning and delivering on the Company's Gas, Electric, and Customer business plans.

Corporate areas include Finance, Supply Chain, Environmental, Human Resources, General Counsel, Legal, and Risk Management and Governmental and Public Affairs.

#### Finance

The Company is planning to expand the use of digital to enable transformation and optimization of Finance business capabilities and processes.

- a. By investing in and employing new digital solutions to enable **Integrated Business Planning**, the Company will be able to connect and optimize business planning processes, including long-term financial planning, rolling forecasts, enterprise resource planning, project prioritization, workforce planning, and analytics.
- b. Optimizing business planning through **improved financial transparency and operational reporting** to address challenges and complexities that exist today. This includes standardizing and simplifying financial and work order data, reports, and unit level costing, and efficiently managing operations by providing more frequent and timely reporting.
- c. **Leveraging automation, digital producer and self-service capabilities** will provide the agility and tools necessary to quickly address heavily manual or monotonous tasks.
- d. **Enhancing existing data analytics** by joining Finance data with other data sources will provide better information and predictive analysis leading to insight-driven decision making.
- e. **Financial and Regulatory Requirements**, including Sarbanes-Oxley Act (SOX), and National Automated Clearing House Association (NACHA), will require the Company support and enhance and/or upgrade existing digital solutions to maintain compliance.

#### Supply Chain

Our Supply Chain team is looking to become a dynamic, world-class supply chain organization.

The following summarizes Supply Chain's customer-centric plan, advanced analytics centralization and expansion, and data-directed decision-making enablers. Efforts to transform and optimize supply chain capabilities include:

- Adopting a shared services model
- Designing internal processes that employ category management
- A tiered approach to service delivery
- A single set of industry-leading end-to-end supply chain standards to improve service, reduce cost and eliminate rework

We plan to incorporate technology to leverage enterprise-wide information, purchasing power and new sources of market information.

Supply Chain also expects to leverage digital capabilities for Strategic Sourcing, Procurement, Inventory Optimization, Warehouse / Logistics Management and Automation, Material Tracking and Traceability, and Supplier Non-Conformance Reporting and Corrective Actions.

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### Environmental

Digital capabilities that enable the Company's IRP, EDIIP and the NGDP inherently support the overall clean energy goals of the Company and its commitment to the planet.

In addition, the Environmental Services team has led the Company's progress toward achieving ambitious goals that include the reduction of water usage, reduction of waste sent to landfills, and land protection and enhancement.

To achieve these goals, we plan to build upon our Environmental, Health & Safety compliance system, enhancing its capabilities for the following:

- Tracking and reporting air quality
- Water management
- Waste and spills management, and sustainability
- Managing risk
- Creating awareness of and improving response to emerging environmental, health and safety, and operations compliance regulations

### Human Resources (HR) (recently retitled as 'People and Culture')

With **People** as one of the three key strategic focus points for the Company, a skilled workforce is the backbone of the organization, and a critical dependency for successful execution of the Company's plans, including the NGDP, EDIIP, IRP, and this Digital Plan.

The HR department has developed goals of enhancing the Company's purpose-driven culture, building new skillsets internally at scale, and enabling a breakthrough employee experience.

- The HR Department has identified 91 "net new" competencies necessary for the Company to meet future needs—signaling the scale and pace of change the Company is pursuing.
- To achieve these goals, we plan to continue to build new and enhance existing digital capabilities.
- Use automation to improve employee experience – such as the need to reduce the significant number of manual processes for Labor Relations.

Communication professionals in HR prepare internal communications to employees regularly. However, the current Company communication portal is built on technology that is obsolete, cannot integrate with other communication technologies for content sharing between platforms, and is only accessible through Company network connected devices, such as a laptop or field device.

The COVID-19 crisis proved that electronic communications are crucial to business continuity and overall employee safety, and clearly demonstrates the need for Company-wide digital communication capabilities that can be accessed on any device, Company or personal, and by all employees including field workers. We plan to leverage newer technology solutions to provide consistent communication to all co-workers Company-wide.

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### General Counsel, Legal, and Risk Management

Digital capabilities can help improve the following business functions.

- a. **Managing Enterprise Risk:** Reviews of enterprise risk are performed annually due to the significant manual effort between risk owners and risk management. Leveraging technology solutions to more effectively manage risk management programs addresses this challenge, enabling the Company to increase the frequency of risk reviews. Other benefits include proactive real-time information for leaders, centralized repository for mitigation plans, and process optimization leading to waste elimination.
- b. **Information Governance and Management of Business Records**
  - Record management remains a key focus and many business records lack automated retention rules—requiring manual retention policy application and oversight. While the Company has a plan for managing these records, technology and a multi-year effort is required. Those records need to be identified, classified, categorized, and placed under formal retention rules through metadata assignment.
  - Increased need to identify where records exist and bring them into a compliant standard with Information Governance and Information Security requirements. Additionally, there is a need to monitor, control, and track content sent inside and outside the Company.
  - With a continued focus on Company culture, ethics, and compliance, technology is needed not only to identify trends in misconduct investigations by case type, person, location, supervisor, time of the year, and more, but also to provide leading indicators into expected behaviors. Executives will get real-time insights via robust dashboards with multiple reporting options.
  - Technology enables streamlined processes, waste elimination, and predictive analytics leading to a best in class compliance program that also provides safety for the Company's employees and customers.

- c. **Legal Case Management and eDiscovery**

The Company has recently needed to augment the Legal team to accommodate a large review of data. As the amount of data grows, Legal needs better and faster ways to sort through all the data, eliminate irrelevant data, and reduce data volumes sent to external Counsel.

New technology tools will improve the ability to manage the following:

- Litigations, investigations, and discovery requests
- Respond expeditiously to new initial disclosure and electronically stored information requirements in the new Michigan Civil Discovery Court Rules and find key aspects of the litigation quickly with reduced operational costs, and less reliance on External Counsel.

In summary, investments in digital that satisfy drivers in Corporate areas influence Company goals and results across all business areas.

## 6. Technology

The vision, challenges, opportunities and objectives described above for the Electric, Gas, Customer and supporting business teams highlight some common themes.

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Our business plans have a high dependence on a core set of foundational technologies to achieve our targeted outcomes. Additionally, business areas across the Company have both a strong readiness and need to take advantage of new and rapidly advancing digital capabilities in the market. Lastly, an accelerated shift toward flexible work models highlights the importance of collaboration tools and a shift in the way IT supports our highly distributed work force, to maintain the Company's ability to meet the needs and expectations of our customers.

We will discuss these technology drivers and the way they will support execution of our business plans.

### 1. Core Set of Foundational Technologies

We looked across the business drivers for digital to determine which capabilities are needed across the Company. We determined foundational investments in Cloud, Data and Analytics, Integration, and Networks will provide a strong base on which to extend our current technologies and build new capabilities.

#### a. Cloud

Cloud technology is becoming an increasingly important foundation in providing the digital capabilities required to support our Company's business plans. In a measured move to cloud solutions, we first built and automated our internal Private Cloud starting in 2015. Since that time, many more services are available in the **Public Cloud**, which include Software as a Service ("SaaS"), Platform as a Service ("PaaS"), and Infrastructure as a Service ("IaaS") offerings. Quite often, these services can be delivered much faster than on-premise solutions, which are solutions that reside in our Company data centers. With our recent move to a new data center, we have better positioned ourselves to move more capabilities to the public cloud faster, as the need and conditions require.

There are several advantages to combining the use of public cloud along with our internal private cloud in our data centers. This combination is described as **Hybrid Cloud** and is recommended by industry experts, such as Gartner and various cloud vendors. We are planning such an investment in cloud services with our Hybrid Cloud and Data Center Migration project. The advantages include the following:

- 1) **Optimize use of infrastructure** – With a hybrid cloud, the number of on-premise assets that are scoped to be replaced through our server and storage asset refresh programs will be substantially less, enabling us to reduce the capital expenditures associated with these projects. An example is our SAP infrastructure. The current infrastructure that runs SAP is coming up for lifecycle refresh in 2022. We are planning to evaluate options for the infrastructure, including cloud, in 2021.
- 2) **Burst into cloud for occasional demand** – Similar to using Demand Response to shave the peak requirements on the electric grid, we can provision extra server and storage infrastructure capacity needed during infrequent peaks, on-demand in the public cloud. Examples include running resource-intensive risk modeling tools that are run only occasionally, and outage maps that need to scale up to meet customer demand only when there are major outages.
- 3) **Leverage new cloud capabilities easily and faster** – Currently, Microsoft's Azure cloud platform offers over 200 services that can be used to build new solutions. These range from infrastructure and developer services to advanced image and speech recognition. Vendors are continuously improving their cloud services, and new services get added on a weekly basis.

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- Standing up similar services in our data centers would be either not viable or cost prohibitive and time intensive.
- We will be able to use these cloud services to build solutions much faster, providing value with lower capital investment. The costs do shift to O&M for these subscription-based services.

4) **Higher uptime, lower impact to business** - Public cloud providers offer high service levels. They have multiple options, including deployment across geographic regions and incorporation of disaster recovery options to guarantee even higher uptime and quicker recovery. Each incremental level of service typically requires additional O&M expense.

With the many benefits of moving to a Hybrid Cloud, it does add complexity and requires significant changes to the design and workings of our network connectivity, security, storage back-up, disaster recovery, and software applications. While SaaS and PaaS solutions eliminate layers of infrastructure from being managed by the Company, they come with significant on-going subscription O&M costs. Additionally, each of these platforms needs administrators, platform owners, and experts who can set up, configure, educate, and support users of the platforms across the Company.

b. Data and Analytics

Every business plan in the Company highlights the criticality of having the insights provided by data and analytics to achieve the desired outcomes for our customers. A few years ago, if an employee wanted a report, they would wait until the IT team had the time and funding to build the report. If changes were needed after deployment, the report owner would wait again.

Now, our reporting and analytics environment is open to any employee who wants to use it, and more analytics are being developed outside of the IT team than inside.

- More than 500 employees from all corners of the Company are increasing their skills in our internal Analytics University. They learn to use tools that were previously the domain of coders to build their own visualizations, reports, and advanced analytic applications.
- The IT team is shifting its focus to build and maintain the data and analytics foundation, to drive adoption of tools, and to facilitate growth of value delivery from the analytics community.

The Company is seeing growth in the numbers of users, reports, and analytics models used for better visibility and decision making in daily business operations. In the last three years, we have deployed over 2,000 new reports and dashboards consumed by over 3,500 users. In the last year, we have deployed at least a dozen new analytics models. This increased usage is putting a spotlight on capability gaps in our data and analytics platforms, including the following:

- 1) **Data management** – New analytics regularly highlight gaps in data quality, resulting in an inability to rely on certain data sets for reporting or analytics. Data management tools will enable the Company to systematically address the gaps.

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- 2) **Ability to create analytics models at scale** – Currently, we do not have the high-computing hardware needed for advanced analytics requiring intensive processing, nor the platforms to build analytics at scale. The Electric, Gas, Customer and Corporate business plans highlight the need for advanced analytics. These capabilities are readily offered by cloud platforms.
  - 3) **Ability to scale up enterprise data lakes for data demand** – As we implement more IT systems and discover more opportunities to leverage existing data and analytics, we need to scale up the data storage and performance of our current data lake solutions. Current on-premise solutions may not be viable, and we will likely need to leverage cloud solutions to meet this need.
- c. Our current data lake and analytics tools provide a good starting point for the business capabilities we will need. Today we have only a subset of our existing data available for analytics. Continued investment is required to provide the additional data sources, quality, and scale we need to achieve our business outcomes.

d. Integration

Our technology landscape consists of a complex set of integrated systems. Enabling integration and maintaining the interoperability between frequently changing systems are significant cost components in building and operating digital solutions. We will need to evolve and enhance our existing integration tools and frameworks to connect new internal and external systems, services and data.

- 1) **Integration via APIs (Application Programming Interface)** – We will address the lack of tooling and processes to utilize APIs at scale. APIs are increasingly used as the de facto standard for integration within internal systems and with external third parties. APIs are also the standard integration mechanism for cloud solutions. For example, we plan to use vendor partners to show customers information about their energy usage while they are using their channel of choice such as the web site. APIs will be used to achieve integrations between the web site or other channels and the external vendor services. The use of APIs can also reduce the impact of system changes on either side of an interface, including upgrades and system replacements.
- 2) **Technology to integrate new streaming data sources** – As the Company deploys digitally-enabled renewable and distributed energy resources (e.g., wind, solar, energy storage) and grid edge devices, we will need to integrate streaming data that must be continually analyzed and acted upon. This will also be true with digitally equipped vehicles and warehouses. Currently, we do not have infrastructure to handle these data sources.
- 3) **Better usability by integrating reports and analytics in collaboration tools** – As more of the Company's workforce will work in remote settings in a post-COVID world, we will have increased reliance on collaboration tools like Microsoft Teams, SharePoint Online and the Office 365 suite for daily work processes (described below). Employees will work much more efficiently with the ability to view reports and analytics results directly within the collaboration tools.

These new integration requirements for cloud services, internal systems, and distributed energy resources and other grid devices will require the tools, standards and ongoing support to maintain interoperability in a changing digital landscape.

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### e. Networks

Digital capabilities rely on robust, ubiquitous and secure network access and infrastructure. Access to cloud services depends on high-speed, highly available networks with low latency or wait times. This is particularly true with cloud collaboration tools (discussed below), upon which our heavily remote workforce is highly dependent. We will maintain our Core Network and Local Area Network upgrade plans to ensure those networks continue to support expanding communications needs.

The Company's field workforce is highly dependent on our 800 MHz Radio Network for real time voice communications. High availability is critical, particularly in outage restoration, gas safety and other hazard situations. Since 2017, our system has not been supported by vendors. Manufacturers no longer provide replacement parts and repairs are done on a best effort basis. We purchase replacement parts from used equipment re-sellers. In addition, we are unable to expand dispatch capabilities, record radio traffic, or apply security patches.

To address our needs and current system risks, we joined the Michigan Public Safety Communication System (MPSCS) to gain the benefits of higher reliability, better coverage, support through a single service provider and reduced operating expenses for tower maintenance.

The growth in digitally enabled devices connected to the Company's electric grid and gas infrastructure, and physical security requirements at substations and critical gas assets, will continue to expand our need for reliable and highly secure critical networks to support real-time OT communications. As our electric and gas control systems—including SCADA, ADMS, DERMS and Demand Response—become more dependent on the visibility and information provided by the network-connected devices, we need the ability to scale and secure our network communications, while controlling the increasing operating costs.

We are looking at field communication options that provide dual carrier capabilities, both for redundancy and competition between cellular providers. We will also research the potential benefits of a Private LTE network and satellite communications as options to meet this growing demand.

## 2. Rapidly Advancing Digital Capabilities

With the pace of technology change, the market is rapidly and continuously presenting us with new digital capabilities that could not be anticipated in long-term planning cycles. These new capabilities are highly enabled by cloud services, such as automation and self-service tools. The emergence of new possibilities gives us opportunities to adapt our plans with new projects that enable the Company to gain additional value for our customers.

In some cases, the rapid changes are imposed upon us by solution providers who require their customers to shift to cloud-based solutions by discontinuing support for their on-premise versions, shifting our support and cost models. While there may be value in the shift, it requires IT to adapt our support model.

### a. Automation and Self-Service

**Automation Platforms** allow employees without specialized IT knowledge or training to take advantage of tools to automate common tasks that would normally require repetitive and time-consuming human interaction. We deployed enhanced automation platforms over the past year to help to increase employee productivity and morale by reducing the mundane activities and allowing those employees to focus on higher-value work. An example is the automation of work packets for construction.

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We have automated the collection of associated designs and other documents, collating, bundling into a printable file, and sending the file to work centers for printing and distributing to crews. While the platforms provide benefit across the Company, they do increase the support and administration requirements for IT.

**No-Code / Low-Code Solutions** allow for the creation of IT applications using drag-and-drop visual design tools instead of traditional programming. We have begun to empower employees outside of IT to make use of these tools, to become what we refer to as “Digital Producers.” While Digital Producers can create their own standalone IT solutions, they are most excited to develop solutions that integrate with our existing core systems. This is requiring IT to develop a new, incremental support model for Digital Producers and this platform.

b. Advanced Cloud Services

Cloud service providers continue to increase the availability of advanced analytics that incorporate Artificial Intelligence (AI) and Machine Learning (ML) models. Similar to our ML model developed to improve the Company’s ability to calculate Estimated Time of Restoration (ETR) for customers with electric outages, these capabilities open the Company to a range of possibilities to generate new solutions that enable decision making based on systems that can sense, comprehend, adapt, learn, and improve recommendations and insights over time.

An example is leveraging AI and ML to enable the Company to proactively make decisions regarding our customer needs, and anticipate the service that best meets or exceeds their expectations

In IT, we recently implemented a cloud-based AI platform that works in conjunction with our IT service management knowledge base to automate and resolve employee IT support requests. We will continue to build upon the platform to achieve our goals for reducing resolution time (see inset below) and offsetting increased IT operational costs.

c. Vendor Trends

We have begun to experience the trend where vendors are updating only the cloud-based versions of their solutions, pushing their customers to move from on-premise to cloud offerings to optimize the vendor’s delivery and operations. Some vendors, like Microsoft, are discontinuing support for the on-premise versions of their software. As a result, the Company moved from on-premise desktop and collaboration software systems to Microsoft’s Office 365 products. SAP has also invested heavily in their S4/HANA cloud solution, stating their direction to no longer provide significant new capabilities to their SAP Business Suite, which is the version run at the Company. We will be evaluating our direction for SAP in 2021.

Many software vendors are releasing new features into their products more frequently. Technology industry advances in software engineering practices like Continuous Integration and Continuous Delivery (CI/CD), DevOps automation, and Agile delivery are major drivers of this frequency. Cloud SaaS and PaaS companies release new features at a much higher frequency. Today, the most advanced technology companies like Microsoft are releasing software updates thousands of times a day.

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While the Microsoft updates may not have a significant impact on users at the Company, a more impactful example involves our ServiceNow platform. The Company uses the ServiceNow SaaS solutions for IT service management, IT asset management, Vulnerability Management, and Supply Chain service management. ServiceNow releases two upgrades per year. While these upgrades provide new capabilities that we can take advantage of, we must address each upgrade with a project to examine the upcoming changes, implement new capabilities and perform the required testing to ensure a seamless upgrade. Unlike the flexibility with on-premise systems, we do not have discretion on whether to accept or defer the upgrades from ServiceNow.

We expect many of our critical applications will remain on-premise in the near future. Vendors do continue to enhance these applications, and we will continue to plan upgrade projects to take advantage of new features, implement defect fixes for existing features and remain on supported versions from our vendors.

Many upgrade projects represent an operating expense that is necessary to sustain reliable and secure operations to support the Company's business plans.

### 3. Enabling Flexibility

The ways in which our employees collaborate and adopt flexible work practices were already advancing at the Company. The near-instantaneous move of a majority of our workforce to remote working has accelerated technology adoption and raised expectations for system availability and speed to market for new capabilities. Similar to our customers, our employees compare the experiences they have with our IT systems with the experiences they have with consumer technologies outside the Company. That means they have the technology they expect, including collaboration tools, devices and operational support, where and when they need them to execute the Company's business plans.

#### a. Collaboration

The Company uses the Microsoft Collaboration Suite. While we were on a path to progressively roll out our Microsoft Collaboration platform across the Company starting in 2020, we could not have anticipated the acceleration that would be required with the pandemic and stay-at-home orders. The migration to Microsoft's cloud-based Microsoft 365 products has helped immensely with the switch to working remotely.

Microsoft Teams is now used broadly for video conferencing, collaboration in 'channels' and audio conferencing. In 2021, we plan to start retiring traditional phone systems in favor of using the phone functionality within Teams to provide a unified calling experience for employees as well as to reduce the need for physical handset devices.

We plan to migrate our extensive footprint of SharePoint 2010 on-premise applications to SharePoint Online in 2021. SharePoint Online provides a much better experience for employees as well as a much-improved mobile experience versus SharePoint 2010.

Our move to Microsoft 365 Suite enables our Company workforce to securely access digital resources on a variety of devices, depending on what is most convenient for the time and place of use. These systems have the native ability to work well on traditional personal computers as well as digital tablets and smartphones. The ability to edit documents, participate in video or audio conferences, and transfer seamlessly between devices has allowed for greater flexibility for our Company's employees, leading to more productivity and efficiency.

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The migration to Microsoft 365 in the cloud has shifted our costs to a model of higher operational expense. However, the move was both necessary in maintaining Microsoft tools and support, and pivotal in enabling us to implement and sustain the smooth shift to an all-remote work environment.

b. Remote-First Support

With flexible work schedules and locations becoming more accepted and necessary to retain a talented workforce, and the requirement to work from home whenever possible due to COVID, the dependence on having the required technology where and when it is needed grew exponentially in 2020. We described above how our collaboration platforms helped enable this shift.

The shift also requires us to support our employees in more flexible ways. This is similar to how we implemented technology at the start of the pandemic to enable 238 additional customer service representatives to work fully remote over a period of three weeks, while maintaining high customer satisfaction levels. We will continue to enhance the way we manage end-user computing (EUC) devices in our IT operations. This includes the following:

- Enhance our remote desktop support model and tools to increase the speed of incident resolution. This includes automating ticketing system workflows to reduce steps and reduce response time to employee requests.
- Streamline our device refresh program by implementing a light-touch deployment model, reducing employee down-time. This includes implementing a solution that allows employees to drop off and pick up equipment in a secure and safe fashion and increase our loaner device inventory to reduce downtime during device exchanges.
- Implement a secure and easy method to back-up/access files that reduces the potential loss of data.
- Ensure employees have the correct device to perform their job responsibilities the most effective way.
- Reduce complexity of device management by enabling employees to 'Bring Your Own Device' (BYOD) and expand the virtual desktop solution to the cloud.
- Simplify remote workforce print requirements and re-evaluate the office print environment to remove waste and cost.
- Reduce complexity and increase speed to upgrade and patch desktops to reduce Company risk.

With the greatly expanded number of remote and mobile workers, we have a much larger IT task in upgrading and managing devices than we did for a full office-based workforce. Added to that are growing security threats, constant operating system (OS) migration demands, and the increasing pressure on operating costs. Our new normal is necessitating a remote-first approach to planning and executing EUC management to support our employees in servicing our customers.

4. **Conclusion**

As explained above, our Company's business plans for Electric, Gas, Customer, and supporting business areas will rely on an enhanced set of digital foundations with both great potential value for our customers and cost implications for IT.

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The use of public cloud services changes the investment mix and operating model for these solutions. Cloud services shift the IT cost model from heavier capital investment in hardware and software to O&M subscription costs that scale up with each level of service subscribed. Cloud services also require new operational models, upgrade plans and costs to administer Company use of the various service platforms. While cloud vendors can update some solutions with little noticeable impact to Company users, other vendors employ frequent upgrade schedules. As more of these services are integrated with other applications, we will require more upgrade projects to ensure continued interoperability of solutions.

Because of the pace of change, the planning horizon for technology is shorter. We can plan for some of these opportunities with the best information known at the time. However, our ability to provide detailed estimates in longer time horizons is limited. The often-accelerated advancement of new digital capabilities also calls for our ability to invest in unplanned, yet prudent emergent projects. Investments, both planned and unplanned, in data and analytics, automation, self-service and other cloud services multiply the benefits provided by existing technology assets by layering on new digital capabilities.

Lastly, rapid change in the way employees work, magnified by pandemic-accelerated, remote-work practices and enabled by technology, will require IT to adopt a remote-centric IT operations model, which will add increased cost pressures in adapting to a new normal.

### B. Growing Asset Base

The Company's investments in the digital capabilities outlined above will be delivered on top of a digital asset base that has seen a significant pattern of growth in the last five years. It is this growing and evolving asset base that makes the business and technical capabilities we have today possible. As this digital asset base expands to support critical business operations in an environment of expanding cyber threats, so do the requirements and resources necessary to ensure those assets remain high-performing, reliable, and secure.

**NOTE:** For an overview of the Company's current digital assets, refer to section II. [Digital Asset Overview](#).

Our digital asset growth is not unlike what is becoming common in our own homes today. Advances in new technology products and services, as well as consumer adoption, have given rise to connected 'smart' devices that support voice assistants, home security and automation, and streaming of entertainment. The value of these capabilities is provided through an increasing number of cloud and/or subscription services unique to their product ecosystem.

We have invested in hardware, software, and communication networks used by virtually all areas of the business. Our foundational systems—underlying hardware and software needed by other systems to operate securely and reliably—include networks, data centers, servers, storage, operational technology, cloud computing services, collaborative and productivity systems, end-user computing, data and analytic systems, and more.

- We operate more than 150 business-critical software systems. These include large platforms like Gas and Electric Supervisory Control and Data Acquisition (SCADA), SAP, Smart Energy, Gas Automated Meter Reading, Field Solutions and Connectivity, Geographic Information Systems (GIS), Grid Modernization, Digital Customer Experience, collaboration tools, and the Analytics Ecosystem, including the Data Lake. The Advanced Distribution Management System for the electric grid is a major platform currently being implemented.

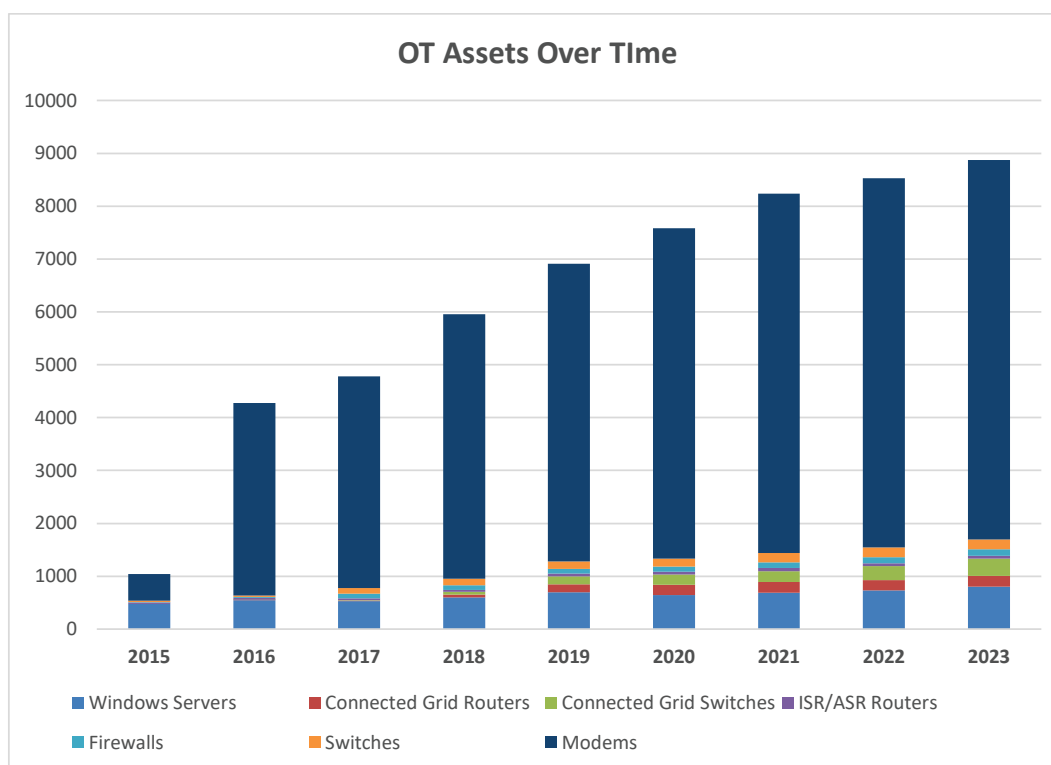
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A good example of historic and future asset growth is in the Operational Technology (OT) domain. Since 2015, digital assets in OT have increased by over 700% due to deployment of new capabilities. In addition, the number of assets is projected to continue to increase year-over-year through the next three years as a result of additional grid-connected devices, distributed energy resources, gas remote control valves, and other system telemetry.

**Figure 20: Number of Operational Technology Assets (Historic and Projected)**



### Keeping the Asset Base Secure

Cyber security concerns have never been higher for all industries, and that is especially true for utilities. Utility CEOs regularly list cyber security as a top concern. One of these challenges is the breadth of threats faced.

- Attackers' motivation includes stealing sensitive data and payment information, collecting ransomware payments, and impacting critical infrastructure.
- Attacks come from highly skilled, international cybercrime groups and nation states. Specifically, the United States government has stated that the countries of Russia, Iran, and North Korea have cyber capabilities and the intent to access US critical infrastructure.

While the threat of cyber-attacks has never been higher, so too is our desire to digitize and modernize utility systems in both IT and OT environments. Customers expect the ability to interact digitally with the Company, and its employees expect more flexibility in accessing their systems and data.



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Our Electric business expects increasing levels of Distributed Energy Resources (DER), offering new ways to deliver and use electricity, accommodating customer demand for a cleaner more flexible electric grid system, and increasing levels of visibility into electric usage.

- The Company's electric grid modernization plans call for new systems, equipment, and processes within the electric system.
- Each of these areas offers transformational opportunities for utilities, but also increases cyber security risk through additional use of technology (software and hardware) and system interconnectedness.

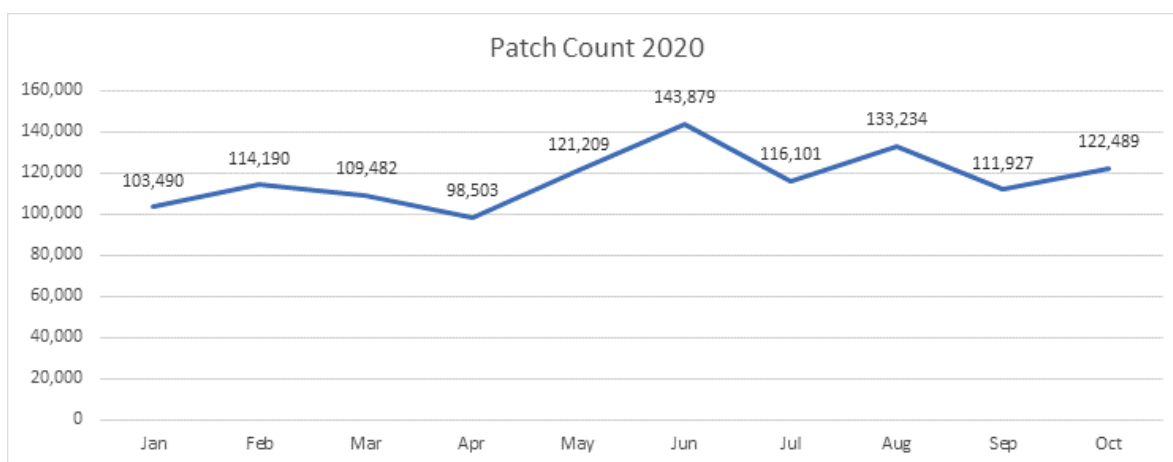
These modernization efforts and increased threats require resourcing, investment, new standards development, and maturity of cyber security programs. IT departments are uniquely challenged as Cyber Security is a responsibility shared across the entire IT organization, especially within those IT departments responsible for deploying and operating much of the technology used within utilities.

Our challenges in IT come in the form of new and ever-evolving requirements, which increase project delivery costs, time to implement, and on-going operational costs.

- Patching existing applications is a key mitigation step to keep up with new cyber security risks. Upgrading our Company's applications and operating systems has a direct and positive effect on patching difficulty.
- The volume of patching requirements multiplies with each version in the environment, creating a critical need to upgrade in a regular, planned cadence.

Below is a graph that shows the volume of patching requirements in our current state.

**Figure 21: Number of Server & Workstation Patches Applied 2020**



### Compliance

As security threats continue to rise, so does concern from both state and federal regulators. Security teams are facing a significant increase in regulatory requirements and the associated scrutiny. The compliance mandates do not simply challenge the ability to execute security programs, but also the ability to provide evidence supporting compliance.

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At the state level, the Michigan Public Service Commission (MPSC) has added cyber security requirements to both the gas and electric technical standards.

- The electric standards now include requirements for annual reporting, incident notification, program frameworks, asset management, vulnerability, and security awareness.
- The gas standards have adopted the American Petroleum Institute (API) 1164 standard which contains nearly 200 prescriptive controls. API 1164 is a significant change requiring a multiyear, multimillion-dollar project.

At the federal level, the North American Electric Reliability Corporation / Critical Infrastructure Protection (NERC/CIP) standards continue to evolve and increase requirements and scrutiny. The most recent iteration of the standards has brought many more assets into scope and the Company expects additional requirements to continue to be added. In addition, recent changes have added compliance requirements to supply chain processes and procedures.

- NERC/CIP standards apply only to electric infrastructure.
- Today there are no mandatory federal security standards for natural gas. However, there is increasing pressure and momentum to create and promulgate new regulations. While it is uncertain when mandatory standards will be implemented for the natural gas business, the Company expects a change within the next five years.

Today, the Company voluntarily complies with the Transportation Security Administration (TSA) standards. While NERC/CIP and TSA standards receive the most attention, there are additional compliance mandates requiring significant effort and oversight, including Federal Energy Regulatory Commission (FERC) Hydroelectric standards, Maritime Security (MARSEC), Payment Card Industry (PCI), and Sarbanes Oxley (SOX).

### Physical Security

Protection of our physical assets depends on tools such as automated camera systems, thermal radar, remote communications and intrusion detection, which offer promise towards more cost effective and scalable solutions to best support grid and gas modernization efforts.

While cyber security receives most of the headlines, physical security continues to be a unique challenge throughout the utility industry.

Physical threats have stayed relatively consistent over the past 10 years, yet significant challenges remain. Threats can still have significant impact on critical infrastructure. At the same time, critical infrastructure assets are extremely difficult to protect given their geographic distribution and public locations.

Consider the criticality of substation assets. There are more than one thousand in the Company's system—many in very rural areas, but all in full public view. Traditional security measures such as security guards and camera monitoring simply do not scale in a cost-effective manner. The desire to best protect existing assets and the increased nature of smaller, more distributed generation calls for new solutions and investment based upon advancing technologies.

### Keeping the Asset Base Current

Upgrading our asset base to ensure reasonable levels of currency is essential to delivering safe, reliable, affordable, and clean service to the Company's customers. New versions of technology enable us to maintain vendor support, remediate vendor security vulnerabilities, address vendor defects that impair stability and functionality, and address version interdependencies and compatibility between systems.

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With the increasing complexity and integrations across the asset base, upgrades are requiring more extensive testing than ever. We typically plan system upgrades around an application, and upgrade its underlying components, such as operating system and database, at the same time to minimize the testing effort.

While we prefer to maintain an upgrade strategy of staying at most one version behind the currently available version (N-1), there are multiple considerations to determine when upgrades are needed. These include application criticality, security and operational risk, operational impacts of performing the upgrade, ability to defer, and cost.

Deferring an application upgrade for too long has the potential to increase the overall cost of the upgrade, since the larger number of differences between versions generally adds complexity and cost to the project.

### Looking Forward

The number of digital assets required to deliver key business capabilities will continue to increase within and beyond the horizon of this plan. The primary contributor is the investment in the new capabilities outlined in the sections above and in the Company's plans, such as the NGDP, IRP, EDIIP.

Growth in support activities (break/fix, monitoring, etc.), vendor maintenance agreements, cloud subscriptions and administration to maintain the reliability and security of our digital asset base require adequate O&M funding to be effective. This is increasingly important as the Company adapts to an environment of escalating cyber security threats, accelerated technology change/complexity, dependence on vendor-provided technology services and subscriptions, and a higher frequency of vendor-provided patches and upgrades.

With the digital asset base growth curve not expecting to plateau within the plan's timeframe, we recognize that O&M costs cannot grow at the same pace.

In response, we have diligently pursued activities to optimize costs to contain the supporting O&M expense. This includes efforts to reduce software and hardware maintenance agreements, improve processes for labor efficiency, and reduce managed services contract costs. While our efforts to optimize costs have resulted in offsets to increasing IT O&M expense, they cannot be enough to cover the O&M funding requirements of our complex, growing and shifting digital asset base.

Just like our example of a growing technology asset base in households today, our Company's digital asset base is a result of deploying new capabilities possible through the advancement of key technology and services. And while the Company's investments in new assets will require projected increase in O&M funding over time to ensure reliable and secure operations—they are essential to achieving the Company's plans to deliver safe, reliable, affordable, and clean energy and excellent service to its customers.

### C. Conclusion

The plans, objectives, challenges, desired capabilities and associated digital opportunities outlined above for the Gas, Electric, Customer, and other supporting business teams demonstrate how digital investments are an essential part of enabling the Company to achieve its goals in providing value to its customers and the state of Michigan.

Much of the current regulatory construct was designed around earning a return on long-life capital investments. For technology, this model was a better fit for large, centralized and on-premise hardware and software systems with a low level of change, obsolescence and security risk, all while operating in a stable and slow-to-change energy environment.

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While the Company still needs these types of technologies, the above sections illustrate the need for more dynamic investments based on the need for business agility, opportunities to take advantage of a rapidly advancing digital market, and an increasingly risky and threatening cyber-security environment.

This requires a shift in our investment mix and business model—to be able to earn in new ways that aren't dependent solely on making large capital investments, and that adapt to an increasing shift in costs to both investing in cloud and ensuring secure and reliable operations.

In addition, **we must also address the technology investments required to manage and run IT** in support of these programs—the sheer amount of data, systems needed to manage our distributed resources, and the call for more customer-centric business solutions alone require more flexibility in recovering the costs associated with running IT, remaining competitive, and delivering new value to customers.

APPENDIX B (PAGES 65-131) IS **CONFIDENTIAL** AND CONTAINED  
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### Appendix C: Project List Detail

Appendix C provides a detailed project list for each Investment financial category for 2021 through 2023. Specifically:

- Column (a) provides the projected financial summary or project name
- Column (b) provides the 2021 projected capital for the project
- Column (c) provides the 2021 projected investments O&M expense for the project
- Column (d) provides the 2022 projected capital for the project
- Column (e) provides the 2022 projected investments O&M expense for the project
- Column (f) indicates the expected type of project for 2023 based on the following classifications:

Classification	Definition
New	New technology
Continue	Project projected to continue from 2022
Maintain	Recurring upgrades, asset refresh and application currency
Enhance	Build new capabilities in current assets



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**Table 7: Projected IT/Digital Foundation Projects**

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(d) Projected 2023		(f) Projected 2023
		Capital	O&M	Capital	O&M			
1	IT_Digital Foundation	\$40,970,860	\$14,074,533	\$46,021,593	\$14,969,287			
2	Application Currency-ACDA-Capital	\$82,037	\$11,100	\$186,323	\$66,933			Maintain
3	Oracle Server Database Upgrade	\$92,242	\$683,280	\$375,824	\$1,594,321			Maintain
4	ARP-Operational Technology Storage Area Network	\$398,000	\$52,500	\$1,048,000	\$170,000			Maintain
5	SQL Server Database Upgrade	\$457,680	\$1,062,151	\$305,120	\$648,000			Maintain
6	IT Vendor Management Solution	\$490,000	\$49,400					
7	IT Access Controls Governance	\$509,849	\$85,789					
8	SAP Data Archiving	\$548,500	\$113,365	\$548,500	\$264,850			Maintain
9	Modernize Graphical User Interface Extension Packages Upgrade	\$661,657	\$72,089					
10	Enhancements-IT-Capital	\$675,000		\$675,000				Enhance
11	ARP-Core Network Upgrade	\$1,045,077	\$77,417					Maintain
12	Enhancements-Cloud Automation	\$1,086,763	\$171,630	\$1,086,763	\$190,700			Enhance
13	SAP Data Encryption	\$1,104,911	\$1,373,425	\$1,206,158	\$1,748,916			Continue
14	SAP Automated Provisioning	\$1,108,000	\$119,000					
15	ARP-Collaboration	\$1,181,690	\$461,626	\$1,161,690	\$536,917			Maintain
16	ARP-Printer Asset Management (PAM)	\$1,403,106	\$4,500	\$654,311	\$5,000			Maintain
17	ARP-Radio	\$1,589,675	\$556,116	\$1,240,119	\$52,114			Maintain
18	Enterprise Service Bus Application Upgrade	\$1,863,170	\$125,824					
19	ARP-Local Area Network	\$3,647,495	\$117,121	\$1,796,527	\$64,096			Maintain
20	ARP-Server and Storage	\$3,657,594	\$560,696	\$4,272,198	\$622,995			Maintain
21	ARP-Workstation Asset Management (WAM)	\$8,304,198	\$122,382	\$10,494,953	\$191,203			Maintain
22	800 MHZ Modernization	\$11,064,216	\$756,638	\$5,030,947	\$869,623			
23	Application Currency-Operational Technology-O&M		\$18,167		\$42,130			Maintain
24	Application Currency-ACDA-O&M		\$240,704		\$254,714			Maintain
25	Enhancements-IT-O&M		\$263,510		\$167,356			Enhance
26	SAP Optimization and Tuning		\$321,503		\$357,225			Maintain
27	Software Platform Refresh		\$624,334		\$693,704			Maintain
28	Application Currency-IAO-O&M		\$647,995		\$487,227			Maintain
29	2010 SharePoint Platform Replacement		\$2,399,984					
30	SAP Support Pack Upgrade		\$2,982,288					Maintain
31	Digital-Work Automation			\$219,000	\$214,000			Continue
32	SharePoint 2016 and K2 4.7 Replacement			\$293,000	\$518,000			Continue
33	Digital-Foundation Enhancements			\$392,000	\$319,000			Continue
34	Digital-Data Governance			\$1,098,430	\$364,250			Continue
35	Cloud Automation Phase 6			\$1,440,521	\$243,872			Continue
36	Digital-Data and Analytics in the Cloud			\$1,513,280	\$200,385			Continue
37	Digital-Application Programming Interface Fabric			\$1,714,000	\$287,625			Continue
38	Digital-Hybrid Cloud and Data Center Migration			\$4,569,633	\$2,325,553			Continue
39	Core Applications Always On for Business			\$4,699,296	\$703,512			Continue
40	S4 HANA Assessment				\$182,570			
41	BizTalk Upgrade				\$215,163			Maintain
42	Redwood Cronacle Upgrade				\$367,332			
43	Application Currency-Operations-Capital							Maintain
44	Application Infrastructure Next Generation Capabilities							New
45	Clarity Enhancements							Enhance
46	ISIS Papyrus Upgrade							Maintain
47	Itron Enterprise Edition Upgrade							Maintain
48	Native HANA 2019							Maintain

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**Table 8: Projected Electric Projects**

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(f) Projected 2023
		Capital	O&M	Capital	O&M	
1	<b>Electric</b>	<b>\$9,611,271</b>	<b>\$1,055,789</b>	<b>\$1,500,996</b>	<b>\$115,813</b>	
2	Electric Operations Field Devices for Journey Workers and Apprentices	\$2,190,783	\$78,592			
3	Centralized Demand Response Management	\$1,293,000	\$75,420	\$135,000		Continue
4	Electric Interconnection Billing and Payment	\$1,095,000	\$133,200			
5	Renewables Supervisory Control and Data Acquisition Overlay	\$1,012,217	\$25,732			
6	Electric Geographic Information System (GIS) Platform Upgrade	\$768,000	\$257,125			
7	Electric Infrastructure Attachments	\$727,000	\$58,950			
8	Replacement of Electric Meter Accuracy Testing Software for the Meter Technology Center	\$704,339	\$87,409			
9	ARP-Operational Technology Support Electric	\$695,136	\$23,576	\$783,996	\$28,813	Continue
10	Live Wiredown Detection	\$468,796	\$60,015			
11	MISO Market System Replacement	\$440,000	\$59,400	\$440,000	\$66,000	
12	Electric High Voltage Distribution Monitoring System Upgrade	\$142,000	\$18,900	\$142,000	\$21,000	Continue
13	MISO Market User Interface Changes	\$75,000	\$16,200			
14	Centralized Demand Response Management Assessment		\$161,271			
15	Electric Distribution-Transmission Outage Application Phase III					New
16	Generation Operations Digital Work Management					New
17	Real Time Electric System Access in the Field					New

**Table 9: Projected Gas Projects**

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(f) Projected 2023
		Capital	O&M	Capital	O&M	
1	<b>Gas</b>	<b>\$8,132,583</b>	<b>\$1,092,018</b>	<b>\$7,152,744</b>	<b>\$1,435,408</b>	
2	Gas Transmission Probabilistic Risk Model	\$3,476,375	\$258,630	\$928,250	\$251,600	
3	Gas Measurement, Regulation, Pipeline, and Storage Field Work Management Enablement	\$1,410,505	\$129,001			
4	Gas Construction Operations Enablement	\$1,021,359	\$115,074	\$524,639	\$57,763	
5	Gas Geographic Information System (GIS) Platform Upgrade	\$968,000	\$457,125			
6	Gas Operations Field Devices for Gas Construction Employees	\$759,689	\$35,760			
7	GIS-Integrated Design	\$311,000	\$97,750			
8	ARP-Operational Technology Support Gas	\$185,655	-\$1,322	\$185,655	\$1,178	Continue
9	Gas Storage Probabilistic Risk Model			\$3,432,500	\$310,700	Continue
10	Gas T&D Historian			\$1,305,000	\$141,000	Continue
11	Gas Distribution ProjectWise			\$776,700	\$22,100	
12	Gas SCADA Software Solution				\$651,067	Continue
13	Gas Compression Historian					New
14	Gas Leak Asset and Work Management					Enhance
15	Gas Regulation Reliability Asset Model					New
16	Tracking & Traceability					New

**Table 10: Projected Electric & Gas Shared Projects**

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(f) Projected 2023
		Capital	O&M	Capital	O&M	
1	<b>Electric &amp; Gas Shared</b>	<b>\$8,739,718</b>	<b>\$1,664,323</b>	<b>\$12,013,997</b>	<b>\$3,125,611</b>	
2	Field Contractor Work Management Technology Enablement	\$2,409,520	\$45,552	\$2,049,902	\$45,552	
3	ARP-Field Device Asset Management (FDAM)	\$2,229,659	\$4,500	\$2,003,755	\$5,000	Continue
4	Field Mapping and Graphics	\$2,062,239	\$36,140	\$577,951	\$54,776	
5	Enhancements-Operations-Capital	\$791,800	\$59,130	\$791,800	\$65,700	Continue
6	Itron Enterprise Edition Upgrade	\$594,000	\$757,148			
7	Enhancements-TEOS-Capital	\$547,500		\$547,500		Continue
8	Application Currency-Operations-Capital	\$80,000	\$152,100	\$95,000	\$94,350	Continue
9	Electronic Shift Operations Management System Upgrade	\$25,000	\$146,368	\$25,000	\$162,632	
10	Application Currency-TEOS-O&M		\$283,553		\$182,793	Continue
11	Application Currency-Operations-O&M		\$179,832		\$158,532	Continue
12	Work Management Scheduling Analytics and Reporting			\$2,343,847	\$145,400	Continue
13	Generation Operations Digital Work Management			\$1,764,031	\$54,141	Continue
14	Service Suite Upgrade			\$1,029,696	\$82,378	Continue
15	OSIsoft PI Historian Upgrade			\$485,515	\$1,106,685	
16	Itron Field Collection Systems (FCS) Upgrade			\$300,000	\$620,546	
17	Enhancements-Operations-O&M				\$180,532	Enhance
18	Enhancements-TEOS-O&M				\$166,595	Enhance

2021 - 2023

Digital Three-Year Plan



Table 11: Projected Customer Projects

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(f) Projected 2023
		Capital	O&M	Capital	O&M	
1	Customer	\$11,725,664	\$2,623,930	\$31,143,110	\$7,433,605	
2	Customer Self-Service Mobile Application	\$6,328,000	\$641,000	\$2,261,280		
3	Summer Peak Use Rate (SPUR)-Release 2	\$2,698,864	\$226,862			
4	Enhancements-CE&O-Capital	\$1,200,000		\$1,200,000		Enhance
5	Streetlights Outage & Restoration Tracking Application	\$955,800	\$171,721			
6	Application Currency-CE&O-Capital	\$240,000	\$197,100	\$240,000	\$219,000	Maintain
7	Move In Move Out Energy Efficiency	\$203,000	\$61,000			
8	Genesys Interactive Insights Upgrade	\$100,000	\$5,000			
9	SiteCore Upgrade		\$645,000	\$524,932	\$819,065	
10	Rates Case Implementation		\$304,254		\$338,060	Maintain
11	CARE Annual Updates		\$287,098		\$334,173	Maintain
12	Application Currency-CE&O-O&M		\$84,895		\$197,785	Maintain
13	Bill Design and Delivery Transformation			\$9,826,848	\$2,518,500	Continue
14	Commercial and Industrial Online Account Management			\$9,400,000	\$1,799,500	Continue
15	Contact Center Communication Platform			\$2,483,900	\$482,000	
16	Flexible and Advanced Payment Options			\$2,150,000	\$473,500	
17	Move In/Move Out Digital Redesign			\$1,596,150	\$70,023	
18	Move In Move Out Version 3.0			\$1,460,000	\$182,000	
19	Business Customer Interval Web Portal					New
20	Customer Self-Service Online Work Scheduling					New
21	Enhancements-CE&O-O&M					Enhance
22	In-Person Payment Network Expansion					New
23	IVR Enhancements Agile Team					Enhance
24	Meter Test Data Synchronization					New
25	Residential Clean Energy Product & Service Experience					New
26	Website Redesign					New

Table 12: Projected Corporate Projects

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(f) Projected 2023
		Capital	O&M	Capital	O&M	
1	Corporate	\$3,479,700	\$3,237,258	\$12,038,000	\$3,231,312	
2	Accounts Payable (AP) Automation		\$34,445			
3	Application Currency-Corporate Services-Capital	\$150,000	\$13,500	\$195,000	\$30,000	Continue
4	Application Currency-Corporate Services-O&M		\$427,762		\$343,841	Continue
5	EHS Compliance	\$1,093,700	\$173,250			
6	Enhancements-Corporate Services-Capital	\$850,000	\$76,500	\$850,000	\$85,000	Enhance
7	Breakthrough Employee Experience Enablement	\$650,000	\$276,000			
8	Career and Reward Framework	\$430,000	\$121,000			
9	Labor Relations Management Software	\$306,000	\$19,200			
10	HR Support Pack and BSI Upgrade		\$940,724		\$1,049,506	Maintain
11	Business Planning Optimization		\$630,000	\$500,000	\$500,000	
12	Archive Replacement for Email and Fileshares		\$237,433			
13	Human Resources -2020 Union Changes		\$228,943			
14	Asset Accounting Upgrade		\$58,500	\$2,565,000	\$300,000	
15	Integrated Business Planning, Forecasting, Resource Planning, and Managerial Reporting			\$5,186,000	\$508,000	Continue
16	Core Human Capital Management Transformation			\$2,265,000	\$110,000	Continue
17	Legal Case Management			\$433,000	\$105,500	
18	Contract Life Cycle Management			\$44,000	\$31,500	Continue
19	Enterprise Content Management - Managing Business Records				\$167,965	Continue
20	Career and Compensation Management					New
21	Employee Portal					New
22	Enhancements-Corporate Services-O&M					Enhance
23	Enterprise Risk Management					New
24	Financial Consolidations					New
25	Misconduct Case Management					New
26	Real Estate Land Acquisition					New

2021 - 2023

Digital Three-Year Plan



**Table 13: Projected Security Projects**

Line No.	(a) Projected Financial Summary / Projects	(b) Projected 2021		(c) Projected 2022		(d) Projected 2023
		Capital	O&M	Capital	O&M	
1	<b>Security</b>	<b>\$10,431,644</b>	<b>\$1,428,162</b>	<b>\$10,489,800</b>	<b>\$1,748,886</b>	
2	Pipeline SCADA Security	\$3,902,000	\$510,500	\$1,668,000	\$435,000	Continue
3	Physical Security Asset Refresh	\$1,500,000		\$1,611,000	\$6,000	Maintain
4	Radar Intrusion Detection	\$1,000,000	\$100,000	\$1,958,800	\$100,000	Continue
5	Fusion Center Technologies	\$847,644	\$143,061			
6	Asset Refresh Program - Cyber Security	\$794,000	\$25,000	\$305,000	\$25,000	Maintain
7	Third Party Managed Access	\$710,000	\$38,700			
8	AccessNOW	\$500,000	\$50,000			Enhance
9	Privacy Management Platform	\$488,000	\$114,500			
10	Enhancements-Security-Capital	\$400,000	\$80,000	\$400,000	\$80,000	Enhance
11	CRISP	\$170,000	\$20,400			
12	Cloud Access Security Broker Expansion	\$120,000	\$6,000			
13	Enhancements-Security-O&M		\$273,856		\$273,856	Enhance
14	Application Currency-Security-O&M		\$66,146		\$16,537	Maintain
15	Administrative Access Control			\$1,772,000	\$185,000	
16	Lock and Key Management System			\$1,644,000	\$205,000	Continue
17	Workstation Temporary Administrative Access			\$1,131,000	\$120,200	
18	Role Based Access Control				\$302,293	Continue
19	Application Currency-Security-Capital					Maintain
20	Cloud Software Management					New

**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual and Projected Information Technology Operations O&M Expense

For the Years 2019, 2020, 2021 and Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963  
Exhibit No.: A-104 (JDT-2)  
Page: 1 of 2  
Witness: JDTolonen  
Date: March 2021

Line No.	(a) Description	(b) Historical		(c)		(d) Projected		(e) 12 Mos Ending 12/31/2022	(f) Source
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2021	12 Mos Ended 12/31/2022				
1	Labor	\$	10,663	\$	11,106	\$	11,703	\$	11,866
2	Contracts		31,414		31,218		32,700		33,804
3	Business Expense		1,602		1,156		1,421		1,459
4	Material		151		113		113		113
5	Total Operations Expense	\$	43,830	\$	43,593	\$	45,938	\$	47,242

Source

MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company  
Summary of O&M Expenses Projected Using Merit and Inflation  
For the Years 2019, 2020, 2021 and Test Year 12 Months Ending December 31, 2022  
(\$000)

Case No.: U-20963  
Exhibit No.: A-104 (JDT-2)  
Page: 2 of 2  
Witness: JDTolonen  
Date: March 2021

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
Line No.	Description	Base O&M for Merit & Inflation		Merit & Inflation 12 Mos Ended Dec 31, 2020	Base O&M for Merit & Inflation 12 Mos Ended Dec 31, 2020	Merit & Inflation 12 Mos Ended Dec 31, 2021	Base O&M for Merit & Inflation 12 Mos Ended Dec 31, 2021	Merit & Inflation 12 Mos Ended Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
		2019 Actual	Dec 31, 2019							
1	Operations O&M	43,830	10,663	341	11,004	352	11,356	363	2,355	47,242
	Labor	10,663	10,663	341	11,004	352	11,356	363	146	11,866
	Contracts	31,414		0		0		0	2,390	33,804
	Business Expense	1,602		0		0		0	0	1,459
	Material	151		0		0		0	-38	113

Notes

Notes	12-Mo Ending 2020		12-Mo Ending 2021		12-Mo Ending 2022	
	Annual Merit Increase	Pro-rated Merit Increase	Annual Merit Increase	Pro-rated Merit Increase	Annual Merit Increase	Pro-rated Merit Increase
4 Annual merit increase (Testimony of Amy M. Conrad)	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%
Number of Months in Period	12	12	12	12	12	12
Pro-rated Merit Increase	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
5 Annual inflation rates per WP-JRC-59	1.20%	1.20%	2.50%	2.50%	2.30%	2.3%
Number of Months in Period	12	12	12	12	12	12
Pro-rated Inflation Rate	1.2%	1.2%	2.5%	2.5%	2.3%	2.3%

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
		Case No.	2010	2011	2012	2013	2014	2015	Projected 2016	2017	2018	2019	2020	2021	2022
1		Source													
2		U-17735 A-70 (CJV-2), line 1, columns c and d													
3		U-17960 A-60 (CJV-2), line 1, column d													
4		U-18322 A-74 (CJV-2), line 1, column d													
5		U-20134 A-83 (JRH-1), line 1, columns c and d													
6		U-20697 A-104 (JDT-1), line 5, column d and e													
		U-20963 A-104 (JDT-2), line 5, column e													
							\$ 33,840	\$ 31,763	\$ 35,774	\$ 40,182	\$ 41,472	\$ 40,108	\$ 48,440	\$ 49,287	\$ 47,242

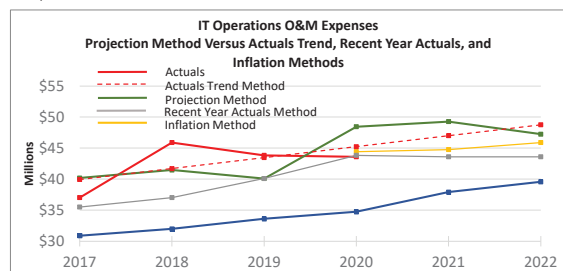
		Case No.	2010	2011	2012*	2013	2014	2015	Actual/Projected 2016	2017	2018	2019	2020**	2021	2022
7		Source													
8		U-16794 A-15 (KMB-1), line 4, column b													
9		U-17067 A-65 (CJV-2), line 4, column b													
10		U-17067 A-65 (CJV-2), line 4, column c													
11		U-17735 A-70 (CJV-2), line 1, column b													
12		U-17960 A-60 (CJV-2), line 1, column b													
13		U-18322 A-74 (CJV-2), line 1, column b and c													
		U-20134 A-83 (JRH-1), line 1, column b													
		- A-104 (JDT-1), line 5, column b													
		- Response to Discovery Request U20697-ST-CE-143-													
14		U-20697 Tolonen_ATT_1-REVISED, line 12, column b													
15		U-20963 A-104 (JDT-2), line 5, columns b and c**													
			\$ 30,060	\$ 27,535	\$ 31,423	\$ 29,973	\$ 35,511	\$ 35,511	\$ 35,701	\$ 37,021	\$ 45,905	\$ 43,830	\$ 43,593		

\* Projected was used for 2012 as there was not a case where 2012 actuals were previously reported

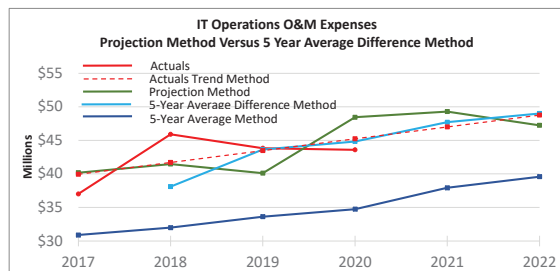
\*\* Projected 2020 includes 9 months of actuals and 3 months of forecast data

\*\*\* The Average Difference is a cumulative average calculation. 2018 is a previous year difference; 2019 is a 2 year average difference; 2020 is a 3 year average difference; 2021 is a 4 year average difference; and 2022 is a 5 year average difference.

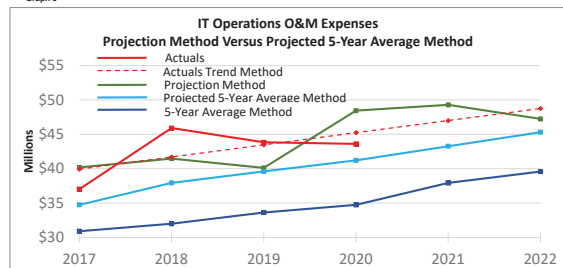
Graph 1



Graph 2



**Graph 3**



**MICHIGAN PUBLIC SERVICE COMMISSION**

Consumers Energy Company

Summary of Actual and Projected Information Technology Investments O&M Expenses  
For the Years 2019, 2020, 2021 and Test Year 12 Months Ending December 31, 2022

(\$000)

Case No.: U-20963  
Exhibit No.: A-107 (JDT-5)  
Page: 1 of 2  
Witness: JDTolonen  
Date: March 2021

Line No.	(a) Description	(b) Historical		(c) 12 Mos Ended 12/31/2020		(d) Projected 12 Mos Ending 12/31/2021		(e) 12 Mos Ending 12/31/2022		(f) Source
		12 Mos Ended 12/31/2019	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2020	12 Mos Ended 12/31/2020	12 Mos Ending 12/31/2021	12 Mos Ending 12/31/2021	12 Mos Ending 12/31/2022	12 Mos Ending 12/31/2022	
1	<b>Investments Planning</b>									
2	Labor	\$ 779	\$ 800	\$ 800	\$ 800	\$ 941	\$ 941	\$ 941	\$ 941	
3	Contracts	500	570	570	570	925	925	925	925	
4	Business Expense	277	229	229	229	16	16	16	16	
5	Material	2	0	0	0	0	0	0	0	
6	<b>Investments O&amp;M</b>	\$ 10,056	\$ 7,575	\$ 7,575	\$ 7,575	\$ 16,118	\$ 16,118	\$ 19,555	\$ 19,555	
7	Labor	2,351	3,204	3,204	3,204	8,404	8,404	11,356	11,356	
8	Software	446	348	348	348	465	465	1,714	1,714	
9	Material	372	520	520	520	1,000	1,000	812	812	
10	Contractor Costs	6,171	3,067	3,067	3,067	5,213	5,213	4,328	4,328	
11	Overhead & Others	716	436	436	436	1,036	1,036	1,345	1,345	
12	<b>Total Investments Expense</b>	<b>\$ 10,836</b>	<b>\$ 8,375</b>	<b>\$ 8,375</b>	<b>\$ 8,375</b>	<b>\$ 17,058</b>	<b>\$ 17,058</b>	<b>\$ 20,496</b>	<b>\$ 20,496</b>	

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Description	2019 Actual	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2019	Merit & Inflation 12 Mos Ending Dec 31, 2020	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2020	Merit & Inflation 12 Mos Ending Dec 31, 2021	Base O&M for Merit & Inflation 12 Mos Ending Dec 31, 2021	Merit & Inflation 12 Mos Ending Dec 31, 2022	Other Adjustments	Projected O&M 12 Mos Ending Dec 31, 2022
				(c) * Inflation Rate		(e) * Inflation Rate		(g) * Inflation Rate		(b) + (d) + (f) + (h) + (i)
1	Investments Planning									
	Labor	779	0	0	0	0	0	0	162	941
	Contracts	500		0	0	0	0	0	425	925
	Business Expense	277		0		0		0	-261	16
	Material	2		0		0		0	0	0
		0		0		0		0	0	0
2	Investments O&M									
	Labor	10,056	0	0	0	0	0	0	9,499	19,555
	Software	2,351		0	0	0	0	0	9,005	11,356
	Material	446		0		0		0	1,268	1,714
	Contractor Costs	372		0		0		0	812	812
	Overhead & Others	6,171		0	0	0	0	0	-1,843	4,328
		716		0		0		0	629	1,345
3	Total Information Technology O&M Expenses	\$ 10,836	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,661	\$ 20,497
	Labor	2,852	0	0	0	0	0	0	9,430	12,282
	Material	723	0	0	0	0	0	0	1,007	1,730
	Contractor	374	0	0	0	0	0	0	438	812
	Non-Labor Overheads	6,171	0	0	0	0	0	0	-1,843	4,328
	Non-Labor Other	716	0	0	0	0	0	0	629	1,345

Notes

Line No.	Description	12-Mo Ending 2020	12-Mo Ending 2021	12-Mo Ending 2022
4	Annual merit increase (Testimony of Amy M. Conrad)			
	Annual Merit Increase	3.20%	3.20%	3.20%
	Number of Months in Period	12	12	12
5	Pro-rated Merit Increase			
	Pro-rated Merit Increase	3.2%	3.2%	3.2%
	Number of Months in Period	12	12	12
6	Annual inflation rates per WP-JRC-59			
	Annual Inflation Rates per WP-JRC-59	1.20%	2.50%	2.30%
	Number of Months in Period	12	12	12
7	Pro-rated Inflation Rate			
	Pro-rated Inflation Rate	1.2%	2.5%	2.3%
	Number of Months in Period	12	12	12

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[illegible]

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Line	Year	Project Name	IT Program	Risk Category	(c)	(d)	(e)	Project Envelopes										(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)	(qg)	(qh
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Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	ITEM ID	PROJECT NAME	IT PROGRAM	PRECEDENCE	PROJECT PURPOSE	START DATE	END DATE	STATUS	SOFTWARE COSTS	MATERIAL COSTS	LABOR COSTS	CONTRACTOR COSTS	OVERHEADS	ELECTRIC PORTION	SOFTWARE PORTION	MATERIAL COSTS	LABOR COSTS	CONTRACTOR COSTS
175	2020	IT Access Controls Governance	IT Program	Software to be installed	This project replaces the current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. To comply with the new agreement, the current software tool must be replaced with a new tool that can manage and monitor customers' Any ACCT 2020 compliance. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
176	2020	Operational Data Management	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
177	2020	Operational Data Management	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
178	2020	Secure Content Management Capabilities	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
179	2020	Time Entry and Expense Reports Patch	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
180	2020	2020 System Updates & Enhancements (Business Partner)	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869
181	2020	Application Currency Control	IT Program	Software to be installed	This project will upgrade the Company's current software tool that manages and monitors customers' Any ACCT 2020 compliance for SAP transactions. The current software tool is outdated and does not meet the requirements of the new agreement. The new tool will be installed and configured to meet the requirements of the new agreement. The project will also include training for the staff who will be responsible for managing the new tool.	2020-01-01	2020-03-31	Completed	180,000	0	52,237	45,708	9,833	113,300	0	0	113,300	37,869

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240	SUBTOTAL 2020 Enhancements	2,444,541	67,520	1,110,799	807,887	551,998	467,688	23,372	5,552	265,538	146,072	26,790
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Sl. No.	Period Year	Project Name	IT Program	Risk Category	(a)	(b)	(c)	(d)	(e)										(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)</
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Line	No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)	(qg)	(qh)	(qi)
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Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)										(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)																																																																																																																																																																																																																																																																																																																																																																																				
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Line	No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mm)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)	(qg)	(qh)
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Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)			
	TRIP NO.	PROJECT NAME	IT PROGRAM	REC CATEGORY	PROJECT ENVOYES	IMPLEMENTATION DATE	GOVT. MERIT RATE	ELECTRICITY COST APPLICABLE YEAR	SOFTWARE APPLICABLE YEAR	MATERIALS COST	LABOR COST	CONTRACTOR ELECTRIC	CONTRACTOR ELECTRIC	OVERHEADS ELECTRIC	ELECTRIC APPLICABLE YEAR	SOFTWARE APPLICABLE YEAR	MATERIALS COST	LABOR COST	CONTRACTOR ELECTRIC	CONTRACTOR ELECTRIC	OVERHEADS ELECTRIC
432	2022	SAR Data Encryption	IT Service Delivery	Software (IT Enabled)	This project will implement Information Security measures, such as encryption of banking account details of customers, vendors and employees for data at rest. The National Automated Clearing House Association (NACHA) regulations, which state that the enterprise application SAP system must be encrypted, including data in production environments, will be implemented in parallel to require NACHA compliance. (1) Operations, (2) IT Operations, (3) IT Service Delivery, (4) IT Support, (5) IT Training, (6) IT Development, (7) IT Testing, (8) IT Deployment, (9) IT Maintenance, (10) IT Support, (11) IT Training, (12) IT Development, (13) IT Testing, (14) IT Deployment, (15) IT Maintenance, (16) IT Support, (17) IT Training, (18) IT Development, (19) IT Testing, (20) IT Deployment, (21) IT Maintenance, (22) IT Support, (23) IT Training, (24) IT Development, (25) IT Testing, (26) IT Deployment, (27) IT Maintenance, (28) IT Support, (29) IT Training, (30) IT Development, (31) IT Testing, (32) IT Deployment, (33) IT Maintenance, (34) IT Support, (35) IT Training, (36) IT Development, (37) IT Testing, (38) IT Deployment, (39) IT Maintenance, (40) IT Support, (41) IT Training, (42) IT Development, (43) IT Testing, (44) IT Deployment, (45) IT Maintenance, (46) IT Support, (47) IT Training, (48) IT Development, (49) IT Testing, (50) IT Deployment, (51) IT Maintenance, (52) IT Support, (53) IT Training, 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Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)	(qg)	(qh)	(qi)	(qj)
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Line	RFP No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)	(bk)	(bl)	(bm)	(bn)	(bo)	(bp)	(bq)	(br)	(bs)	(bt)	(bu)	(bv)	(bw)	(bx)	(by)	(bz)	(ca)	(cb)	(cc)	(cd)	(ce)	(cf)	(cg)	(ch)	(ci)	(cj)	(ck)	(cl)	(cm)	(cn)	(co)	(cp)	(cq)	(cr)	(cs)	(ct)	(cu)	(cv)	(cw)	(cx)	(cy)	(cz)	(da)	(db)	(dc)	(dd)	(de)	(df)	(dg)	(dh)	(di)	(dj)	(dk)	(dl)	(dm)	(dn)	(do)	(dp)	(dq)	(dr)	(ds)	(dt)	(du)	(dv)	(dw)	(dx)	(dy)	(dz)	(ea)	(eb)	(ec)	(ed)	(ee)	(ef)	(eg)	(eh)	(ei)	(ej)	(ek)	(el)	(em)	(en)	(eo)	(ep)	(eq)	(er)	(es)	(et)	(eu)	(ev)	(ew)	(ex)	(ey)	(ez)	(fa)	(fb)	(fc)	(fd)	(fe)	(ff)	(fg)	(fh)	(fi)	(fj)	(fk)	(fl)	(fm)	(fn)	(fo)	(fp)	(fq)	(fr)	(fs)	(ft)	(fu)	(fv)	(fw)	(fx)	(fy)	(fz)	(ga)	(gb)	(gc)	(gd)	(ge)	(gf)	(gg)	(gh)	(gi)	(gj)	(gk)	(gl)	(gm)	(gn)	(go)	(gp)	(gq)	(gr)	(gs)	(gt)	(gu)	(gv)	(gw)	(gx)	(gy)	(gz)	(ha)	(hb)	(hc)	(hd)	(he)	(hf)	(hg)	(hh)	(hi)	(hj)	(hk)	(hl)	(hm)	(hn)	(ho)	(hp)	(hq)	(hr)	(hs)	(ht)	(hu)	(hv)	(hw)	(hx)	(hy)	(hz)	(ia)	(ib)	(ic)	(id)	(ie)	(if)	(ig)	(ih)	(ii)	(ij)	(ik)	(il)	(im)	(in)	(io)	(ip)	(iq)	(ir)	(is)	(it)	(iu)	(iv)	(iw)	(ix)	(iy)	(iz)	(ja)	(jb)	(jc)	(jd)	(je)	(jf)	(jg)	(jh)	(ji)	(jj)	(jk)	(jl)	(jm)	(jn)	(jo)	(jp)	(jq)	(jr)	(js)	(jt)	(ju)	(jv)	(jw)	(jx)	(jy)	(jz)	(ka)	(kb)	(kc)	(kd)	(ke)	(kf)	(kg)	(kh)	(ki)	(kj)	(kk)	(kl)	(km)	(kn)	(ko)	(kp)	(kq)	(kr)	(ks)	(kt)	(ku)	(kv)	(kw)	(kx)	(ky)	(kz)	(la)	(lb)	(lc)	(ld)	(le)	(lf)	(lg)	(lh)	(li)	(lj)	(lk)	(ll)	(lm)	(ln)	(lo)	(lp)	(lq)	(lr)	(ls)	(lt)	(lu)	(lv)	(lw)	(lx)	(ly)	(lz)	(ma)	(mb)	(mc)	(md)	(me)	(mf)	(mg)	(mh)	(mi)	(mj)	(mk)	(ml)	(mn)	(mo)	(mp)	(mq)	(mr)	(ms)	(mt)	(mu)	(mv)	(mw)	(mx)	(my)	(mz)	(na)	(nb)	(nc)	(nd)	(ne)	(nf)	(ng)	(nh)	(ni)	(nj)	(nk)	(nl)	(nm)	(nn)	(no)	(np)	(nq)	(nr)	(ns)	(nt)	(nu)	(nv)	(nw)	(nx)	(ny)	(nz)	(oa)	(ob)	(oc)	(od)	(oe)	(of)	(og)	(oh)	(oi)	(oj)	(ok)	(ol)	(om)	(on)	(oo)	(op)	(oq)	(or)	(os)	(ot)	(ou)	(ov)	(ow)	(ox)	(oy)	(oz)	(pa)	(pb)	(pc)	(pd)	(pe)	(pf)	(pg)	(ph)	(pi)	(pj)	(pk)	(pl)	(pm)	(pn)	(po)	(pp)	(pq)	(pr)	(ps)	(pt)	(pu)	(pv)	(pw)	(px)	(py)	(pz)	(qa)	(qb)	(qc)	(qd)	(qe)	(qf)	(qg)	(qh)	(qi)
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## Schedule B-5.3

## MICHIGAN PUBLIC SERVICE COMMISSION

Consumers Energy Company

Projected Capital Expenditures

Information Technology

Summary of Actual and Projected Electric Capital Expenditures

For Years 2019 Through 2021 and Test Year 2022

(\$000)

Case No.: U-20963

Exhibit No.: A-12 (JDT-6)

Schedule: B-5.3

Page: 1 of 1

Witness: JDTolonen

Date: March 2021

		(a)	(b)	(c)				(d)	(e)	(f)	
		Capital Expenditures							Projected Test Year 12 Mos Ending 12/31/2022		
Line No.	Description	Historical 12 Mos Ended 12/31/2019	Projected Bridge Year								
			12 Mos Ended 12/31/2020	12 Mos Ending 12/31/2021	24 Mos Ending 12/31/2021						
1	Upgrades & Replacements (Enterprise)	\$	11,005	\$	800	\$	2,115	\$	2,915	\$	1,054
	Software		308		82		-		82		-
	Materials		4,017		10		387		397		105
	Labor		1,024		373		1,039		1,412		363
	Contractor Costs		4,985		195		105		300		348
	Engineering		-		-		-		-		-
	Overhead & Others		670		140		584		724		237
	Contingency		-		-		-		-		-
2	Upgrades & Replacements (Business Partner)	\$	1,565	\$	5,162	\$	3,183	\$	8,344	\$	3,973
	Software		-		723		334		1,057		366
	Materials		1		541		391		932		104
	Labor		466		1,739		1,012		2,750		1,589
	Contractor Costs		766		1,637		827		2,464		1,054
	Engineering		-		-		-		-		-
	Overhead & Others		332		521		619		1,141		859
	Contingency		-		-		-		-		-
3	Security	\$	5,217	\$	4,025	\$	4,786	\$	8,811	\$	5,669
	Software		284		805		567		1,372		1,465
	Materials		1,837		525		2,172		2,697		2,826
	Labor		411		748		862		1,610		826
	Contractor Costs		2,483		1,598		743		2,340		387
	Engineering		-		-		-		-		-
	Overhead & Others		201		350		442		791		163
	Contingency		-		-		-		-		-
4	IT Service Delivery	\$	13,773	\$	21,181	\$	23,922	\$	45,103	\$	26,809
	Software		864		2,339		549		2,888		2,813
	Materials		10,106		16,492		17,213		33,705		17,101
	Labor		1,145		825		1,759		2,584		2,335
	Contractor Costs		1,039		657		3,470		4,127		2,039
	Engineering		-		-		-		-		-
	Overhead & Others		618		868		931		1,799		2,521
	Contingency		-		-		-		-		-
5	Enhancements	\$	4,246	\$	2,495	\$	3,904	\$	6,398	\$	4,179
	Software		66		68		-		68		-
	Materials		114		(65)		-		(65)		-
	Labor		1,122		1,132		2,976		4,108		3,117
	Contractor Costs		2,158		808		88		896		158
	Engineering		-		-		-		-		-
	Overhead & Others		786		552		840		1,392		904
	Contingency		-		-		-		-		-
6	BP Functionality	\$	16,741	\$	17,846	\$	20,732	\$	38,578	\$	35,525
	Software		268		10,237		2,050		12,287		3,780
	Materials		3,460		(3,507)		2,239		(1,268)		818
	Labor		1,677		2,572		6,956		9,528		11,344
	Contractor Costs		9,560		7,134		6,157		13,291		12,788
	Engineering		-		-		-		-		-
	Overhead & Others		1,776		1,410		3,331		4,741		6,795
	Contingency		-		-		-		-		-
7	Architecture	\$	-	\$	-	\$	-	\$	-	\$	-
	Software		-		-		-		-		-
	Materials		-		-		-		-		-
	Labor		-		-		-		-		-
	Contractor Costs		-		-		-		-		-
	Engineering		-		-		-		-		-
	Overhead & Others		-		-		-		-		-
	Contingency		-		-		-		-		-
	Total Capital	\$	52,547	\$	51,508	\$	58,640	\$	110,149	\$	77,209

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**

Historical 13 Month Average of IT Cloud Computing Prepaid Balance  
For the years 2019 - 13 months balance ending September 30, 2021  
Electric Allocation

Case No.: U-20963  
Exhibit No.: A-109 (JDT-8)  
Page: 1 of 2  
Witness: JDTolonen  
Date: March 2021

Line No.	(a) Description	(b) Bal. Ending 9/30/2019	(c) Bal. Ending 10/31/2019	(d) Bal. Ending 11/30/2019	(e) Bal. Ending 12/31/2019	(f) Bal. Ending 1/31/2020	(g) Bal. Ending 2/29/2020	(h) Bal. Ending 3/31/2020	(i) Bal. Ending 4/30/2020	(j) Bal. Ending 5/31/2020	(k) Bal. Ending 6/30/2020	(l) Bal. Ending 7/31/2020	(m) Bal. Ending 8/31/2020	(n) Bal. Ending 9/30/2020	(o) 13 mos. Average
1	IT Cloud Computing Prepaid	\$ 1,025,814	\$ 883,420	\$ 769,049	\$ 820,679	\$ 2,839,070	\$ 3,342,674	\$ 3,056,045	\$ 2,750,648	\$ 2,674,447	\$ 2,592,693	\$ 2,294,480	\$ 2,035,444	\$ 1,730,410	\$ 2,062,683
2	Total	\$ 1,025,814	\$ 883,420	\$ 769,049	\$ 820,679	\$ 2,839,070	\$ 3,342,674	\$ 3,056,045	\$ 2,750,648	\$ 2,674,447	\$ 2,592,693	\$ 2,294,480	\$ 2,035,444	\$ 1,730,410	\$ 2,062,683

**MICHIGAN PUBLIC SERVICE COMMISSION**  
**Consumers Energy Company**  
 Projected 13 Month Average of IT Cloud Computing Prepaid Balance  
 For the years 2021 - 13 months balance ending December 31, 2022  
 Electric Allocation

Case No.: U-20963  
 Exhibit No.: A-109 (JDT-8)  
 Page: 2 of 2  
 Witness: JDTolonen  
 Date: March 2021

Line No.	(a) Description	(b) Bal. Ending 12/31/2021	(c) Bal. Ending 1/31/2022	(d) Bal. Ending 2/28/2022	(e) Bal. Ending 3/31/2022	(f) Bal. Ending 4/30/2022	(g) Bal. Ending 5/31/2022	(h) Bal. Ending 6/30/2022	(i) Bal. Ending 7/31/2022	(j) Bal. Ending 8/31/2022	(k) Bal. Ending 9/30/2022	(l) Bal. Ending 10/31/2022	(m) Bal. Ending 11/30/2022	(n) Bal. Ending 12/31/2022	(o) 13 mos. Average
1	IT Cloud Computing Prepaid	\$ 2,573,569	\$ 7,154,753	\$ 6,661,776	\$ 6,805,749	\$ 6,200,960	\$ 5,767,005	\$ 5,103,853	\$ 5,582,601	\$ 5,060,513	\$ 4,452,378	\$ 3,686,550	\$ 2,920,721	\$ 2,195,645	\$ 4,935,852
2	Total	\$ 2,573,569	\$ 7,154,753	\$ 6,661,776	\$ 6,805,749	\$ 6,200,960	\$ 5,767,005	\$ 5,103,853	\$ 5,582,601	\$ 5,060,513	\$ 4,452,378	\$ 3,686,550	\$ 2,920,721	\$ 2,195,645	\$ 4,935,852

ARP-Collaboration

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	LED HDTV	\$1,715.00	8	8	\$13,720.00	\$13,720.00	\$9,647.90	\$9,647.90
2	Wireless Presentation System	\$1,675.00	6	6	\$10,050.00	\$10,050.00	\$7,067.16	\$7,067.16
3	Camera	\$3,645.00	6	6	\$21,870.00	\$21,870.00	\$15,378.98	\$15,378.98
4	Tabletop Conference System Video Package	\$2,120.00	8	8	\$16,960.00	\$16,960.00	\$11,926.27	\$11,926.27
5	Group Video Conferencing	\$14,415.00	3	3	\$43,245.00	\$43,245.00	\$30,409.88	\$30,409.88
6	Projection Screen	\$1,458.15	8	8	\$11,665.20	\$11,665.20	\$8,202.97	\$8,202.97
7	Professional Laser Projector	\$6,475.00	8	8	\$51,800.00	\$51,800.00	\$36,425.76	\$36,425.76
8	Uninterruptible Power Supply	\$1,780.00	46	46	\$81,880.00	\$81,880.00	\$57,578.02	\$57,578.02
9	Foldback refresh	\$18,000.00	7	7	\$126,000.00	\$126,000.00	\$88,603.20	\$88,603.20
10	Auditorium Refresh	\$40,000.00	3	3	\$120,000.00	\$120,000.00	\$84,384.00	\$84,384.00
11	Conference Room Refresh - mid size	\$15,000.00	8	8	\$120,000.00	\$120,000.00	\$84,384.00	\$84,384.00
12	Conference Room Refresh - small size	\$9,000.00	8	8	\$72,000.00	\$72,000.00	\$50,630.40	\$50,630.40
13	Digital Signage Refresh	\$25,000.00	1	1	\$25,000.00	\$0.00	\$17,580.00	\$17,580.00
14	Call Center Signage Refresh	\$20,000.00	1	0	\$20,000.00	\$0.00	\$14,064.00	\$0.00
15	Software, labor, contractor and overhead and other costs				\$447,500.00	\$447,500.00	\$314,682.00	\$314,682.00
16	<b>Total Electric Allocation</b>				\$1,181,690.20	\$1,136,690.20	<b>\$830,964.55</b>	<b>\$816,900.55</b>

Line No.	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
17	EP2-135 Audio System	\$20,163.50	1	0	\$20,163.50	\$0.00	\$13,969.27	\$0.00
18	Conference Room Projector - Small	\$3,245.96	1	0	\$3,244.96	\$0.00	\$2,248.11	\$0.00
19	South Haven Conference Center Refresh	\$171,158.79	1	0	\$171,158.79	\$0.00	\$118,578.81	\$0.00
20	New Generation Wall Monitors	\$14,625.00	5	5	\$73,125.00	\$73,125.00	\$50,661.00	\$51,421.50
21	Uninterruptible Power Supply	\$72,151.86	1	0	\$72,151.86	\$0.00	\$49,986.81	\$0.00
22	Uninterruptible Power Supply	\$1,487.84	0	95	\$0.00	\$141,344.52	\$0.00	\$99,393.47
23	Flint HVAC	\$5,686.92	0	1	\$0.00	\$5,686.92	\$0.00	\$3,999.04
24	Phone Management System	\$148,388.44	0	1	\$0.00	\$148,388.44	\$0.00	\$104,346.75
25	Surface Hub Stands	\$736.52	8	0	\$5,892.16	\$0.00	\$4,082.09	\$0.00
26	Surface Hub Stands	\$780.71	0	8	\$0.00	\$6,245.69	\$0.00	\$4,391.97
27	Royal Oak Auditorium and Aux Conference room	\$38,568.11	0	1	\$0.00	\$38,568.11	\$0.00	\$27,121.09
28	Bay City Auditorium	\$13,070.22	0	1	\$0.00	\$13,070.22	\$0.00	\$9,190.98
29	South Monroe Digital Signage	\$1,641.19	0	1	\$0.00	\$1,641.19	\$0.00	\$1,154.08
30	Digital Signage Phase I	\$1,953.80	0	12	\$0.00	\$23,445.65	\$0.00	\$16,486.98
31	Digital Signage Phase II	\$1,631.05	0	10	\$0.00	\$16,310.51	\$0.00	\$11,469.55
32	Conference Room Refresh	\$4,394.20	0	1	\$0.00	\$4,394.20	\$0.00	\$3,090.00
33	Lansing Service Center Auditorium Refresh	\$54,295.32	0	1	\$0.00	\$54,295.32	\$0.00	\$38,180.47
34	Innovation Center Auditorium	\$83,550.52	0	1	\$0.00	\$83,550.52	\$0.00	\$58,752.73
35	Campbell Classroom	\$2,571.78	0	1	\$0.00	\$2,571.78	\$0.00	\$1,808.48
36	Marshall directory and mercury 4400092667	\$8,505.66	0	1	\$0.00	\$8,505.66	\$0.00	\$5,981.18
37	Campbell Conference Room	\$3,512.00	0	1	\$0.00	\$3,512.00	\$0.00	\$2,469.64
38	Video Teleconferencing Room	\$4,778.95	0	1	\$0.00	\$4,778.95	\$0.00	\$3,360.56
39	Gas Control Refresh	\$10,683.74	0	1	\$0.00	\$10,683.74	\$0.00	\$7,512.81
40	Software, labor, contractor and overhead and other costs				\$309,524.56	\$204,873.67	\$214,438.62	\$144,067.16
41	<b>Total Electric Allocation</b>				\$655,260.83	\$844,992.10	<b>\$453,964.70</b>	<b>\$594,198.44</b>

ARP-Field Device Asset Mgmt

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Field Devices & Accessories	\$3,969.70	441	441	\$1,750,637.70	\$1,750,637.70	\$1,231,048.43	\$1,231,048.43
2	Meter Reading	\$3,181.75	29	58	\$92,270.75	\$184,541.50	\$64,884.79	\$129,769.58
3	LeakCon Devices	\$3,181.75	100	0	\$318,175.00	\$0.00	\$223,740.66	\$0.00
4	Software, labor, contractor and overhead and other costs				\$68,576.00	\$68,576.00	\$48,222.64	\$48,222.64
5	<b>Total Electric Allocation</b>				\$2,229,659.45	\$2,003,755.20	<b>\$1,567,896.53</b>	<b>\$1,409,040.66</b>
	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
6	Field Devices & Accessories	\$3,181.75	616	0	\$1,959,958.00	\$0.00	\$1,357,858.90	\$0.00
7	Field Devices & Accessories	\$3,564.00	0	405	\$0.00	\$1,443,420.00	\$0.00	\$1,015,012.94
8	Software, labor, contractor and overhead and other costs				\$2,825.48	\$0.00	\$1,961.59	\$0.00
9	<b>Total Electric Allocation</b>				\$1,962,783.48	\$1,443,420.00	<b>\$1,359,820.49</b>	<b>\$1,015,012.94</b>

ARP-Local Area Network

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	LAN Switch A	\$4,549.00	359	159	\$1,633,091.00	\$723,291.00	\$932,168.34	\$412,854.50
2	LAN Switch B	\$1,224.00	189	54	\$231,336.00	\$66,096.00	\$132,046.59	\$37,727.60
3	LAN Switch C	\$8,404.00	21	15	\$176,484.00	\$126,060.00	\$100,737.07	\$71,955.05
4	LAN Switch D	\$3,330.00	65	61	\$216,450.00	\$203,130.00	\$123,549.66	\$115,946.60
5	LAN Switch E	\$5,609.00	6	6	\$33,654.00	\$33,654.00	\$19,209.70	\$19,209.70
6	LAN Switch F	\$2,300.00	289	132	\$664,700.00	\$303,600.00	\$379,410.76	\$173,294.88
7	Software, labor, contractor and overhead and other costs				\$691,780.00	\$340,696.00	\$394,868.02	\$194,469.28
8	Total Electric Allocation				\$3,647,495.00	\$1,796,527.00	\$2,081,990.15	\$1,025,457.61

ARP-OT Storage Area Network

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Data Domain	\$50,000.00	5	0	\$250,000.00	\$0.00	\$142,700.00	\$0.00
2	Storage Area Network Replacement	\$325,000.00	0	3	\$0.00	\$975,000.00	\$0.00	\$556,530.00
3	Software, labor, contractor and overhead and other costs				\$148,000.00	\$73,000.00	\$84,478.40	\$41,668.40
4	<b>Total Electric Allocation</b>				\$398,000.00	\$1,048,000.00	<b>\$227,178.40</b>	<b>\$598,198.40</b>
	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
5	Data Domain	\$21,205.50	0	4	\$0.00	\$84,822.00	\$0.00	\$48,416.40
6	Data Domain Software	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00
7	Storage Area Network Replacement	\$153,338.81	0	2	\$0.00	\$306,677.62	\$0.00	\$175,051.59
8	Storage Area Network Replacement	\$76,819.12	0	2	\$0.00	\$153,638.24	\$0.00	\$87,696.71
9	Tape Drives	\$32,970.28	0	2	\$0.00	\$65,940.56	\$0.00	\$37,638.87
10	Software, labor, contractor and overhead and other costs				\$0.00	\$28,586.27	\$0.00	\$16,317.04
11					\$0.00	\$639,664.69	<b>\$0.00</b>	<b>\$365,120.61</b>

**ARP-OT Support Electric**

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Emergency Management System Domain Windows Server	\$3,500.00	20	16	\$70,000.00	\$56,000.00	\$70,000.00	\$56,000.00
2	Real Time Domain Windows Server	\$3,500.00	20	19	\$70,000.00	\$66,500.00	\$70,000.00	\$66,500.00
3	Critical Information Protection Domain Windows Server	\$3,500.00	7	7	\$24,500.00	\$24,500.00	\$24,500.00	\$24,500.00
4	Critical Information Protection Domain Windows Server	\$3,500.00	5	5	\$17,500.00	\$17,500.00	\$17,500.00	\$17,500.00
5	Real Time Domain Windows Server	\$3,500.00	14	10	\$49,000.00	\$35,000.00	\$49,000.00	\$35,000.00
6	Real Time Domain Windows Server	\$4,000.00	3	3	\$12,000.00	\$12,000.00	\$12,000.00	\$12,000.00
7	Real Time Domain Windows Server	\$4,000.00	1	1	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00
8	Integrated Service Router/Aggregation Service Router	\$3,250.00	7	7	\$22,750.00	\$22,750.00	\$22,750.00	\$22,750.00
9	Firewalls	\$3,600.00	16	16	\$57,600.00	\$57,600.00	\$57,600.00	\$57,600.00
10	Switches	\$5,700.00	19	21	\$108,300.00	\$119,700.00	\$108,300.00	\$119,700.00
11	Modems	\$250.00	400	900	\$100,000.00	\$225,000.00	\$100,000.00	\$225,000.00
12	Software, labor, contractor and overhead and other costs				\$159,486.00	\$143,446.00	\$159,486.00	\$143,446.00
13	<b>Total Electric Allocation</b>				\$695,136.00	\$783,996.00	<b>\$695,136.00</b>	<b>\$783,996.00</b>

Line No.	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
14	Firewalls- Hydro Site	\$ 1,548.32	12	0	\$18,579.87	\$0.00	\$18,579.87	\$0.00
15	Switches for Firewalls- Hydro Site	\$ 885.01	8	0	\$7,080.09	\$0.00	\$7,080.09	\$0.00
16	Connected Grid 2G/3G/4G LTE GRWIC	\$ 1,070.00	2	0	\$2,139.99	\$0.00	\$2,139.99	\$0.00
17	PWR SPPLY - NTKW EQUIP PERIPHERALS	\$ 169.32	4	0	\$677.29	\$0.00	\$677.29	\$0.00
18	MS Surface Pro	\$ 1,965.24	1	0	\$1,965.24	\$0.00	\$1,965.24	\$0.00
19	Server	\$ 4,250.00	1	0	\$4,250.00	\$0.00	\$4,250.00	\$0.00
20	R740 Servers	\$ 9,507.96	6	0	\$57,047.75	\$0.00	\$57,047.75	\$0.00
21	Storage Area Network (20TB)	\$ 57,963.14	2	0	\$115,926.27	\$0.00	\$115,926.27	\$0.00
22	Sentinal Monitoring Appliance	\$ 22,525.00	1	0	\$22,525.00	\$0.00	\$22,525.00	\$0.00
23	SMARTNET NETWORK EQUIP MAINTENANCE (SFP)	\$ 197.46	3	0	\$592.38	\$0.00	\$592.38	\$0.00
24	Switches	\$ 10,018.05	1	0	\$10,018.05	\$0.00	\$10,018.05	\$0.00
25	Thin Client Computer	\$ 975.77	2	0	\$1,951.54	\$0.00	\$1,951.54	\$0.00
26	Router	\$ 427.18	2	0	\$854.36	\$0.00	\$854.36	\$0.00
27	Server	\$ 15,000.00	0	10	\$0.00	\$150,000.00	\$0.00	\$150,000.00
28	Tape Libraries	\$ 25,000.00	0	1	\$0.00	\$25,000.00	\$0.00	\$25,000.00
29	Hyper-Converged Appliance	\$ 100,000.00	0	1	\$0.00	\$100,000.00	\$0.00	\$100,000.00
30	Switch	\$ 15,000.00	0	4	\$0.00	\$60,000.00	\$0.00	\$60,000.00
31	Software, labor, contractor and overhead and other costs				\$109,185.24	\$99,797.31	\$109,185.24	\$99,797.31
32	<b>Total Electric Allocation</b>				\$352,793.07	\$434,797.31	<b>\$352,793.07</b>	<b>\$434,797.31</b>

ARP-Printer Asset Management

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Color Laser Multifunction Printer	\$1,664.20	37	92	\$61,575.40	\$153,106.40	\$43,299.82	\$107,664.42
2	Color Laser Multifunction Printer	\$3,021.00	35	10	\$105,735.00	\$30,210.00	\$74,352.85	\$21,243.67
3	Color Laser Multifunction Printer	\$5,596.80	52	6	\$291,033.60	\$33,580.80	\$204,654.83	\$23,614.02
4	Color Laser Multifunction Printer	\$6,191.46	45	6	\$278,615.70	\$37,148.76	\$195,922.56	\$26,123.01
5	Color Laser Multifunction Printer	\$7,303.40	52	16	\$379,776.80	\$116,854.40	\$267,059.05	\$82,172.01
6	Color Wide Format Printer	\$8,204.40	21	7	\$172,292.40	\$57,430.80	\$121,156.02	\$40,385.34
7	Color Laser Multifunction Printer	\$6,807.32	1	1	\$6,807.32	\$6,807.32	\$4,786.91	\$4,786.91
8	Color Laser Multifunction Printer	\$15,537.48	2	11	\$31,074.96	\$170,912.28	\$21,851.91	\$120,185.52
9	Software, labor, contractor and overhead and other costs				\$76,194.82	\$48,260.00	\$53,580.20	\$33,936.43
10	<b>Total Electric Allocation</b>				\$1,403,106.00	\$654,310.76	<b>\$986,664.14</b>	<b>\$460,111.33</b>
	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
11	Black and White Printer	\$1,115.00	13	0	\$14,495.00	\$0.00	\$10,042.14	\$0.00
12	Color Laser Multifunction Printer	\$1,570.00	55	0	\$86,350.00	\$0.00	\$59,823.28	\$0.00
13	Color Laser Multifunction Printer	\$2,850.00	10	0	\$28,500.00	\$0.00	\$19,744.80	\$0.00
14	Color Laser Multifunction Printer	\$5,280.00	47	0	\$248,160.00	\$0.00	\$171,925.25	\$0.00
15	Color Laser Multifunction Printer	\$5,841.00	39	0	\$227,799.00	\$0.00	\$157,819.15	\$0.00
16	Color Laser Multifunction Printer	\$6,890.00	29	0	\$199,810.00	\$0.00	\$138,428.37	\$0.00
17	Color Wide Format Printer	\$8,204.40	12	0	\$98,452.80	\$0.00	\$68,208.10	\$0.00
18	Color Laser Multifunction Printer	\$2,601.00	3	0	\$7,803.00	\$0.00	\$5,405.92	\$0.00
19	Color Laser Multifunction Printer w/fax	\$3,318.00	1	0	\$3,318.00	\$0.00	\$2,298.71	\$0.00
20	Color Laser Multifunction Printer	\$5,841.00	2	0	\$11,682.00	\$0.00	\$8,093.29	\$0.00
21	Color Laser Multifunction Printer w/fax	\$6,309.00	1	0	\$6,309.00	\$0.00	\$4,370.88	\$0.00
22	Black and White Printer	\$1,181.90	0	1	\$0.00	\$1,181.90	\$0.00	\$831.11
23	Color Laser Multifunction Printer	\$1,570.00	0	23	\$0.00	\$36,110.00	\$0.00	\$25,392.55
24	Color Laser Multifunction Printer	\$7,740.00	0	5	\$0.00	\$38,700.00	\$0.00	\$27,213.84
25	Color Wide Format Printer	\$8,204.40	0	4	\$0.00	\$32,817.60	\$0.00	\$23,077.34
26	Color Laser Multifunction Printer w/fax	\$3,021.00	0	5	\$0.00	\$15,105.00	\$0.00	\$10,621.84
27	Color Laser Multifunction Printer	\$5,596.80	0	18	\$0.00	\$100,742.40	\$0.00	\$70,842.06
28	Color Laser Multifunction Printer w/fax	\$6,191.46	0	27	\$0.00	\$167,169.42	\$0.00	\$117,553.54
29	Color Laser Multifunction Printer	\$7,303.40	0	15	\$0.00	\$109,551.00	\$0.00	\$77,036.26
30	Software, labor, contractor and overhead and other costs				\$43,290.36	\$43,692.53	\$29,991.56	\$30,724.59
31	<b>Total Electric Allocation</b>				\$975,969.16	\$545,069.85	<b>\$676,151.43</b>	<b>\$383,293.12</b>

ARP-Radio

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Storage Boxes	\$1,802.00	300	100	\$540,600.00	\$180,200.00	\$308,574.48	\$102,858.16
2	Generator	\$23,759.90	1	0	\$23,759.90	\$0.00	\$13,562.15	\$0.00
3	Desktop Microphones	\$169.60	10	10	\$1,696.00	\$1,696.00	\$968.08	\$968.08
4	Key Caps (set of 50)	\$118.38	1	0	\$118.38	\$0.00	\$67.57	\$0.00
5	Key Caps (set of 50)	\$111.68	0	1	\$0.00	\$111.68	\$0.00	\$63.75
6	800Mhz Mobile front mount	\$2,756.00	50	50	\$137,800.00	\$137,800.00	\$78,656.24	\$78,656.24
7	Conventional Low End Subscriber	\$572.40	50	50	\$28,620.00	\$28,620.00	\$16,336.30	\$16,336.30
8	Modem	\$1,219.00	350	350	\$426,650.00	\$426,650.00	\$243,531.82	\$243,531.82
9	Cellular Access Point	\$5,300.00	10	10	\$53,000.00	\$53,000.00	\$30,252.40	\$30,252.40
10	Radio installs McMaster Carr	\$1,952.13	1	1	\$1,952.13	\$1,952.13	\$1,114.27	\$1,114.27
11	Radio installs	\$2,202.84	1	1	\$2,202.84	\$2,202.84	\$1,257.38	\$1,257.38
12	Satellite Phones	\$4,520.00	0	25	\$0.00	\$113,000.00	\$0.00	\$64,500.40
13	CommerciBI Directional Amplifier	\$10,600.00	5	5	\$53,000.00	\$53,000.00	\$30,252.40	\$30,252.40
14	Software, labor, contractor and overhead and other costs				\$320,276.00	\$241,886.00	\$182,813.54	\$138,068.53
15	<b>Total Electric Allocation</b>				<b>\$1,589,675.25</b>	<b>\$1,240,118.65</b>	<b>\$907,386.63</b>	<b>\$707,859.72</b>

Line No.	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
16	Storage Boxes	\$1,626.95	244	400	\$396,976.19	\$65,078.64	\$226,435.22	\$371,465.59
17	Storage Boxes	\$1,637.55	0	100	\$0.00	\$163,755.16	\$0.00	\$93,471.45
18	Storage Box Modem mount plate	\$59.18	100	0	\$5,918.00	\$0.00	\$3,375.63	\$0.00
19	UPS Batteries	\$103.44	4	80	\$413.77	\$8,275.40	\$236.01	\$4,723.60
20	UPS Batteries	\$1,685.75	1	0	\$1,685.75	\$0.00	\$961.55	\$0.00
21	UPS Batteries	\$122.87	14	0	\$1,720.20	\$0.00	\$981.20	\$0.00
22	UPS Replacement Kings Mill	\$12,058.41	1	0	\$12,058.41	\$0.00	\$6,878.12	\$0.00
23	UPS Replacement Tawas City	\$13,258.41	1	0	\$13,258.41	\$0.00	\$7,562.60	\$0.00
24	UPS Replacement Burlington	\$13,258.41	1	0	\$13,258.41	\$0.00	\$7,562.60	\$0.00
25	UPS Replacement Onieda	\$11,155.00	0	1	\$0.00	\$11,155.00	\$0.00	\$6,367.27
26	UPS Replacement Owosso	\$10,285.00	0	1	\$0.00	\$10,285.00	\$0.00	\$5,870.68
27	UPS Replacement Meredith	\$10,285.00	0	1	\$0.00	\$10,285.00	\$0.00	\$5,870.68
28	UPS Replacement Farwell	\$10,285.00	0	1	\$0.00	\$10,285.00	\$0.00	\$5,870.68
29	UPS Replacement Caro	\$10,285.00	0	1	\$0.00	\$10,285.00	\$0.00	\$5,870.68
30	UPS Replacement Alma	\$10,285.00	0	1	\$0.00	\$10,285.00	\$0.00	\$5,870.68
31	Transfer Switches	\$592.00	6	0	\$3,552.00	\$0.00	\$2,026.06	\$0.00
32	Security transformers	\$9.65	15	0	\$144.82	\$0.00	\$82.61	\$0.00
33	Tawas Generator	\$22,415.00	1	0	\$22,415.00	\$0.00	\$12,785.52	\$0.00
34	Tower lighting Kibby Rd	\$4,610.00	1	0	\$4,610.00	\$0.00	\$2,629.54	\$0.00
35	Tower lighting Royal Oak Rd	\$4,610.00	1	0	\$4,610.00	\$0.00	\$2,629.54	\$0.00
36	Tower lighting Ludington	\$4,610.00	1	0	\$4,610.00	\$0.00	\$2,629.54	\$0.00
37	Tower Lighting Mio	\$4,610.00	1	0	\$4,610.00	\$0.00	\$2,629.54	\$0.00
38	Shelter Paint Rogers City	\$2,500.00	1	0	\$2,500.00	\$0.00	\$1,426.00	\$0.00
39	Shelter Paint Mecosta	\$3,175.00	0	1	\$0.00	\$3,175.00	\$0.00	\$1,812.29
40	shelter Paint Kings Mill	\$3,175.00	0	1	\$0.00	\$3,175.00	\$0.00	\$1,812.29
41	Shelter Paint Alma	\$3,175.00	0	1	\$0.00	\$3,175.00	\$0.00	\$1,812.29
42	Shelter Paint Leroy	\$3,175.00	0	1	\$0.00	\$3,175.00	\$0.00	\$1,812.29
43	Shelter Paint Park Lake	\$7,100.00	0	1	\$0.00	\$7,100.00	\$0.00	\$4,052.68
44	Shelter Paint Wolf Lake	\$3,175.00	0	1	\$0.00	\$3,175.00	\$0.00	\$1,812.29
45	Kings Mill Gate	\$2,513.50	0	1	\$0.00	\$2,513.50	\$0.00	\$1,434.71
46	Burlington Fence	\$2,575.00	0	1	\$0.00	\$2,575.00	\$0.00	\$1,469.81
47	Midland Fence	\$5,220.00	0	1	\$0.00	\$5,220.00	\$0.00	\$2,979.58
48	Park Lake Fence	\$1,777.66	0	1	\$0.00	\$1,777.66	\$0.00	\$1,014.69
49	Colon Fence	\$2,210.00	0	1	\$0.00	\$2,210.00	\$0.00	\$1,261.47
50	Thetford Fence	\$6,280.00	0	1	\$0.00	\$6,280.00	\$0.00	\$3,584.62
51	Owosso Fence	\$1,730.00	0	1	\$0.00	\$1,730.00	\$0.00	\$987.48
52	Park Lake shelter repair	\$7,100.00	0	1	\$0.00	\$7,100.00	\$0.00	\$4,052.68
53	Tower lighting alarm	\$1,283.00	0	7	\$0.00	\$8,981.00	\$0.00	\$5,126.35
54	Higgins Lake Const (Frontier)	\$57,102.48	0	1	\$0.00	\$57,102.48	\$0.00	\$32,594.10
55	Desktop Microphones	\$155.03	100	0	\$15,502.50	\$0.00	\$8,842.63	\$0.00
56	Key Caps (set of 50)	\$111.68	40	0	\$4,467.05	\$0.00	\$2,548.01	\$0.00
57	Earphones	\$43.25	3	0	\$129.74	\$0.00	\$74.00	\$0.00
58	800Mhz Mobile remote mount	\$2,486.54	200	0	\$497,308.00	\$0.00	\$283,664.48	\$0.00
59	800Mhz Mobile remote mount	\$2,427.93	150	0	\$364,189.50	\$0.00	\$207,733.69	\$0.00
60	800Mhz Mobile front mount	\$2,411.00	50	265	\$120,550.00	\$638,915.00	\$68,761.72	\$364,692.88
61	800Mhz Portable Radios	\$2,841.00	0	70	\$0.00	\$198,870.00	\$0.00	\$113,515.00
62	800Mhz Portable Radios	\$2,976.48	100	0	\$297,648.00	\$0.00	\$169,778.42	\$0.00
63	UHF Portable Radio w/accessories	\$1,108.28	82	0	\$90,878.68	\$0.00	\$51,837.20	\$0.00
64	Mobile Radio installs	\$530.77	0	52	\$0.00	\$27,600.00	\$0.00	\$15,754.08
65	Tait Base Units w/cards	\$6,678.55	7	0	\$46,749.82	\$0.00	\$26,666.10	\$0.00
66	Basestation Tier III Radio	\$6,589.60	0	4	\$0.00	\$26,358.38	\$0.00	\$15,045.36
67	Basestation Tier II Radio	\$4,357.80	0	1	\$0.00	\$4,357.80	\$0.00	\$2,487.43
68	Combiner Multicoupler Ludington	\$5,887.64	1	0	\$5,887.64	\$0.00	\$3,358.31	\$0.00
69	Control Head	\$149.25	0	15	\$0.00	\$2,238.75	\$0.00	\$1,277.88
70	Campbell Digital Mobile Radio	\$347,419.20	0	1	\$0.00	\$347,419.20	\$0.00	\$198,306.88
71	Kam Digital Mobile Radio	\$277,047.60	0	1	\$0.00	\$277,047.60	\$0.00	\$158,138.77
72	Modem	\$1,085.34	0	100	\$0.00	\$108,533.64	\$0.00	\$61,951.00
73	Modem	\$1,077.85	0	200	\$0.00	\$215,569.66	\$0.00	\$123,047.16
74	Modem	\$1,164.41	6	200	\$6,986.45	\$232,881.67	\$3,985.07	\$132,928.86
75	Modem	\$1,150.03	350	100	\$402,511.48	\$115,003.28	\$229,592.55	\$65,643.87
76	Modem	\$1,150.50	92	47	\$105,845.96	\$54,073.48	\$60,374.54	\$30,865.14
77	Modem	\$627.68	13	0	\$8,159.88	\$0.00	\$4,654.40	\$0.00
78	Antennas	\$239.03	44	0	\$10,517.53	\$0.00	\$5,999.20	\$0.00
79	Fleet Mobility Routers	\$27,301.87	0	2	\$0.00	\$54,603.74	\$0.00	\$31,167.81
80	Service Aware Manager	\$20,580.00	0	1	\$0.00	\$20,580.00	\$0.00	\$11,747.06
81	Radio installs McMaster Carr	\$1,959.91	0	1	\$0.00	\$1,959.91	\$0.00	\$1,118.72
82	Tesco Install components	\$21,150.76	0	1	\$0.00	\$21,150.76	\$0.00	\$12,072.85
83	Software, labor, contractor and overhead and other costs				\$207,593.59	71,996.79	\$118,411.39	\$41,095.77
84	<b>Total Electric Allocation</b>				<b>\$2,677,266.78</b>	<b>\$2,837,313.50</b>	<b>\$1,527,112.97</b>	<b>\$1,953,857.25</b>

ARP-Server and Storage

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units*	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Hyperconverged Appliance - 10 Nodes	\$84,555.00	14	0	\$1,183,770.00	\$0.00	\$832,427.06	\$0.00
2	Hyperconverged Appliance - 24 Nodes	\$96,405.00	14	0	\$1,349,670.00	\$0.00	\$949,087.94	\$0.00
3	Data Protection Software	\$191,500.00	1	0	\$191,500.00	\$0.00	\$134,662.80	\$0.00
4	Data Domain	\$1,590,000.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00
5	Stand Alone Site Server	\$7,000.00	11	0	\$77,000.00	\$0.00	\$54,146.40	\$0.00
6	Storage	\$113,132.00	1	0	\$113,132.00	\$0.00	\$79,554.42	\$0.00
7	Hyperconverged Appliance (SAP Database)	\$144,607.50	0	22	\$0.00	\$3,181,365.00	\$0.00	\$2,237,135.87
8	Hyperscale Appliance	\$69,209.60	0	6	\$0.00	\$415,257.60	\$0.00	\$292,009.14
9	Network USB Hub	\$1,750.00	0	4	\$0.00	\$7,000.00	\$0.00	\$4,922.40
10	Labor, contractor and overhead and other costs				\$742,522.19	\$668,575.72	\$522,141.60	\$470,142.45
11	<b>Total Electric Allocation</b>				\$3,657,594.19	\$4,272,198.32	\$2,572,020.23	\$3,004,209.86

\*Units includes hardware and software costs.

	Units*	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars**	2020 Elec Allocation Dollars***
12	Server Blades (Half)	\$43,562.82	2	0	\$87,125.64	\$0.00	\$60,360.64	\$0.00
13	Hyperconverged Appliance - 10 Nodes	\$102,854.71	5	0	\$514,273.54	\$0.00	\$356,288.71	\$0.00
14	Hyperconverged Appliance - 10 Nodes	\$72,475.71	0	42	\$0.00	\$3,043,980.00	\$0.00	\$2,140,526.74
15	Hyperconverged Appliance - 24 Nodes	\$96,405.00	0	15	\$0.00	\$1,446,075.00	\$0.00	\$1,016,879.94
16	Switch	\$35,242.00	0	4	\$0.00	\$140,968.00	\$0.00	\$99,128.70
17	Virtual Desktop Interface	\$71,736.00	0	8	\$0.00	\$573,888.00	\$0.00	\$403,558.04
18	Server Blade	\$54,151.68	4	0	\$216,606.72	\$0.00	\$150,065.14	\$0.00
19	Stand Alone Site Server	\$6,591.26	10	0	\$65,912.60	\$0.00	\$45,664.25	\$0.00
20	Virtual Desktop Interface Server	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00
21	Data Domain Shelf	\$254,539.63	3	0	\$763,618.88	\$0.00	\$529,035.16	\$0.00
22	Network	\$43,550.96	2	0	\$87,101.92	\$0.00	\$60,344.21	\$0.00
23	Hyperscale Appliance	\$69,209.60	0	6	\$0.00	\$415,257.60	\$0.00	\$292,009.14
24	Labor, contractor and overhead and other costs				\$525,249.49	\$2,351,396.26	\$363,892.85	\$1,653,501.85
25	<b>Total Electric Allocation</b>				\$2,259,888.79	\$7,971,564.86	\$1,565,650.96	\$5,605,604.41

\*Units includes hardware and software costs.

\*\* Please note 2019 Electric Allocation Dollars combine Capital totals from Exhibit A-108 (JDT-7) lines 64 and 65, column h.

\*\*\* 2020 Electric Allocation Dollars combine Capital totals from Exhibit A-108 (JDT-7) lines 212, 213, and 214, column h. The ARP-Server and ARP-Storage programs were combined partway through 2020.

ARP-Workstation Asset Mgmt

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
	Replacements							
1	Desktops	\$795.00	409	758	\$325,155.00	\$602,610.00	\$228,649.00	\$423,755.35
2	HP Desktop Bundled	\$2,544.00	73	50	\$185,712.00	\$127,200.00	\$130,592.68	\$89,447.04
3	Laptop	\$1,929.20	1,373	2,061	\$2,648,791.60	\$3,976,081.20	\$1,862,630.25	\$2,795,980.30
4	Laptop 13"	\$1,828.50	195	146	\$356,557.50	\$266,961.00	\$250,731.23	\$187,726.98
5	HP Laptop bundled	\$4,536.80	269	174	\$1,220,399.20	\$789,403.20	\$858,184.72	\$555,108.33
6	Rugged Devices	\$3,915.64	8	118	\$31,325.12	\$462,045.52	\$22,027.82	\$324,910.41
7	Semi Rugged Devices	\$3,311.44	33	48	\$109,277.52	\$158,949.12	\$76,843.95	\$111,773.02
8	Monitors 24"	\$265.00	4,000	6,000	\$1,060,000.00	\$1,590,000.00	\$745,392.00	\$1,118,088.00
	New Purchases							
9	Laptops 14"	\$1,929.20	700	700	\$1,350,440.00	\$1,350,440.00	\$949,629.41	\$949,629.41
10	17" HP laptop bundled	\$4,536.80	12	12	\$54,441.60	\$54,441.60	\$38,283.33	\$38,283.33
11	Desktop MT Bundled	\$795.00	5	5	\$3,975.00	\$3,975.00	\$2,795.22	\$2,795.22
12	SFF Desktop	\$795.00	3	3	\$2,385.00	\$2,385.00	\$1,677.13	\$1,677.13
13	Desktop HP Bundled	\$2,544.00	5	5	\$12,720.00	\$12,720.00	\$8,944.70	\$8,944.70
14	Desktop Precision 5540 Bundled	\$2,305.50	7	7	\$16,138.50	\$16,138.50	\$11,348.59	\$11,348.59
15	Rugged Devices(Semi Rugged devices - Toughbooks)	\$3,310.93	25	25	\$82,773.28	\$82,773.28	\$58,206.17	\$58,206.17
16	Rugged Devices - Toughpads	\$3,914.74	75	75	\$293,605.43	\$293,605.43	\$206,463.33	\$206,463.33
17	Tablets	\$1,249.95	9	9	\$11,249.57	\$11,249.57	\$7,910.70	\$7,910.70
18	Surface Pro Devices	\$2,071.77	7	7	\$14,502.39	\$14,502.39	\$10,198.08	\$10,198.08
19	24" Monitors	\$265.00	320	320	\$84,800.00	\$84,800.00	\$59,631.36	\$59,631.36
20	Curved Monitors	\$954.00	13	13	\$12,402.00	\$12,402.00	\$8,721.09	\$8,721.09
21	Add'l Accessories	\$0.00	0	0	\$ 58,108.04	\$ 58,108.04	\$40,861.57	\$40,861.57
22	Shipping and Handling, Asset Tagging, other fees	\$0.00	0	0	\$ 2,459.20	\$ 2,459.20	\$1,729.31	\$1,729.31
23	Software, labor, contractor and overhead and other costs				\$366,980.00	\$521,703.00	\$258,060.34	\$366,861.55
24	<b>Total Electric Allocation</b>				<b>\$8,304,197.94</b>	<b>\$10,494,953.04</b>	<b>\$5,839,511.99</b>	<b>\$7,380,050.98</b>

	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
	Replacements							
25	Desktops	\$ 754.67	30	0	\$22,640.10	\$0.00	\$15,685.06	\$0.00
26	Desktops	\$ 795.00	0	300	\$0.00	\$238,500.00	\$0.00	\$167,713.20
27	SFF Desktop	\$ 779.10	0	115	\$0.00	\$89,596.50	\$0.00	\$63,004.26
28	HP Desktop Bundled	\$ 9,700.00	1	0	\$9,700.00	\$0.00	\$6,720.16	\$0.00
29	HP Desktop Bundled	\$ 2,400.00	0	160	\$0.00	\$384,000.00	\$0.00	\$270,028.80
30	Laptop	\$ 1,596.07	496	0	\$791,650.72	\$0.00	\$548,455.62	\$0.00
31	Laptop	\$ 1,653.63	0	1,341	\$0.00	\$2,217,517.83	\$0.00	\$1,559,358.54
32	Laptop 13"	\$ 1,555.00	100	0	\$155,500.00	\$0.00	\$107,730.40	\$0.00
33	Laptop 13"	\$ 1,458.97	0	216	\$0.00	\$315,137.52	\$0.00	\$221,604.70
34	HP Laptop bundled	\$ 3,415.48	42	0	\$143,450.16	\$0.00	\$99,382.27	\$0.00
35	HP Laptop bundled	\$ 3,099.08	0	262	\$0.00	\$811,958.96	\$0.00	\$570,969.54
36	Semi Rugged Devices	\$ 2,965.95	90	0	\$266,935.50	\$0.00	\$184,932.91	\$0.00
37	Semi Rugged Devices	\$ 2,536.51	0	75	\$0.00	\$190,238.25	\$0.00	\$133,775.54
38	Tablets	\$ 1,273.66	12	0	\$15,283.92	\$0.00	\$10,588.70	\$0.00
39	Tablets	\$ 2,872.33	0	80	\$0.00	\$229,786.40	\$0.00	\$161,585.80
40	Monitors 24"	\$ 251.74	456	0	\$114,793.44	\$0.00	\$79,528.90	\$0.00
41	Monitors 24"	\$ 206.70	0	1,875	\$0.00	\$387,562.50	\$0.00	\$272,533.95
42	Curved Monitors	\$ 1,007.00	0	31	\$0.00	\$31,217.00	\$0.00	\$21,951.79
43	Add'l Accessories				\$147,743.77	\$508,320.00	\$102,356.88	\$357,450.62
44	Shipping and Handling, other fees				\$9,578.96	\$1,050.51	\$6,636.30	\$738.72
	New Purchases							
45	Laptops 14"	\$1,880.74	436	0	\$820,001.24	\$0.00	\$568,096.86	\$0.00
46	Laptops 14"	\$ 2,053.67	0	251	\$0.00	\$515,469.97	\$0.00	\$362,478.48
47	Laptop 13"	\$1,763.13	3	0	\$5,289.39	\$0.00	\$3,664.49	\$0.00
48	17" HP laptop bundled	\$4,282.40	3	0	\$12,847.20	\$0.00	\$8,900.54	\$0.00
49	17" HP laptop bundled	\$4,583.71	0	26	\$0.00	\$119,176.33	\$0.00	\$83,804.80
50	Desktop MT Bundled	\$795.00	7	2	\$5,565.00	\$1,590.00	\$3,855.43	\$1,118.09
51	15" HP laptop bundled	\$2,332.00	0	5	\$0.00	\$11,660.00	\$0.00	\$8,199.31
52	SFF Desktop	\$795.00	0	2	\$0.00	\$1,590.00	\$0.00	\$1,118.09
53	Desktop HP Bundled	\$2,663.25	0	2	\$0.00	\$5,326.50	\$0.00	\$3,745.59
54	Desktop Precision 5820OT	\$3,831.90	2	0	\$7,663.80	\$0.00	\$5,309.48	\$0.00
55	Rugged Devices(Semi Rugged devices - Toughbooks)	\$2,848.53	70	0	\$199,396.92	\$0.00	\$138,142.18	\$0.00
56	Rugged Devices(Semi Rugged devices - Toughbooks)	\$3,041.01	0	25	\$0.00	\$76,025.32	\$0.00	\$53,461.01
57	Rugged Devices - Toughpads	\$3,767.91	115	0	\$433,309.40	\$0.00	\$300,196.75	\$0.00
58	Rugged Devices - Toughpads	\$3,616.37	0	73	\$0.00	\$263,995.02	\$0.00	\$185,641.30
59	Tablets	\$1,485.07	3	0	\$4,455.21	\$0.00	\$3,086.57	\$0.00
60	Tablets	\$1,201.13	0	9	\$0.00	\$10,810.16	\$0.00	\$7,601.70
61	Surface Pro Devices	\$1,904.88	1	0	\$1,904.88	\$0.00	\$1,319.70	\$0.00
62	Surface Pro Devices	\$2,036.87	0	3	\$0.00	\$6,110.62	\$0.00	\$4,296.99
63	Apple Macbook	\$1,032.43	0	1	\$0.00	\$1,032.43	\$0.00	\$726.00
64	24" Monitors	\$297.86	385	0	\$114,676.10	\$0.00	\$79,447.60	\$0.00
65	24" Monitors	\$265.00	0	173	\$0.00	\$45,845.00	\$0.00	\$32,238.20
66	Curved Monitors	\$1,056.48	51	0	\$53,880.62	\$0.00	\$37,328.42	\$0.00
67	Curved Monitors	\$2,074.94	0	1	\$0.00	\$2,074.94	\$0.00	\$1,459.10
68	Webcams	\$106.93	0	250	\$0.00	\$26,733.20	\$0.00	\$18,798.79
69	Add'l Accessories				\$162,382.73	\$49,243.47	\$112,498.76	\$34,628.01
70	Shipping and Handling, Asset Tagging, other fees				\$2,131.57	\$2,093.08	\$1,476.75	\$1,471.85
71	Software, labor, contractor and overhead and other costs				\$247,403.85	\$385,733.96	\$171,401.39	\$271,248.12
72	<b>Total Electric Allocation</b>				<b>\$3,748,184.39</b>	<b>\$6,929,395.47</b>	<b>\$2,596,742.14</b>	<b>\$4,872,750.89</b>

ARP-Cyber Security

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Units	Avg. Unit Cost	Total 2021 Units	Total 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	Test Year Electric Allocation Dollars
1	Network Security Appliance Firewall	\$12,689.00	12	0	\$152,268.00	\$0.00	\$86,914.57	\$0.00
2	Server	\$50,000.00	4	0	\$200,000.00	\$0.00	\$114,160.00	\$0.00
3	CyberArk Appliance	\$34,000.00	6	0	\$204,000.00	\$0.00	\$116,443.20	\$0.00
4	OT High End PC/Server	\$25,000.00	2	2	\$50,000.00	\$50,000.00	\$28,540.00	\$28,540.00
5	Security Analytics Server Replacements	\$25,000.00	0	4	\$0.00	\$100,000.00	\$0.00	\$57,080.00
6	Server Refresh Cyber Security Incident Response Too	\$2,500.00	2	2	\$5,000.00	\$5,000.00	\$2,854.00	\$2,854.00
7	Panorama	\$32,732.00	1	0	\$32,732.00	\$0.00	\$18,683.43	\$0.00
8	Software, labor, contractor and overhead and other costs				\$150,000.00	\$150,000.00	\$85,620.00	\$85,620.00
9	<b>Total Electric Allocation</b>				\$794,000.00	\$305,000.00	<b>\$453,215.20</b>	<b>\$174,094.00</b>
	Units	Avg. Unit Cost	Total 2019 Units	Total 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars
10	Security Analytics IBM Refresh	\$222,419.64	1	0	\$222,419.64	\$0.00	\$126,868.16	\$0.00
11	Security Analytics Appliances	\$88,895.84	1	0	\$88,895.84	\$0.00	\$50,706.19	\$0.00
12	Firewall Refresh	\$1,047.98	7	0	\$7,335.86	\$0.00	\$4,184.37	\$0.00
13	Network Interface Card Expansion	\$1,502.15	1	0	\$1,502.15	\$0.00	\$856.83	\$0.00
14	Lab Hardware Refresh	\$3,501.62	1	0	\$3,501.62	\$0.00	\$1,997.32	\$0.00
15	Firewalls	\$42,094.14	4	0	\$168,376.54	\$0.00	\$96,041.98	\$0.00
16	Network Services Gateway Hardware	\$17,010.00	1	0	\$17,010.00	\$0.00	\$9,702.50	\$0.00
17	Single Mode Fiber	\$520.00	1	0	\$520.00	\$0.00	\$296.61	\$0.00
18	Misc. Computer Equipment	\$282.81	1	0	\$282.81	\$0.00	\$161.31	\$0.00
19	Network Security Appliance Firewall	\$12,689.80	0	15	\$0.00	\$190,347.00	\$0.00	\$108,650.07
20	Firewall	\$29,001.00	0	4	\$0.00	\$116,004.00	\$0.00	\$66,215.08
21	Security Analytics Server Replacements	\$69,247.04	0	1	\$0.00	\$69,247.04	\$0.00	\$39,526.21
22	Software, labor, contractor and overhead and other costs				\$88,285.64	\$59.99	\$50,358.13	\$34.24
23	<b>Total Electric Allocation</b>				\$598,130.10	\$375,658.03	<b>\$341,173.41</b>	<b>\$214,425.60</b>

Case No.: U-20963  
Exhibit No.: A-110 (JDT-9)  
Page: 11 of 11  
Witness: JDTolonen  
Date: March 2021

No.	(a)	(b)	(c)	(d)	(e)		(f)		(g)		(h)
	Units	Avg. Unit Cost	Total 2021 2021 Units	Total 2022 2022 Units	Total 2021 Dollars	Total 2022 Test Year Dollars	2021 Elec Allocation Dollars	2022 Elec Allocation Dollars	Test Year Allocation Dollars		
1	Battle Creek	\$6,500.00	15	0	\$97,500.00	\$0.00	\$55,653.00	\$0.00	\$0.00		
2	Freedom Compressor	\$18,333.33	6	0	\$110,000.00	\$0.00	\$62,788.00	\$0.00	\$0.00		
3	Groveland	\$5,000.00	6	0	\$30,000.00	\$0.00	\$17,124.00	\$0.00	\$0.00		
4	Jackson Meter Tech	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
5	Jackson Service Center	\$4,500.00	30	0	\$135,000.00	\$0.00	\$77,058.00	\$0.00	\$0.00		
6	Lansing	\$6,500.00	15	0	\$97,500.00	\$0.00	\$55,653.00	\$0.00	\$0.00		
7	Macomb	\$4,500.00	10	0	\$45,000.00	\$0.00	\$25,886.00	\$0.00	\$0.00		
8	Northville Compressor	\$18,333.33	6	0	\$110,000.00	\$0.00	\$62,788.00	\$0.00	\$0.00		
9	One Energy Plaza	\$5,600.00	25	0	\$140,000.00	\$0.00	\$79,912.00	\$0.00	\$0.00		
10	Overseil Compressor	\$35,000.00	6	0	\$210,000.00	\$0.00	\$119,868.00	\$0.00	\$0.00		
11	Parnall	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
12	Parnall East	\$0.00	0	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
13	Pontiac Direct Payment Office	\$9,375.00	8	0	\$75,000.00	\$0.00	\$42,810.00	\$0.00	\$0.00		
14	Ray Compressor	\$6,500.00	15	0	\$97,500.00	\$0.00	\$55,653.00	\$0.00	\$0.00		
15	South Monroe	\$9,375.00	8	0	\$75,000.00	\$0.00	\$42,810.00	\$0.00	\$0.00		
16	White Pigeon Compressor	\$6,500.00	15	0	\$97,500.00	\$0.00	\$55,653.00	\$0.00	\$0.00		
17	Adrian Service Center	\$7,500.00	0	7	\$0.00	\$52,500.00	\$0.00	\$29,967.00	\$0.00		
18	Battle Creek	\$7,500.00	0	20	\$0.00	\$150,000.00	\$0.00	\$85,620.00	\$0.00		
19	Big Rapids	\$7,500.00	0	6	\$0.00	\$45,000.00	\$0.00	\$25,886.00	\$0.00		
20	Boyer City	\$8,000.00	0	0	\$0.00	\$56,000.00	\$0.00	\$31,964.80	\$0.00		
21	Cadillac	\$7,500.00	0	8	\$0.00	\$60,000.00	\$0.00	\$34,248.00	\$0.00		
22	Clare Service Center	\$7,500.00	0	13	\$0.00	\$97,500.00	\$0.00	\$55,653.00	\$0.00		
23	Flint	\$7,500.00	0	30	\$0.00	\$225,000.00	\$0.00	\$128,430.00	\$0.00		
24	Hamilton	\$7,500.00	0	13	\$0.00	\$97,500.00	\$0.00	\$55,653.00	\$0.00		
25	Jackson CEIC	\$7,500.00	0	4	\$0.00	\$30,000.00	\$0.00	\$17,124.00	\$0.00		
26	Jackson Generation	\$7,500.00	0	10	\$0.00	\$75,000.00	\$0.00	\$42,810.00	\$0.00		
27	Livonia	\$7,500.00	0	25	\$0.00	\$187,500.00	\$0.00	\$107,025.00	\$0.00		
28	Macomb	\$7,500.00	0	8	\$0.00	\$60,000.00	\$0.00	\$34,248.00	\$0.00		
29	Muskegon River	\$7,500.00	0	16	\$0.00	\$120,000.00	\$0.00	\$68,496.00	\$0.00		
30	Royal Oak	\$7,500.00	0	18	\$0.00	\$135,000.00	\$0.00	\$77,058.00	\$0.00		
31	Saginaw (Hackett rd)	\$8,000.00	0	5	\$0.00	\$40,000.00	\$0.00	\$22,832.00	\$0.00		
32	Software, labor, contractor and overhead and other cost:				\$180,000.00	\$180,000.00	\$102,744.00	\$102,744.00			
33	Total Electric Allocation				\$1,500,000.00	\$1,611,000.00	\$856,200.00	\$919,558.80			
	Units	Avg. Unit Cost	Total 2019 2019 Units	Total 2020 2020 Units	Total 2019 Dollars	Total 2020 Dollars	2019 Elec Allocation Dollars	2020 Elec Allocation Dollars			
34	Adrian	\$ 2,942.50	6	0	\$17,655.00	\$0.00	\$10,070.41	\$0.00			
35	Alcona Dam	\$ 4,991.50	6	0	\$29,949.00	\$0.00	\$17,082.91	\$0.00			
36	Alleghen Dam	\$ 4,971.25									

A-111 (JDT-10)  
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UNDER SEAL WITH THE MPSC

Line No.	(a) Year	(b) Case No.	(c) Source	(d) 2015	(e) 2016	(f) 2017	(g) 2018	(h) 2019	(i) 2020	(j) 2021	(k) 2022	(l) 2018	(m) 2019	(n) 2020	(o) 2021	(p) 2022
				Projected Capital								Projected O&M				
1	2017 Total Projected	U-18322	A-76 (CJV-4)			3,750,518										
2	2018 Total Projected	U-18322	A-76 (CJV-4)				3,750,485									
3	2019 Total Projected	U-20134	A-84 (JRH-3)					2,710,665								
4	2020 Total Projected	U-20697	U20697-SA-CE-022 Response						2,082,418					4,417		
5	2021 Total Projected	U-20697	U20697-SA-CE-022 Response							2,742,271					451,743	
6	2022 Total Projected	U-20963	A-12 (JDT-6) Sch. B-5.3								4,179,162					1,008,968
				Actual/Projected Capital								Actual/Projected O&M				
7	2015 Total Actuals	U-18322	A-76 (CJV-4)	3,041,271												
8	2016 Total Actuals*	U-18322	A-76 (CJV-4)		1,551,841											
9	2017 Total Actuals	U-20134	A-84 (JRH-3)			2,225,200										
10	2018 Total Actuals	U-20697	A-106 (JDT-4)				2,322,396					1,335,360				
11	2019 Total Actuals	U-20963	A-12 (JDT-6) Sch. B-5.3					3,282,246					884,424			
12	2020 Total Projected**	U-20963	A-12 (JDT-6) Sch. B-5.3						2,494,541					573,438		
13	Projected to Actual Variance					(1,525,318)	(1,428,090)	571,581	412,123			1,335,360	884,424	569,021		

\*Preliminary actuals for 2016 as reported in U-18322  
\*\*2020 projected based on 9 months of actuals and 3 months of forecast data

Line No.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
		2015	2016	2017	2018	2019	2020	2021	2022
1	Total Projected (Capital and O&M)			\$ 3,750,518	\$ 3,750,485	\$ 2,710,665	\$ 2,086,835	\$ 3,194,014	\$ 5,188,130
2	Total Projected/Actual* (Capital and O&M)	\$ 3,041,271	\$ 1,551,841	\$ 2,225,200	\$ 3,657,755	\$ 4,166,670	\$ 3,067,979	\$ 3,194,014	\$ 5,188,130
3	Total Company Incremental Annual Worklist**	\$ -	\$ 597,891	\$ 396,508	\$ 1,039,175	\$ 1,900,379	\$ 3,853,421	\$ 1,980,151	\$ 255,405
4	Total Electric Allocation*** Incremental Annual Worklist	\$ -	\$ 407,522	\$ 270,260	\$ 708,302	\$ 1,295,298	\$ 2,626,492	\$ 1,349,671	\$ 174,084
5	Total Annual Demand	\$ 3,041,271	\$ 1,959,363	\$ 2,495,480	\$ 4,366,057	\$ 5,461,968	\$ 5,694,471	\$ 5,174,165	\$ 5,443,535
6	Total Company Cumulative Worklist				\$ 1,039,175	\$ 2,939,554	\$ 6,792,975	\$ 8,773,127	\$ 9,028,532
7	Total Electric Allocation*** Cumulative Worklist				\$ 708,302	\$ 2,003,600	\$ 4,630,092	\$ 5,979,763	\$ 6,153,847

\*2020 projected spend at year end based on 9 months of actuals and 3 months of forecast data

\*\*2021 and 2022 projected Total Incremental Annual Worklist based on 3-year average of Total Annual Demand (actual spend plus incremental planned worklist) less projected spend

\*\*\*Estimated Electric Allocation

Chart 1

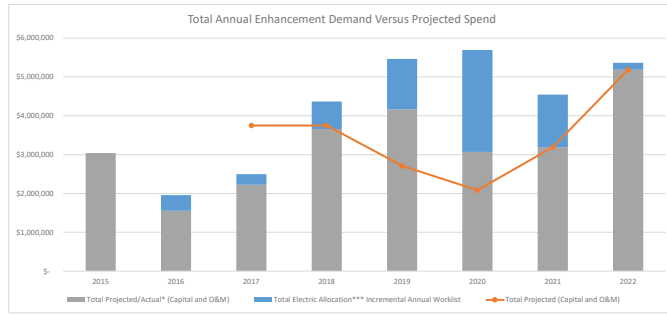
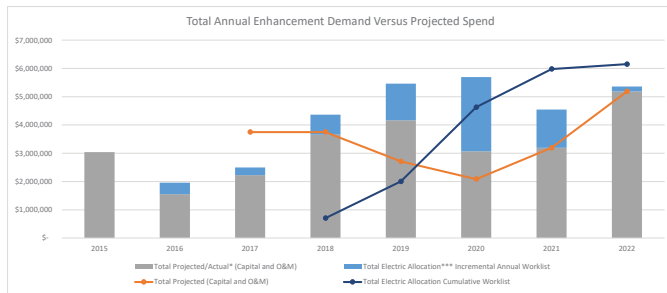


Chart 2



STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of )  
**CONSUMERS ENERGY COMPANY** )  
for authority to increase its rates for )  
the generation and distribution of )  
electricity and for other relief. )  
\_\_\_\_\_ )

Case No. U-20963

**EXHIBITS**

**OF**

**D. TIM UNDERWOOD**

**ON BEHALF OF**

**CONSUMERS ENERGY COMPANY**

March 2021

2021 Premiums for Electric Operations

	2020 Renewal				2021 Renewal			
	2019 O&M Insurance Expense Total	2020 O&M Insurance Expense Total	CE Elec Portion of 2020 Renewal	Anticipated Changes In Operations or Insurance Coverage That Affect 2021 Insurance Renewal	Escalation Rate Applied to 2020 Renewal Premium	Attributed to 2021 O&M Insurance Expense	2021 O&M Insurance Expense Total	
Insurance								
Main Property	5,447,245	6,251,105	6,583,901		1.25	8,229,876	7,132,559	
Wind & Solar Property	699,297	906,888	1,087,962	add Gratiot & Crescent Wind Parks	1.25	1,584,952	1,330,939	
Miscellaneous	71,112	81,435	100,590		various	120,580	104,674	
Overhead Power Lines (T&D)	2,636,678	-	-		-	-	-	
Property	8,854,332	7,239,428	7,772,453			9,935,408	8,568,172	
General Liability	5,713,940	6,201,809	6,325,879		1.08	6,839,750	6,582,814	
Fiduciary Liability	232,701	234,044	236,117		1.05	247,923	242,020	
Work Comp	490,883	531,740	567,660		1.09	617,795	580,318	
D&O Liability	598,814	630,347	800,730		1.10	877,208	800,730	
Cyber Liability	249,154	247,190	316,429		1.05	332,779	316,429	
Miscellaneous	117,830	120,552	120,556		various	123,600	122,414	
Liability	7,403,322	7,965,682	8,367,371			9,039,055	8,644,725	
Premium Total	16,257,654	15,205,110	16,139,824			18,974,463	17,212,897	

\* = includes a reduction of \$525,540 for the amount of premium attributed to capital

2022 Premiums for Electric Operations

Insurance	CE Elec Portion of 2021 Renewal	2021 Renewal Premium Attributed to 2022 O&M Insurance Expense	Anticipated Changes In Operations or Insurance Coverage That Affect 2022 Insurance Renewal	Escalation Rate Applied to 2021 Renewal Premium	CE Elec Portion of 2022 Renewal	2022 Renewal Premium Attributed to 2022 O&M Insurance Expense	2022 O&M Insurance Expense Total
Main Property	8,229,876	5,486,584		1.12	9,217,461	3,072,487	8,559,071
Wind & Solar Property	1,884,952	1,570,060	add Heartland Wind Park	1.10	2,073,447	346,381	1,916,441
Miscellaneous	120,580	84,690		various	131,284	38,464	123,154
<b>Property</b>	<b>10,235,408</b>	<b>7,141,334</b>			<b>11,422,192</b>	<b>3,457,332</b>	<b>10,598,666</b>
General Liability	6,839,750	3,419,875		1.03	7,010,790	3,505,395	6,925,270
Fiduciary Liability	247,923	123,962		1.05	259,080	129,540	253,501
Work Comp	617,795	570,314		1.07	661,247	613,337	620,833 *
D&O Liability	877,208	877,208		1.07	938,613	0	877,208
Cyber Liability	332,779	332,779		1.05	349,418	0	332,779
Miscellaneous	123,600	15,153		various	124,492	108,672	123,823
<b>Liability</b>	<b>9,039,055</b>	<b>5,339,291</b>			<b>9,343,640</b>	<b>4,356,944</b>	<b>9,133,414</b>
<b>Premium Total</b>	<b>19,274,463</b>	<b>12,480,625</b>			<b>20,765,832</b>	<b>7,814,276</b>	<b>19,732,080</b>

\* = includes a reduction of \$562,818 for the amount of premium attributed to capital.

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Risk Manager FPN - Monday, November 23, 2020

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**Advisen**

## More rate increases and tightening up policy terms predicted for property market: Panel

By Erin Ayers, Advisen

The property insurance market faces a "crisis of profitability" and rate increases aren't likely to let up until the industry has recovered from an extended soft market, according to a panel of underwriting executives speaking during Advisen's virtual Property Insights Conference.

"Until we can show stability and profitability, we're going to continue to see rate increases," said Michele Sansone, president of property for Axa XL. With "unusual, continuing events" rising significantly in both frequency and severity, insurers need to revisit policy terms and conditions and "can't hide behind interest rates, she added.

Even after 12 to 14 quarters of price increases, Sansone said, "I still don't think we're where we need to be."

"What we're seeing now really is just a crisis of profitability in the property underwriting space," said Duncan Ellis, head of retail property at American International Group (AIG). Past hard markets were more about coverage and capacity, he added, with capacity drying up in the 1980s and the post-9/11 market "reeling" from terrorism risk.



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In addition to wildfires, convective storms, pandemic-related impacts, and strikes, riots, and civil commotion (SRCC) events occurring more frequently in the U.S., global property insurers also need to stay ahead of volatility and complexity internationally, according to Shaun Gonzales, executive vice president and property practice leader of Sompco International's Global Risk Solutions.

Moderator Michael Rouse, managing director of Marsh's U.S. property practice, asked the panel to comment on why the property market "seems to be pulling back on some things that have long been a basic part of a named peril policy," like SRCC, cyber, and non-damage business interruption.

Ellis likened it to "walking into a punch" to continue providing affirmative coverage on a policy for a risk where a claim is already being paid out.

"Obviously, there are some challenges around whether or not that coverage is going to be reinstated or provided going forward if in fact that same scenario that gave you the claim in the first place is still occurring," he said, adding that underwriters are looking "quite diligently" at clarifying coverages and moving away from manuscripted forms to company forms as part of the effort.

"I've never been a fan of having a grey area to a policy. We need to know what a policy does and what a policy doesn't cover," he said. "We want to pay the claims which we're contractually obliged to pay."

On SRCC, he noted there is a "robust" standalone terrorism and political risk market that provides that coverage.

Sansone said she didn't expect SRCC coverage to be excluded, but there have been some decisions to sublimit the coverage or add larger deductibles. Non-damage business interruption tied to the pandemic is "clearly not something we ever intended to provide," she added. Cyber is also readily available in the standalone market, she said.

"I see a tremendous amount of focus around these systemic, non-damage BI things that have crept into the property policy," said Sansone. "I think there will be more of that going forward."

The panel highlighted an ongoing concern over reporting of insured values, one of the key areas where underwriters say they want more accurate information

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from buyers. They also expressed a hope for buyers to get "more skin in the game" by sharing in their risk and evaluating which portions of their coverages are "must-haves" and which may be more expendable. Understanding risks, especially areas that have been difficult in the past, will become even more important this year, the group predicted, and noted the areas where buyers can look to parametric solutions and other alternative risk transfer.

"You have to share in your own risk. I think it's very important especially for us as underwriters to get comfortable with it," said Sansone. "You've got to be able to be explain it. You can't just say, 'oh, I have to have unnamed CBI because we have no idea what our exposure is.' That's not going to make us feel really comfortable."

"We like to hear from a client what they've done with their risk management programs, what they've done to reassess their issues," said Gonzales. "We love when a client is really engaged with their risk."

The panel also advised buyers and brokers that 30 days in advance of a renewal is plenty of time for the underwriting process – as long as they're sending quality submissions with all the information needed, something that will be key in 2021. Getting the right values for insured properties is essential to get the right premium, according to Sansone.


"It's painful to think we still have an issue. This is basic reporting of information. I think it's the client's fiduciary responsibility to provide the right values. And we just can't seem to get it right. We're challenged with it day in and day out," she said.


"You are going to see the haves and have-nots – the risks that have done certain things around better information, that have created that partnership with a carrier, that have looked at their statement of values, their [total insured value] and made sure it's accurate, versus those that have not done that. And I think those that have not done that are probably in for a rough 2021," said AIG's Ellis.


*Editor Erin Ayers can be reached at [eyayers@advisen.com](mailto:eyayers@advisen.com)*

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Risk Manager FPN - Friday, November 20, 2020

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## Advisen

### P/C hard market conditions will continue into 2021: Willis

By Erin Ayers, Advisen


Commercial insurance buyers in North America should plan for continued increases in nearly every line of coverage through 2021, but some of the hard market impacts should begin to stabilize by mid-year, according to Willis Towers Watson's 2021 Insurance Marketplace Realities report.


In this market, one unlike any since the 1980s, the "best outcome buyers can hope for is flat renewals" in any line but kidnap and ransom, Willis [stated in its report](#). There continues to be "extensive disruption" in the umbrella liability market, and the property market is "full of challenges."

"We have to look back to the defining hard market crisis of the mid-1980s to see market conditions of the proportions we are currently experiencing — one of double- and triple-digit rate increases in most lines of business and dramatically reduced capacity in key lines," said Joe Peiser, Willis's global head of broking. "However, our experience in this hard market is that there is a wide range of results; renewal results are not huddled around the mean. This means underwriters are underwriting, and there is the opportunity to differentiate your risk."

Willis's report highlighted the COVID-19 pandemic, greater frequency and severity of natural catastrophes, higher losses in liability lines, and an increase in property

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damage stemming from man-made events as drivers of the hard market.

In the umbrella market, high-hazard risks should expect increases of 50% or more while lower-hazard risks are more in the range of 30% or higher. In excess liability, the rate hikes are even higher: 150% or more for the most challenged risks and 75% for lower or moderate risk. Willis highlighted coverage for wildfire, concussion/traumatic brain injury litigation, sexual assault/molestation, and communicable diseases as the most problematic exposures to insure. Such events, as well as opioid claims and mass shootings, have created "unsustainable combined ratios industry-wide" and have resulted in a drop in global capacity from \$2.2 billion in 2018 to \$1.4 billion in 2020. Willis added that actual deployed capacity is even less in the U.S. due to the litigation environment.

Difficult property risks currently face price increases of 30% or higher and buyers are seeing 15% to 25% for less-challenged occupancies. Willis predicted that rate increases will start to moderate by mid-year, assuming no major catastrophes occur. Directors and officers liability coverage, which led the hard market pricing in recent years, may also begin to ease up in 2021 with the entrance of start-up insurers. For now, both public and private D&O risks are seeing increases ranging up to 50%.

Willis cited auto liability as a line that "continues to be unprofitable" as claim payments increase. Insurers are responding with rate increases ranging up to an average 15% and restricting coverage. Workers compensation, as the casualty line with "the most COVID-19 claim activity," is showing "slight increases." Willis predicted a range of flat to 4% increases for workers compensation accounts for 2021.

Losses due to the pandemic continue to be unsettled, with the impact representing a "slow-moving crisis." Willis predicted a range of losses earlier this year of \$32 billion to \$80 billion and noted, "At this point, it looks like the upper end of that range may be where we land."

Some of the tougher market impacts may become more manageable due to expanded use of data analytics to streamline the risk transfer process for both buyers and sellers, according to WTW. Data-driven tools will help identify loss trends and keep tabs on emerging risks, better, the broker predicted.

"Every organization has been changed by the pandemic — some positively, many negatively," said Peiser. "But as we look to the future, we are confident analytics, judgment and relationships will bring this difficult market



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to a new equilibrium — one that provides customers with protection from emerging risks and growing volatility and keeps the underwriting community relevant to world business. We may not see a precipitous return to soft pricing, but we will see moderation and perhaps some welcome sustainability — and increased relevance."

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## Advisen

### P/C insurance buyers advised to 'challenge the status quo' for 2021


By Erin Ayers, Advisen

Commercial insurance buyers faced a difficult market in 2020 but may also find opportunities amid the obstacles if they're willing to "think differently and challenge the status quo" in 2021, according to a market update from Lockton Companies.

"Q2 2020 renewals saw some of the largest pricing increases since 2003, led by umbrella/excess liability, directors and officers liability, property, and commercial auto. This trend is likely to continue through 2022, although the rate of increase should begin to moderate by late 2021," said Lockton in its update. "Any prediction, however, is clouded by ongoing uncertainty."

While there's uncertainty on the buyers' side, there's plenty for insurers as well, including the ultimate impact of the COVID-19 pandemic, litigation trends, and societal changes. With loss volatility and profitability driving insurers to toughen up on underwriting, Lockton reported insurers are focused on risk quality, program structure, and rate adequacy.

Even with the upward movement, insurers might still be challenged on their combined ratios as trends suggest that claims experience for workers compensation, general liability, and auto liability continues to deteriorate.



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Does this make a hard market? Not necessarily, Lockton commented, noting that "Although most brokers and clients refer to the current market as 'hard,' a classic hard market is defined by a lack of capacity at any price. While capital has definitely been constrained, it has generally remained available. Whether this will continue will be determined largely by what happens in the reinsurance market."

Lockton cited natural disaster losses (and potential losses), COVID claim severity, and the impact of climate change as key concerns for the reinsurance market. Jan. 1, 2021, renewals will give a clearer idea of how reinsurers will proceed, according to the report.

The opportunities "for the savvy buyer" will come in the shape of reevaluating risk portfolios and determining how to best deploy their capital, according to the report.

"The relevant questions have become 'What am I buying?' 'How am I buying?' and most critically, 'Should I be buying?'" said Lockton. "Programs developed during a soft market environment are giving way to today's reality, and 'nice to have' has been replaced by 'must have.'"

The broker added, "Clients that understand their risks and are willing to challenge the status quo are taking control of their programs, leveraging the strength of their balance sheets and buying differently. Those that have invested heavily in risk improvement safety are also showing an increased willingness to bet on their own ability to control losses."

Lockton added that market conditions have encouraged more interest in alternative risk transfer solutions, particularly in using captives for excess towers.

Lockton's [market update](#) also offers specific insights into all lines of coverage, as well as tips for navigating the current market. For property coverage, some new capital has entered the market, but not enough to sway pricing yet as insurers try for better profitability results.

On the liability side, industry capital is at record levels, Lockton explained, but deployment is much more conservative.

"Umbrella and excess liability insurers have signaled 'more of the same' for the foreseeable future," said Lockton. "In fact, some are publicly suggesting the current market environment could persist for another 18-24 months."

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