MI POWER GRID

Making the Most of Michigan's Energy Future

Status Report

October 15, 2020

MPSC

Michigan Public Service Commission

Contents

Executive Summary

On October 17, 2019, the Michigan Public Service Commission (MPSC or Commission) launched MI Power Grid in collaboration with Governor Gretchen Whitmer (Governor Whitmer). MI Power Grid is a customer-focused, multi-year stakeholder initiative intended to ensure safe, reliable, affordable, and accessible energy resources for the state's clean energy future. The initiative is designed to maximize the benefits of the transition to clean, distributed energy resources for Michigan residents and businesses. MI Power Grid encompasses outreach, education, and changes to utility regulation by focusing on three core areas: customer engagement; integrating new technologies; and optimizing grid performance and investments. The MPSC maintains a dedicated website for the initiative at www.michigan.gov/mipowergrid.

MI Power Grid seeks to engage a variety of stakeholders, including utilities, energy technology companies, customers, consumer advocates, state agencies, and others, in discussions about how Michigan should best adapt to the changing energy industry. Each work area is being implemented by an MPSC Staff (or Staff) team responsible for creating a workplan and leading stakeholder workgroups.

MI Power Grid activities have thus far included Interconnection Standards and Worker Safety, Electric Distribution Planning, Grid Security and Reliability Standards, Demand Response, Energy Programs and Technology Pilots, Advanced Planning, and Competitive Procurement. Future activities will include New Technology and Business Models, Customer Education and Participation, Innovative Rate Offerings, Data Access and Privacy, and Financial Incentives/Disincentives. So far, seven workgroups have conducted 32 stakeholder meetings, engaging hundreds of stakeholders and submitting five reports with recommendations for Commission action.

This report details the status of work areas associated with MI Power Grid, actions taken to date, and Staff recommendations for Commission consideration, including:

- The Commission should consider issuing an order initiating the Innovative Rate Offerings work area, acknowledging and incorporating guidance from Michigan Senate Resolution 142, which encourages the Commission to undertake a study on rate designs and options that will account for changing customer use of the grid due to adoption of new energy technologies, as appropriate.
- The Commission should consider issuing an order initiating the Data Access & Privacy work area, acknowledging and incorporating guidance from Michigan Senate Resolution 143, which encourages the Commission to undertake a study on reliability, interconnection, and related grid integration issues for distributed energy, as appropriate.
- The Commission should further consider bifurcating the two elements it identified as comprising the Data Access & Privacy work area – System Data Access and Customer Data Access – such that the Customer Data Access section can be integrated into a workgroup in the Customer Engagement area of focus within MI Power Grid, in order to ensure that issues related to customers' ability to access their usage data on a timely and ongoing basis, and to have control over how or whether that information is shared, are being discussed in the context of broader issues related to customer engagement.
- The Commission should consider leveraging previously identified MI Power Grid work areas or establishing a new work area to evaluate the impact of the Federal Energy Regulatory Commission's (FERC) Order 2222, which requires regional transmission organizations to establish tariffs allowing aggregators of distributed energy resources to participate in wholesale markets, within Michigan.
- The Commission should consider revising the timeline for initiating the Customer Education and Participation work area to allow for additional time to conduct internal planning in preparation for a launch of stakeholder activities as part of Phase III in the first half of 2021.
- Given the importance of the remaining work areas, and the need to ensure adequate time for stakeholder efforts, Staff review and recommendations, and Commission action, the Commission should consider requesting Staff to submit a second status report during the third quarter of 2021, and extending the deadline for the MI Power Grid final report until 2022, in order to allow for a fuller accounting of MI Power Grid activities.

Introduction

How we produce, deliver, and consume electricity is undergoing a profound change, as Michigan transitions from large, centrally-located electric generation plants, to smaller, more distributed, cleaner energy resources located at multiple points around the electric grid. Improvements in technology and reductions in cost have accelerated this transition. At the same time, customers are interested in taking more control of their energy usage, and, with the need to address climate change, there is broad interest in cleaner, more sustainable energy resources.

New energy laws enacted in 2016 – which focused on adaptable planning processes, cleaner energy supply resources, and ensuring demand-side resources like energy waste reduction and demand response are on an equal playing field with supply-side resources – provide a strong foundation to respond to Michigan's transition to a modern, clean, customer-focused energy system. Further, following a series of energy events during the polar vortex in early 2019, Governor Whitmer requested that the MPSC review the state's energy supply and preparedness for emergency situations. The resulting Statewide Energy Assessment made a number of recommendations for, among other things, improving the safety and reliability of Michigan's energy infrastructure and establishing more diverse sources of energy supply.

In an October 17th order in Case No. U-20645, the Commission, in collaboration with Governor Whitmer, established MI Power Grid to maximize the benefits of the transition to clean, distributed energy resources for Michigan residents and businesses. MI Power Grid will help to identify and harness the consumer benefits emerging during the transformation underway in the energy industry. The initiative is intended to provide Michigan residents and businesses with the tools and information they need to receive the full benefits of this transition, while ensuring that the state's regulatory environment is well positioned to respond to challenges that emerge during this transformation.

MI Power Grid pulls together under one umbrella multiple ongoing stakeholder efforts underway at the Commission and provides a cohesive vision and set of objectives to interested stakeholders, by focusing on three core areas of emphasis, encompassing multiple work areas. Each core area of emphasis has a designated lead commissioner, and each work area is led by a Staff member, with support from the lead commissioner, Staff sponsors, and assistance from a team of Staff volunteers.

Customer Engagement (Commissioner Tremaine Phillips)

Objective: Providing Michigan residents and businesses with the demand-side technologies, programs, and price signals that will allow customers to be more active and effective participants in the state's transition to increased clean and distributed energy resources.

Work areas: customer education and participation, innovative rate offerings, demand response, energy programs and technology pilots.

Integrating Emerging Technologies (Commissioner Sally Talberg)

Objective: Ensuring timely and fair grid access and appropriate information exchange to support customer-oriented solutions and reliable system operations.

Work areas: interconnection standards and worker safety, data access and privacy, competitive procurement, new technologies and business models.

Optimizing Grid Investments and Performance (Chair Dan Scripps)

Objective: Integrating transmission, distribution, and resource planning to increase transparency and optimize solutions; enhancement of tools, financial incentives, and regulatory approaches to adapt to technology change and customer preferences.

Work areas: financial incentives/disincentives, grid security and reliability standards, advanced planning processes.

Activities for these core areas of emphasis were prioritized to help manage the workload for the Staff and stakeholders. The Commission created a number of resources to better facilitate the collection of input from stakeholders and the public. A website, www.michigan.gov/MIPowerGrid has been established to serve as a one-stop location to obtain information about ongoing activities, including workgroups connected to specific work areas and led by MPSC Staff. Electronic listservs are also available for stakeholders and the public to receive general MI Power Grid updates, and updates for each core area of emphasis or workgroup, and to keep abreast of the latest meeting information.

Since launching MI Power Grid in October 2019, the Commissioners and Staff have been working diligently to engage stakeholders and recommend actions to help enable the transition to cleaner, more distributed forms of energy. To date, 32 stakeholder meetings have been held, with participation from hundreds of individual stakeholders representing dozens of organizations, including MPSC Staff, other state agencies and commissions, local governments, utilities, environmental groups, business customers, consumer advocates, clean energy organizations, universities, national laboratories, and legislators. Staff have sent out over 110 listserv messages and have submitted five reports with recommendations for Commission action. In response to the onset of the COVID-19 pandemic, all stakeholder activities were converted to virtual sessions using Microsoft Teams, and the Commission extended deadlines for deliverables in certain work areas. So far, the Commission has issued at least ten MI Power Grid-related orders, and after extensive stakeholder input, the following milestones have been reached:

- Staff developed streamlined standards governing the process to interconnect customer- and third party-owned resources to the utility grid in a timely and safe fashion, which will provide greater certainty for customers, utilities, and renewable energy, energy storage, and microgrid developers.
- The Commission, based on Staff recommendations, provided expectations for the next round of electric utility distribution system investment plans, including the need for more detailed information about areas on the grid which are best equipped to interconnect distributed resources like renewable energy and storage, appropriate metrics for the evaluation of grid performance, and proposals for non-wires alternatives to traditional distribution system investments.
- Staff recommended a set of objective criteria by which energy program and technology pilots can be evaluated by the Commission, to ensure value for ratepayers while helping to pave the way for experimental and innovative projects.
- Staff evaluated the performance of utility demand response programs during the Polar Vortex 19 event, and suggested improvements, including more frequent customer communications, better customer engagement, and incorporation of new technology, to ensure that reductions in customer electric demand are able to be relied upon when needed.
- Staff identified gaps in existing service quality and reliability rules for electric service, and proposed solutions, including improvements in expected levels of performance of the electric grid and requiring automatic bill credits for customers who experience long-term or multiple outages, as well as strengthening cybersecurity monitoring and reporting.

It is expected that additional Commission action will be forthcoming before the end of 2020.

The Commission's initial order initiating this proceeding (as amended by the May 19, 2020 order in Case No. U-20645) required that "the Commission Staff shall file in this docket a status report on MI Power Grid, detailing actions taken to date, the status of the work areas associated with MI Power Grid, and recommendations for Commission consideration." To fulfill that objective, Staff submits the following status report.

Phase I Activities

During the first year of the MI Power Grid initiative, the Commission focused on and prioritized the Phase I activities as summarized in this section. These five initial areas of focus serve as a foundation for the other work areas as part of the MI Power Grid initiative. Combined, 30 Phase I stakeholder meetings were held, with over 350 stakeholders participating. The five initial areas of focus include:

- Interconnection Standards and Worker Safety
- Electric Distribution Planning
- Grid Security and Reliability Standards
- Demand Response
- Energy Programs and Technology Pilots

Interconnection Standards and Worker Safety

Introduction, History, and Workgroup Summary

On November 8, 2018, in Case No. U-20344, the Commission began the process to update its Electric Interconnection and Net Metering Standards. Interconnection standards are rules that detail how projects owned by customers, developers, and in some situations, the utility, connect to the utility distribution system. These rules provide a standardized process and schedule so that interconnections can be accommodated in an orderly and timely manner. The rules also ensure that interconnections are done reliably and safely, in order to protect workers, utility and third-party owned equipment, and the public.

Since the existing rules became effective in 2009, rapidly advancing renewable energy technology has led to significant changes in Michigan's energy landscape. There have also been changes in Michigan's energy laws with the passage of Public Act 341 of 2016, an amendment to Public Act 3 of 1938 and Public Act 286 of 2008, and Public Act 342 of 2016, an amendment to Public Act 295 of 2008.

Figure 1 – Interconnection Requests

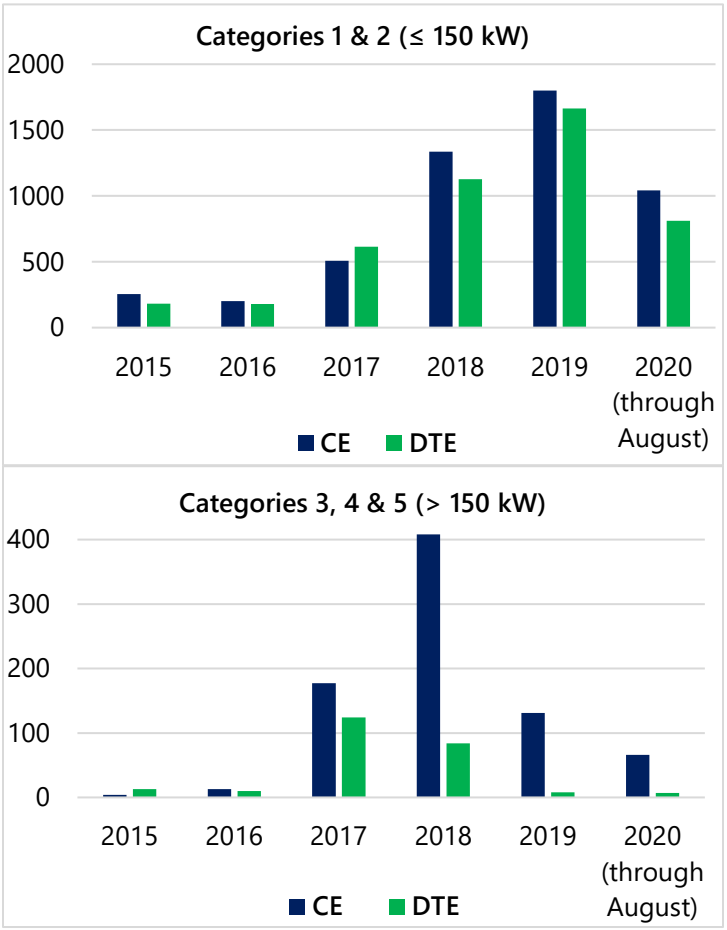

Figure 1 provides an overview of the annual numbers of interconnection requests received (not completed) from 2015 through August 31, 2020 for Category 1 & 2 combined and Category 3, 4 and 5 combined.

The Institute of Electrical and Electronics Engineers (IEEE) updated its technical standards for interconnection, the IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces (IEEE 1547-2018), which has prompted other states to revise their own interconnection rules and standards. The FERC has recently addressed the integration of energy storage facilities in its Order 841 issued on February 15, 2018, which directs regional transmission organizations (RTOs) and independent system operators to

establish market rules for energy storage facilities to participate in wholesale energy, capacity, and ancillary services markets.

Accordingly, the Commission directed the Staff to consider in the stakeholder process issues such as interconnection request procedures and timelines; required interconnection studies; cost responsibility; safety and technical specifications; legal responsibilities and obligations between interconnecting parties and the electric utilities; potential definitions of a legally enforceable obligation (LEO);[1] the recent updates to IEEE 1547; FERC's interconnection procedures; interconnection of distributed generation (including generation with capacity), microgrids, and energy storage; legacy net metering; and any other relevant subject areas. [2]

The SEA report recommended that "…Staff continue to work with stakeholders to update the MPSC's interconnection rules and procedures for generation facilities seeking to connect to the utilities' distribution grids and to better integrate distributed energy resources such as solar, microgrids, and battery storage as part of this process."[3]

MI Power Grid incorporated the Interconnection Standards and Worker Safety stakeholder workgroup as part of the *Integrating Emerging Technologies* area of emphasis and met ten times between December 2018 and March 2020.

Draft Rules

The basic framework for creating draft rules was the recently developed State of Minnesota Distributed Energy Resources Interconnection Process rules. New key features included in the Minnesota rules, and in use in other states with more recently updated interconnection rules, include a pre-application report, publicly providing certain information about interconnection applications filed with the utility in a sortable format, a fast track screening process to streamline the utility's study process for small and medium sized interconnection projects, and informal and formal mediation processes.

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[1] A LEO stakeholder workgroup operated in tandem with the Interconnection Standards and Worker Safety stakeholder process. Stakeholders reviewed and commented on two sets of draft LEO rules which were contained in a Part 4 of earlier drafts of the rule set. Subsequent to the FERC issuing Order 872 revising its rules related to PURPA on July 16, 2020, the LEO rules were removed from the final draft rule set for further consideration and review. The Commission will establish a new docket for this rulemaking activity at the appropriate time.

[2] Updating the net metering portion of the Electric Interconnection and Net Metering Standards to incorporate the distributed generation program provided for in Public Acts 341 and 342 of 2016 is undergoing a stakeholder process in parallel with the Interconnection Standards and Worker Safety stakeholder workgroup. The Distributed Generation Program Standards are contained in Part 3 of the final draft rule set.

[3] Michigan Statewide Energy Assessment, 2019, p. 67

Based on stakeholder input and discussions, a new method called the batch study process for processing large, complex interconnection applications was developed and added to the draft rules. The batch study process allows the utility to study multiple interconnection applications as a group. This type of procedure is intended to provide more timely results without the delays that can happen in a sequential, queue-based study process and provide opportunities to potentially share distribution upgrade and interconnection facilities costs where appropriate.

Staff received a technical assistance award from the U.S. Department of Energy's Grid Modernization Laboratory Consortium. This technical assistance support throughout the development of the draft rules was a key factor in building Staff's knowledge of IEEE 1547-2018, common technical interconnection issues, and current practices for interconnection rules in other states.

The first and second draft rulesets and stakeholder comments are available on the workgroup webpage.

Status of Rulemaking

A final draft of the Interconnection and Distributed Generation Standards was provided to Commission attorneys on August 31, 2020. On September 25, 2020, the Michigan Office of Administrative Hearings and Rules (MOAHR) approved the request for rulemaking associated with the draft rules, which is assigned MOAHR # 2020-96.

Next Steps

After review and informal approval from MOAHR, the draft rules will be submitted to the Legislative Service Bureau (LSB) for further review and informal approval. A regulatory impact statement must be approved by MOAHR and LSB. After these approvals, the Commission will issue an order initiating the formal comment process.

*This workgroup began prior to the onset of MI Power Grid. Once MI Power Grid commenced, the existing workgroup was folded into the *Integrating Emerging Technologies* focus area.

Electric Distribution Planning

Introduction, History, and Workgroup Summary

Electric distribution system plans were first requested in 2017 by the Commission in rate cases for Consumers Energy (Case No. U-17990) and DTE Electric (Case No. U-18014). Because an increasing proportion of utility requests for rate increases were attributable to distribution system investments, the Commission wanted more visibility into each company's longer-term plans relative to distribution system spending.

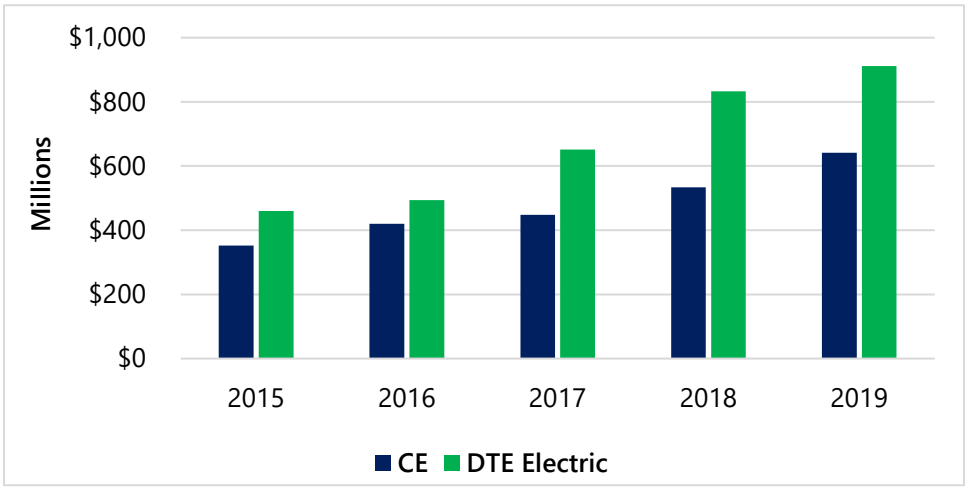


Figure 2 – Capital Expenditure on Distribution System

Sources: U-20561 Part III, Attachment 11.1 (2) & (4); U-20561, Exhibit A-12, Schedule B5.4

The primary focus with the first round of plans related to safety, reliability, and resiliency of the electric distribution grid over a five-year period, as opposed to merely evaluating such costs over a 12-month snapshot of time typical in a rate case. Indiana Michigan Power Company (I&M) was subsequently directed to file its first electric distribution plan in Case No. U-18370.

In the Spring of 2018, the Commission opened a docket in Case No. U-20147 to act as a common repository for electric distribution planning matters on a going-forward basis. Following the submission of the first utility distribution plans in this docket, MPSC Staff convened stakeholders and utilities to discuss development of future utility distribution plans. Staff filed a report of its findings to the Commission on September 4, 2018, and the Commission's subsequent order on November 21, 2018 in Case No. U-20147 provided guidance on next steps for utility and stakeholder consideration.

Staff led a stakeholder engagement process where multiple distribution planning issues were addressed during the course of five meetings held from June 2019 to November 2019. These topics included the role of hosting capacity analysis, non-wires alternatives, benefit-cost analysis, and system resiliency. In addition, in response to SEA report recommendations calling on Staff to

further explore the value of resilience related to distributed energy resources (DERs), a session on the value of resilience was also held.

MI Power Grid incorporated the electric distribution planning process as part of the *Optimizing Grid Investments and Performance* area of emphasis, with more information available on the workgroup's webpage.

Distribution Planning Staff Report and Recommendations

In April 2020, Staff submitted a report that summarized the 2019 electric distribution planning workgroup activity, including Staff recommendations for the following topics:

- Objectives and Definitions
- Benefit Cost Analysis
- Hosting Capacity Analysis
- Non-Wires Alternatives
- Regulatory Innovations
- Transparent and Engaged Stakeholder Process
- Pilot Programs
- Resiliency
- Energy Waste Reduction and other issues

Commission Order

On August 20, 2020, the Commission issued an order in Case No. U-20147 responding to the Staff report and collective stakeholder contributions to the workgroup process. The Commission provided several clarifications and directives regarding future electric distribution plans as it relates to:

- Distribution planning objectives, core functionality of the grid, and the role of "vision" with grid planning
- Definitions for distributed energy resource, hosting capacity analysis, non-wires alternatives, and locational value assessment
- Hosting Capacity Analysis
- Non-Wire Alternatives (NWA)
- Benefit Cost Analysis (BCA)
- Alternative Regulatory Approaches
- Pilot Programs
- Resilience

Next Steps

The August 20, 2020 order directs Consumers Energy, DTE Electric and I&M to file draft plans for comment by the Staff and stakeholders by August 1, 2021. The final plans are due to be filed with the Commission on September 30, 2021. These dates supersede the Commission's previous direction of a June 30, 2021 filing date for final plans.

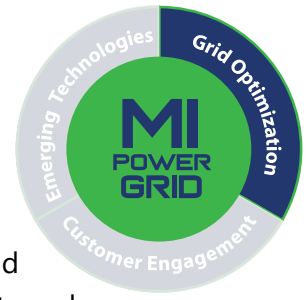
Staff will continue to serve as liaisons with utilities and stakeholders during the on-going electric distribution planning process.

Workgroup Initiated 11/21/2018	5 Stakeholder Meetings Conducted 6/27/2019 – 11/19/2019	Staff Report 4/1/2020	Commission Order 8/20/2020

*This workgroup began prior to the onset of MI Power Grid. Once MI Power Grid commenced, the existing workgroup was folded into the *Optimizing Grid Investments and Performance* focus area.

Grid Security and Reliability Standards

Introduction, History, and Workgroup Summary



As it relates to improving the safety and reliability of Michigan's energy infrastructure, the SEA report made the following three recommendations:

- Opening a docket to establish a workgroup to investigate and provide recommendations for updating the rules for Service Quality and Reliability Standards for Electric Distribution Systems and the Technical Standards for Electric Service using lessons learned in Michigan and best practices in other states as a guide.
- Continuing to evaluate existing Commission rules and utility data privacy tariffs for opportunities to enhance the protection of customer data and the cybersecurity of electric distribution infrastructure.
- Urging utilities to adopt industry best practices in mitigating threats from phishing and other IT threats, perform a cost-benefit analysis for top Center for Internet Security (CIS) security controls, and take appropriate steps to implement additional controls.

Michigan last updated its electric reliability performance targets nearly 20 years ago. The rules address actions to prevent power outages and system restoration and are in need of modification to enhance safety, reliability, and resiliency of the distribution system. A recent Staff-conducted survey[4] of other state reliability metrics revealed that while most states required traditional metrics describing the frequency of outages on the system (system average interruption frequency index or SAIFI), and the duration of outages on the system (system average interruption duration index or SAIDI), there were no consistent requirements among states. Figures 3 and 4 shows the average number of power outages and average duration for Michigan investor-owned utilities from 2009 through 2019. Michigan has routinely fallen into the fourth quartile in outage duration (SAIDI) over the last decade in national reliability benchmarking. With respect to the frequency of outages (SAIFI), Michigan ranks in the second quartile nationally.[5]

[4] Staff conducted a ten-state study and researched the best practices regarding customer safety, reliability, resilience and customer notifications. Currently, the MPSC has detailed standards regarding: how quickly utilities must restore power to their customers, how quickly each utility must relieve first responders that are guarding downed live wires; customer service credits for repetitive outages; and detailed language regarding reportable catastrophic versus normal weather conditions. Examples of areas for improvement include: annual reliability report; reduce the length of time for acceptable customer call answer time; automatic service credits; and reduction in annual same circuit repetitive interruption.

[5] http://grouper.ieee.org/groups/td/dist/sd/doc/Benchmarking-Results-2018.pdf

Figure 3 – Average Number of Annual Customer Outages Excluding Major Events (SAIFI)*

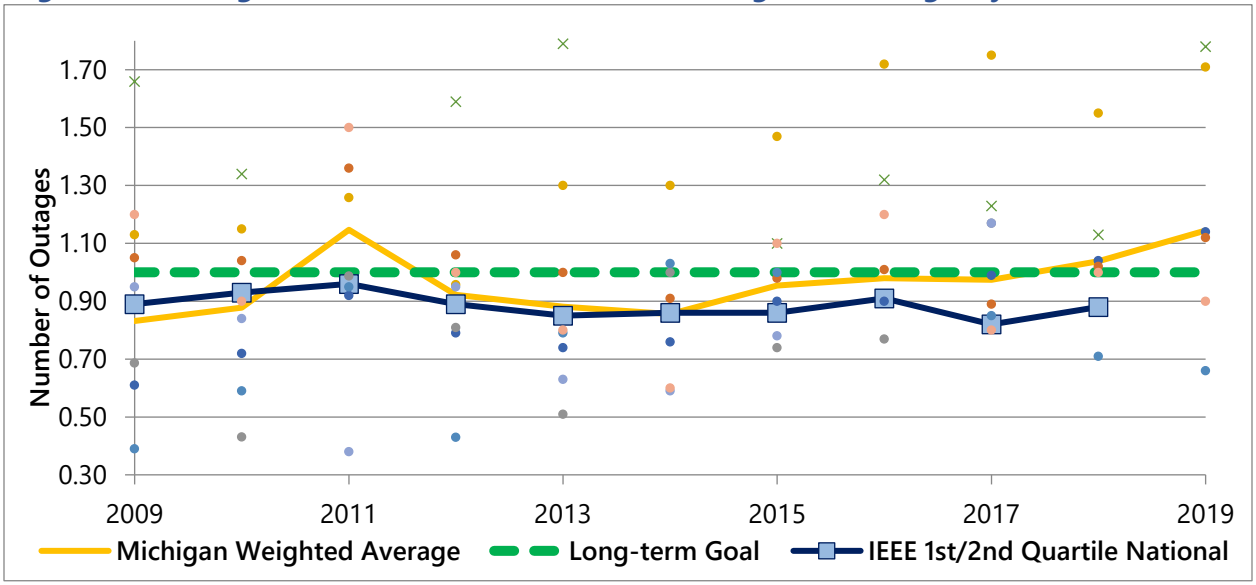
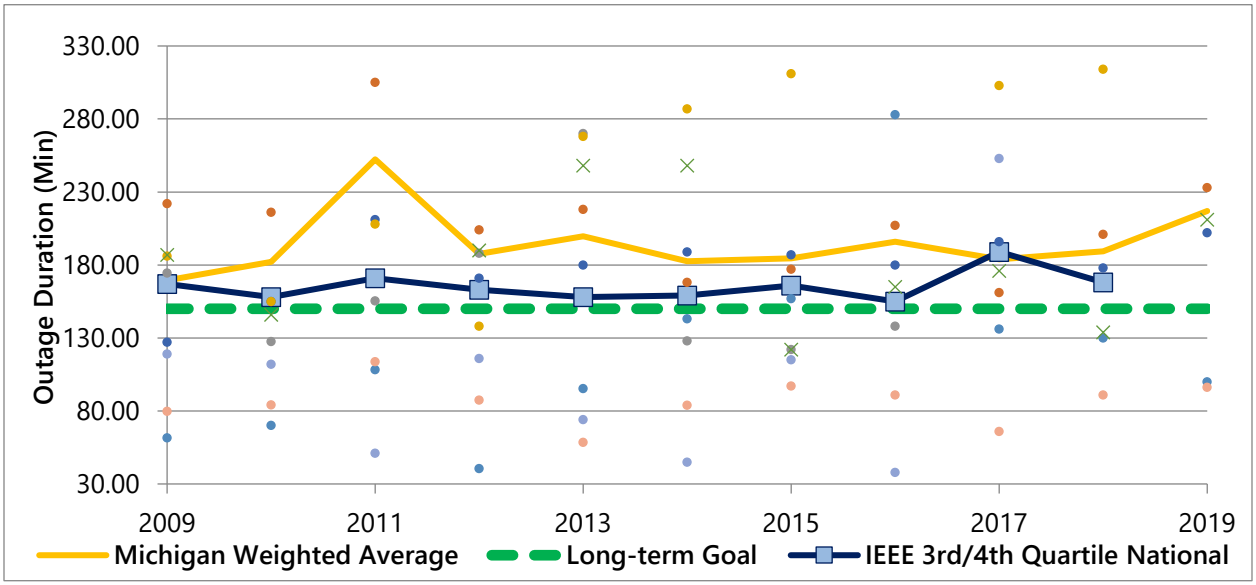


Figure 4 – Average Duration of Annual Customer Outages Excluding Major Events (SAIDI)*



*Sources: MPSC Commission dockets U-16065, U-16066, U-12270, 2018 IEEE Distribution Reliability Benchmarking Results

In response to the SEA report recommendations, the Commission provided direction for additional work in the opening of dockets in Case No. U-20629 (Service Quality and Reliability Standards for Electric Distribution Systems) and Case No. U-20630 (Technical Standards for Electric Service) on September 11, 2019, and ordered Staff to establish and lead workgroups charged with recommending revisions to the two rulesets. Upon the creation of MI Power Grid, these workgroups were combined and rebranded as the Grid Security and Reliability Standards Workgroup and incorporated into the *Optimizing Grid Investments and Performance* area of emphasis.

Staff launched a stakeholder process to leverage industry and other stakeholder expertise as the MPSC considered revisions to the rulesets. Four stakeholder meetings were held from December 2019 to March 2020, to identify issues with the current rules and discuss proposals to resolve them in a transparent manner. After each meeting, stakeholders were asked to submit comments to the respective dockets regarding any changes they would like to see made to the rulesets or to respond to others' proposals, including those made by Staff.

There were a wide variety of stakeholders who participated including utilities, legislators, fire departments, and non-profits. In addition, assistance was provided from technical experts at Lawrence Berkeley National Laboratory.

Contemporaneously and subsequent to the stakeholder meetings, a series of subgroups convened to work through various issues identified via the stakeholder process. There were five subgroups: Definitions and Reporting Standards, Wire Down Relief, Metering, Rule 411, and Cybersecurity. The work of the subgroups, in conjunction with the broader stakeholder meetings, served to inform Staff's preliminary recommendations and in many instances, to reach consensus among stakeholders.

Grid Security and Reliability Standards Staff Reports

In its September 11, 2019, order, the Commission directed Staff to produce Initial Reports and Final Reports of Staff's findings and recommendations. On April 15, 2020, the Commission reset the deadlines for the Initial Reports and Final Reports to July 31, 2020 and December 15, 2020, respectively. Staff submitted its Initial Reports, which included a summary of the workgroup efforts to date, a synopsis of the key issues, Staff's preliminary recommendations, and appendices containing Staff's proposed changes to rulesets, to the respective dockets on July 31, 2020. Stakeholder feedback on the Initial Reports were provided to Staff by August 28, 2020.

The Initial Reports, stakeholder comments, and other workgroup materials are available on the workgroup webpage.

Next Steps

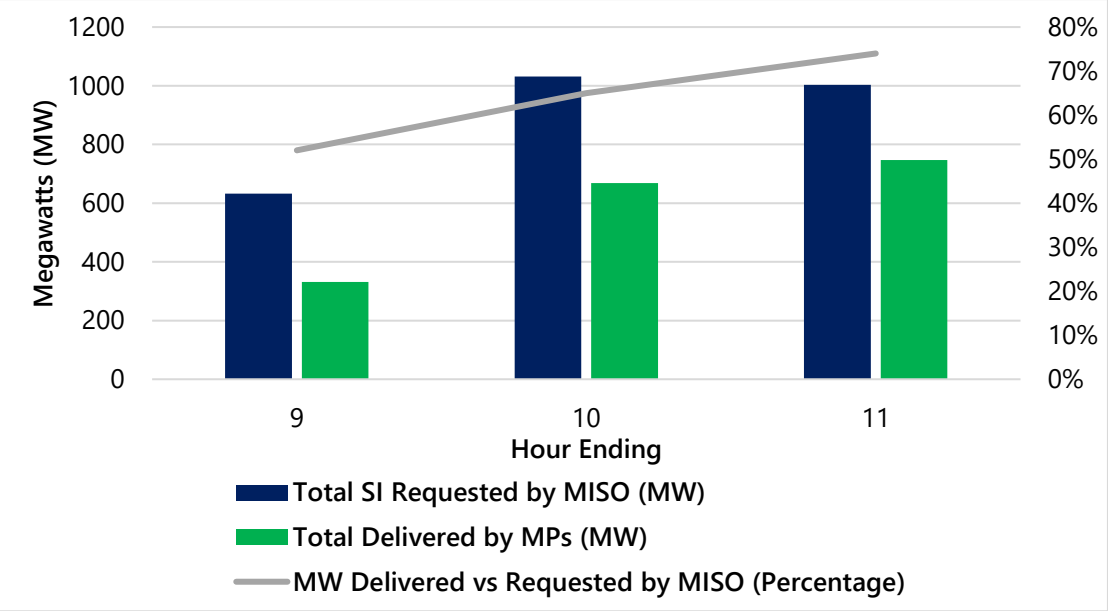
The workgroup has been responsive to the Commission's orders in the dockets for Case Nos. U-20464, U-20629, and U-20630, and the workgroup's efforts have resulted in many proposed changes to the respective rulesets, many of which have consensus among stakeholders. Staff will continue engaging with stakeholders and working to refine the proposed redlines to its Initial Reports in preparation for submitting the Final Reports on December 15, 2020. The formal rulemaking process will commence thereafter.

Demand Response

Introduction, History, and Workgroup Summary

The Commission issued an order in Case No. U-20628 on September 11, 2019, that directed Staff to convene a workgroup of utilities, RTOs, demand response providers, customer advocates, and other interested stakeholders to review and discuss the information contained in the final SEA report regarding the reasons for the poor response of Load Modifying Resources (LMRs) to the 2019 Polar Vortex, and to discuss ways to improve future LMR participation and performance when deployment is required. As included in the SEA, Figure 1 illustrates the LMR underperformance issue:

Figure 5 – MISO Zone 7 (Lower Peninsula) LMR Performance 1/30/2019



The Commission stated that the four objectives of the group would be as follows:

- Ensure LMR participation and performance.
- Maximize the value of demand response resources in wholesale markets.
- Improve communication with LMRs during times when their deployment is necessary.
- Discuss other issues related to demand response as appropriate to achieve the Commission's overarching goals of reliability and resilience.

To achieve these objectives, the workgroup was directed to review demand response tariffs for consistency and clarity regarding LMR deployment, consider how retail demand response offerings can be better aligned with wholesale markets, examine communication procedures during demand response events, and discuss ways to conduct testing of the communication and response system.

Staff used these guidelines to prepare content for a series of stakeholder meetings that included presentations related to the September 11, 2019 Commission order, the SEA report, LMR operations, communications and testing, wholesale and retail tariff alignment, and demand response aggregation. Discussions focused on the problems that utilities, customers, and system operators experienced during the 2019 Polar Vortex, as well as solutions to LMR underperformance that had been implemented since 2019 or would be needed in the future.

MI Power Grid incorporated the Demand Response stakeholder workgroup as part of the *Customer Engagement* area of emphasis. Stakeholder participation was outstanding, with over 30 different entities represented throughout four workgroup meetings held from January 2020 through May 2020.

Demand Response Staff Report and Recommendations

The solutions identified by stakeholders and Staff during the workgroup meetings were key inputs into the recommendations outlined below and included in the final report, which was filed to U-20628 on July 31, 2020. The recommendations are as follows:

- Ensure LMR availability is properly accounted for in MISO's Communication System (MCS) tool
- Ensure clarity and consistency in communication processes
- Increase demand response provider interaction with the customer
- Explore the use of enabling technologies where feasible and cost-effective
- Direct utilities to explore demand response partnerships for real-time metering, customer readiness, and a centralized platform
- Require an annual documented simulation and encourage real power testing where feasible
- Formalize and standardize the notification procedure and penalties in utility tariffs
- Any necessary tariff changes should be made in a general rate case or an ex parte case
- Enable demand response value stacking: capacity + energy + ancillary services

These recommendations will continue to improve LMR performance, enhance communication procedures, and augment reliability as demand response expands throughout the state.

The Staff report and other workgroup materials are available on the workgroup webpage.

Next Steps

The Commission will act on these recommendations through upcoming Commission orders or other action. Staff will continue to keep abreast of demand response developments and advocate for positive changes within the MPSC's retail jurisdiction as well as wholesale markets.

Energy Programs and Technology Pilots

Introduction, History, and Workgroup Summary

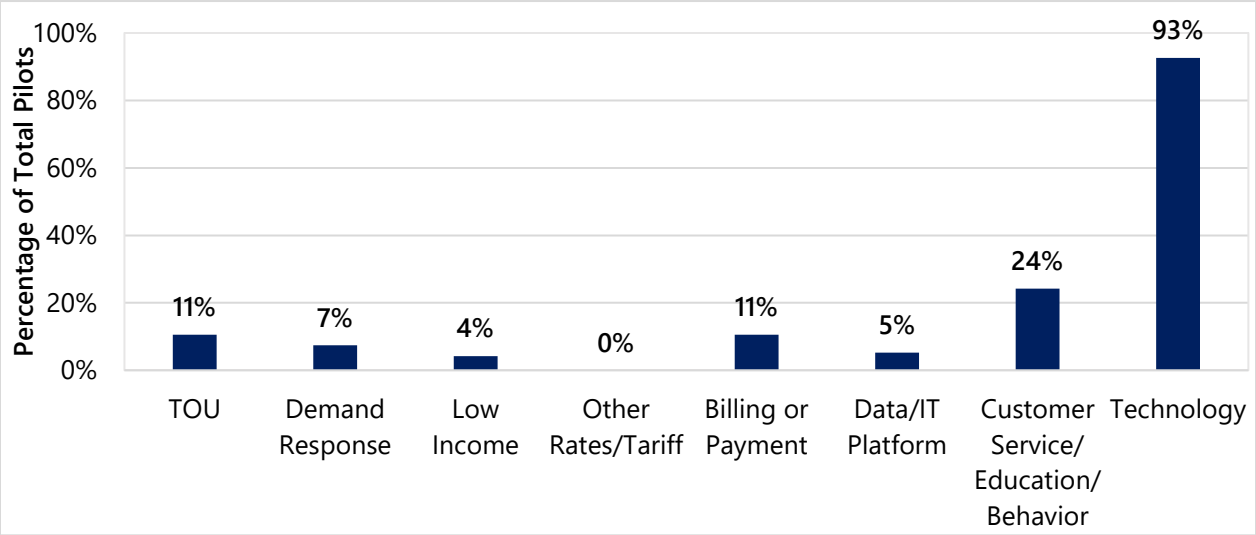
In the initial order in Case No. U-20645 establishing the MI Power Grid Initiative, the Energy Program and Technology Pilots workgroup was established as part of the *Customer Engagement* area of emphasis and was tasked with:

- Engaging with electric utilities and other stakeholders to better understand the outcomes and learnings from past and current pilot projects,
- Investigating pilot program best practices and past MPSC actions on pilot programs,
- Proposing objective criteria for Commission/Staff to use when evaluating future proposed utility pilot projects, and,
- Identifying potential areas for additional pilot proposals.

To accomplish these tasks and to help understand Michigan's utility pilots, the workgroup initiated a series of stakeholder meetings, conducted utility and stakeholder surveys, and reviewed available literature and past pilots in case filings before the Commission.

Based on the utility survey results for pilot projects from 2008-2019, the exploration and application of new technologies appears to be the focus of most utility pilots. Technology pilots accounted for most of utility pilots (93%), followed by customer focused pilots (24%). See Figure 2. Of the 95 reported pilots, 12% tested multiple technologies.

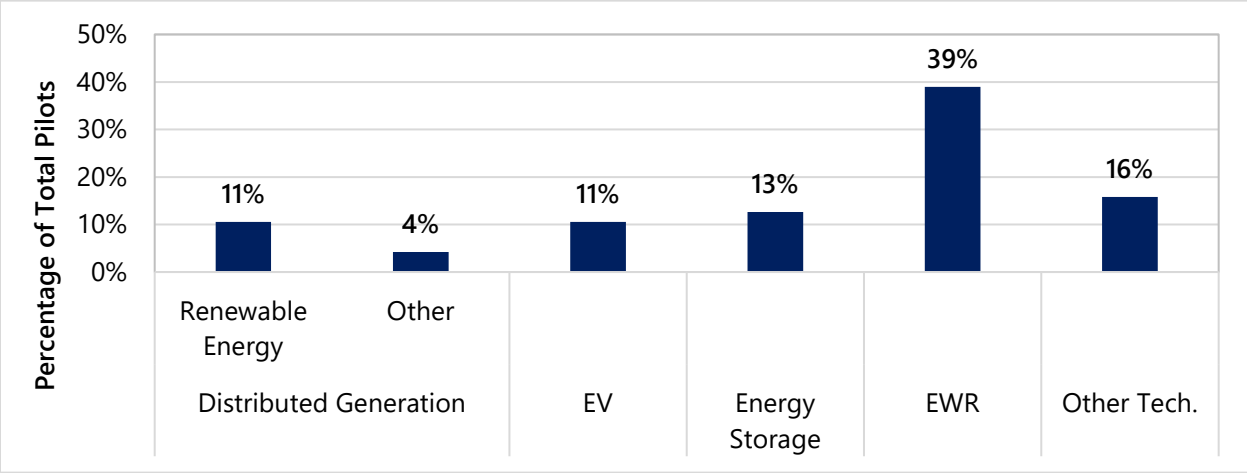
Figure 6 – Utility Survey: Pilot Types in Dataset



Note: *Some pilots are classified in more than one category, so cumulative percentage exceed 100%. For additional utility survey results, see Section 2.3.1 in Staff's Utility Pilot Best Practices and Future Pilot Areas report.*

Of the technology pilots, energy waste reduction (EWR) pilots were most popular (39%), followed by energy storage (13%), electric vehicles (11%), and renewable energy (11%). "Other technology" (16%) groups miscellaneous technology pilots and should not be viewed as a cohesive grouping when examining most popular types of implemented pilots. See Figure 7 for the composition of the technology pilots (93%) by technology group.

Figure 7 – Utility Technology Pilots in Detail



The stakeholder series kicked-off in February 2020. Due to the novel coronavirus (COVID-19) pandemic, the series was converted from in-person all-day sessions to shorter, staggered tele-conferences, and resumed in April 2020. Seven stakeholder meetings were held from February to June 2020.

A wide range of stakeholders from utilities, non-profits, technology developers, academic institutions, communities, and individual utility customers participated in this stakeholder process. Staff was fortunate to receive assistance from technical experts at Lawrence Berkeley National Laboratory.

Energy Programs and Technology Pilots Staff Report and Recommendations

Staff considered the information and guidance from the workgroup activities to make its recommendations in its final report filed to the docket in Case No. U-20645.

- Staff recommends the MPSC establish and promote more detailed foundational goals underpinning future energy pilots. A cohesive vision with clear metrics will help unify the State's future energy pilot investments while also increasing movement toward realizing that vision in a safe and affordable manner.
- Staff recommends the following broad definition for pilot: *A pilot is a limited duration experiment to determine the impact of a measure on one or more outcomes of interest.*
- Staff recommends objective criteria that can be used when evaluating pilot proposals that come before the Commission for funding approval. Staff proposed the following objective

criteria categories below be provided in detail for utility pilot proposals. Refer to section 5.3 of the full report for all recommended criteria.
    - *Pilot need and goals.*
    - *Pilot design and evaluation plan designed and presented together.*
    - *Pilot project costs.*
    - *Project timeline.*
    - *Stakeholders engagement plan.*
    - *Public interest.*
- Staff recommends the development of a streamlined pilot review process that provides cost recovery clarity.
- Staff recommends the development of an online Michigan pilot directory. At a minimum, the following information for utility pilot projects should be provided: a utility contact person, a summary of pilot need and goals, any applicable MPSC case numbers, and links to any pilot design, evaluation, and update information. The directory could also list a contact per utility for future pilots so third parties and researchers can share ideas or interest.

The final report and stakeholder comments are available on the workgroup webpage.

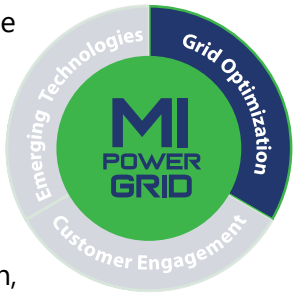
Next Steps

There is much to explore regarding how pilots can help maximize the benefits of Michigan's transition to cleaner and more distributed energy resources. The Commission will act on these recommendations through upcoming Commission orders or other action. Staff looks forward to Commission guidance and findings of ongoing and future MI Power Grid workgroups, like New Technologies and Business Models and Financial Incentives/Disincentives, that will likely shed more light on how to better support energy innovation and pilots in the state.

Phase II Activities

With much of the work of Phase I MI Power Grid activities nearing conclusion, the Commission has initiated aspects of Phase II. Activities related to Advanced Planning (Integration of Resource/Distribution/Transmission Planning) and Competitive Procurement were formally launched through Commission orders on August 20, 2020, and stakeholder meetings have already occurred in both work areas. Staff anticipates that additional work areas are expected to commence before 2020 comes to a close.

Integration of Resource/Distribution/Transmission Planning



On August 20, 2020, the Commission issued an order in the docket for Case No. U-20633 that initiated Phase II of the MI Power Grid Advanced Planning Processes. Phase II of this work area will encompass Integration of Resource/Distribution/Transmission Planning workgroup activity. In that order, the Commission highlighted several recommendations from the SEA report and provided guidance for staff to begin outreach by holding a series of stakeholder sessions. As directed by the Commission, these sessions will address the following areas:

- Potential ways to align distribution plans with IRPs and examination of best practices from other jurisdictions, including:
    - Methodologies to develop distributed energy resource forecasts over a five and ten-year period;
    - Potential sources or methodologies to forecast electric vehicle (EV) penetration over a five and ten-year period;
    - Methodologies or frameworks to forecast the impact of the expected EV penetration on the load forecast over a five and ten-year period; and
    - Methodologies or frameworks to evaluate non-wires alternatives (NWAs) such as targeted energy waste reduction and demand response in distribution plans and integrated resource plans.
- Identifying potential revisions to the Commission-approved IRP modeling parameters or the filing requirements to better accommodate transmission alternatives in IRPs in preparation for the next formal review of the Michigan IRP Planning Parameters expected to take place in 2022; and
- Methodologies to quantify and value generation diversity in IRPs.

Staff is currently engaging Michigan regulated utilities and interested stakeholders with the workgroup process. During initial planning efforts, Staff has coordinated with several subject matter experts from a variety of national organizations including; Lawrence Berkeley National Laboratory, Electric Power Research Institute, Regulatory Assistance Project, GridLab, Pacific Northwest National Laboratory, National Renewable Energy Laboratory, Purdue University, Excel Energy, Duke Energy, and Dominion Energy.

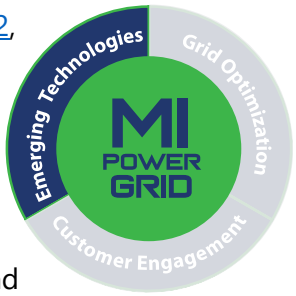
On September 23, 2020, Governor Whitmer announced the MI Healthy Climate Plan with the issuance of Executive Order 2020-182 and Executive Directive 2020-10. The kick-off meeting for this workgroup was held on September 24, 2020 and featured presentations from Michigan's largest utilities regarding current planning practices. MPSC Chair Dan Scripps directed Staff to work with stakeholders to develop a proposal to ensure the climate goals announced by Governor Whitmer are considered in future IRP filings, including those IRPs to be filed in 2021 before the Commission updates the IRP filing requirements and planning parameters.

Subsequent meetings will feature subject matter experts starting in October 2020, extending through March of 2021. Staff will provide a report at the conclusion of the stakeholder process to be filed in the docket no later than May 27, 2021. This effort is expected to provide a foundation for potential changes to the Michigan IRP Planning Parameters scheduled to be updated in 2022.

For more information regarding this workgroup effort or to sign up to receive updates, visit the workgroup webpage.

Workgroup Initiated 8/20/2020	Planning and Workgroup Activity 8/2020 – 4/2021	Staff Report 5/27/2021

Competitive Procurement



On August 20, 2020, the Commission issued an order in Case No. U-20852, establishing the Competitive Procurement Workgroup, the first Phase II workgroup of the MI Power Grid *Integrating Emerging Technologies* core area of emphasis. In that order, the Commission outlined its objective for the workgroup to develop Competitive Procurement Guidelines that ensure a strong, technology-neutral market response and value for ratepayers through transparency, non-discriminatory access, certainty, and fairness in bidding processes. The order requests the workgroup to evaluate the following criteria in the development of its Guidance Document recommendations:

- Use, suitability, and expectations for all-source bidding and ways to address potential procurement barriers to emerging technologies.
- Alignment and timing of processes and regulatory review/approvals for procurement and resource and distribution planning.
    - Timing and processes to determine resource need.
    - Use of mandatory Requests for Proposals (RFPs) under the IRP statute, MCL 460.6t(6) contract approvals as well as the timing and mechanics for any Staff, stakeholder, and Commission review of RFP documents and results.
    - Coordinate with the collaborative initiated in Case No. U-20633, due to the important linkages between planning and procurement.
- Minimum information that must be included in the RFP.

    - Template contracts and price and non-price factors and other evaluation criteria for power purchase agreements, build transfer, and other ownership structures.
- Independence issues (i.e., different models for the use and role of third-party administrator/evaluator; separation of utility roles).

The kick-off meeting took place on September 14, 2020 with presentations from Staff and a national expert on competitive procurement, representing Lawrence Berkeley National Laboratory. Subsequent meetings will feature subject matter experts and stakeholder representatives starting in October 2020. Staff issued a Competitive Procurement Guidance Straw Proposal on October 1, 2020 for review by stakeholders and will refine the proposed guidance throughout the workgroup process. The workgroup meetings will extend through the first quarter of 2021. At the conclusion of the workgroup process, Staff will issue a final Competitive Procurement Guidance Document to be reviewed and considered by the Commission.

For more information regarding this workgroup effort or to sign up to receive updates, visit the workgroup webpage.

Workgroup Initiated 8/20/2020 → **Planning and Workgroup Activity 8/2020 – 3/2021** → **Proposed Guidance or Rules Q2 2021**

New Technologies and Business Models

A number of new technologies and business models are quickly becoming commercialized, expanding options and providing new opportunities to control costs while also posing unique challenges. Fast-growing commercially available technologies include electric vehicles and battery (and other) storage at both distribution and utility scale, while other technologies are still in development but may soon be commercially viable at competitive prices. At the same time, there may be regulatory, business model, economic, or other barriers to integrating these technologies into the electric grid. The MI Power Grid New Technologies and Business Models workgroup will be launched as part of Phase II to explore emerging technologies and business models. In preparation for the upcoming stakeholder series, Staff sought initial stakeholder input regarding the topics of interest and timing for this workgroup. Guidance from the Commission and a formal launch of this initiative is expected before the end of 2020.

For more information regarding this workgroup effort or to sign up to receive updates, visit the workgroup webpage.

Phase III Activities

In order to focus regulatory efforts and help manage workload during the COVID-19 pandemic, the Commission modified plans for the MI Power Grid initiative in an April 15th order in Case No. U-20757. Specifically, the Commission deferred and staggered MI Power Grid activities that had not yet commenced as they recognized that activities may need to be delayed during the pendency of this emergency. The remaining workgroups will be launched as Phase III initiatives at various times over the next year.

Customer Education and Participation

In order to maximize the value of clean and distributed energy resources for customers, significant attention needs to be given to educating and facilitating customer participation and access to new demand-side technologies, energy waste reduction programs, demand response offerings, time-based pricing and other related programs.

This workgroup will focus on educating customers on existing and new utility and non-utility offerings while exploring best practices that facilitate more equitable and effective engagement by stakeholders in Commission activities and proceedings.

To sign up to receive updates regarding Customer Education and Participation workgroup activity, visit the workgroup webpage.

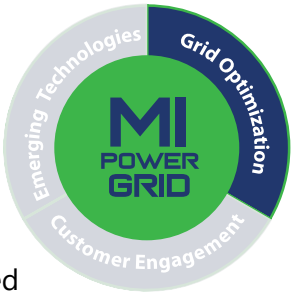
Financial Incentives/Disincentives

Utility companies traditionally make money by earning a return on investments in new infrastructure, like power plants, poles, and wires. By pursuing alternatives to utility-owned infrastructure, such as power purchase agreements, reducing customer energy use through efficiency measures, or shifting energy use to times when electricity costs less to produce, there may be cost savings. Financial incentives provide an ability for utilities and customers to share in these savings, while disincentives may be appropriate if utilities are unable to achieve an expected level of performance.

This workgroup will build on studies and actions addressing performance-based ratemaking and statutorily authorized incentive mechanisms to ensure utility investments are optimized for the benefit of customer service, system reliability, and safety.

To sign up to receive updates regarding Financial Incentives/Disincentives workgroup activity, visit the workgroup webpage.

IRP (MIRPP, Filing Requirements, Demand Response Study, Energy Waste Reduction Study)



Electric utilities are required to file plans every five years with the Commission that look at anticipated customer electricity needs over the next 5, 10, and 15 years as well as the appropriate mix of resources to serve those needs, including power plants, renewable energy, energy waste reduction, demand response, and customer-owned resources. The MPSC establishes parameters and filing requirements for utility integrated resource plans and conducts studies on achievable levels of energy waste reduction and demand response.

This last phase of the Advanced Planning Processes work area will focus on updating integrated resource plan filing requirements/parameters consistent with integrated planning, value of diversity findings, demand response potential study and energy waste reduction potential study.

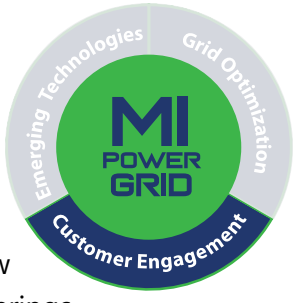
To sign up to receive updates regarding IRP workgroup activity, visit the workgroup webpage.

Data Access and Privacy

This work area will review and refine protocols to ensure information is available to end-use customers and appropriate third parties for use in making energy investment decisions while ensuring that personally identifiable and critical energy infrastructure information is kept secure and private.

For more information about this work area, visit the MI Power Grid *Integrating Emerging Technologies* webpage.

Innovative Rate Offerings



Studies conducted in Michigan and elsewhere reveal a significant untapped potential for customers to save money and improve reliability through innovative rate structures and programs that cut energy waste or shift demand away from peak times.[6]

This work area will focus on the development, review, and promotion of new pricing models to allow a broader range of options for customers; these offerings can include time-based rates, distributed generation, and voluntary green purchasing programs.

For more information about this work area, visit the MI Power Grid *Customer Engagement* webpage.

[6] October 17, 2019 Commission Order, U-20645, p. 3.

Conclusion

Several work areas within MI Power Grid are ongoing, while others have yet to be initiated. All of these efforts remain critical to ensuring that the regulatory environment is equipped to respond to challenges associated with the transition to cleaner, distributed energy, and will build on the work done in the initial stages of MI Power Grid. In its order initiating MI Power Grid, the Commission indicated that it expects publication of an overview of actions taken and potential next steps as part of a final report issued by Staff in the third quarter of 2021, and filed to the docket in Case No. U-20645.

As we look ahead to year two of MI Power Grid, Staff submits the following recommendations for Commission consideration:

- On September 29, 2020, the Michigan Senate adopted Senate Resolution 142, which recognizes that "energy customers are adopting new and evolving technologies including customer-owned generation, energy storage, electric vehicles, and customer energy management capabilities" and encourages the Commission "to undertake a study on rate designs and options, including fixed system access and demand charges and rate design options that will account for the changing customer use of the grid due to the adoption of new energy technologies." This request by the Senate aligns with the Innovative Rate Offerings work area within the Customer Engagement area of emphasis.
    - The Commission should consider issuing an order initiating the Innovative Rate Offerings work area, acknowledging and incorporating guidance from Senate Resolution 142 as appropriate.
- On September 29, 2020, the Michigan Senate adopted Senate Resolution 143, which encourages the Commission "to undertake a study on reliability, interconnection, and related grid integration issues for distributed energy, including the potential growth of distributed energy systems, changes to system design and operations, and system benefits, costs, and other impacts" and to "coordinate with electric utilities and other parties on distribution circuit-level data collection, modeling, and analysis to examine and monitor the capacity for, and constraints to, interconnecting additional distributed energy resources, as well as technology and operation options to mitigate reliability impacts and maximize customer and system benefits." This request by the Senate aligns with the Data Access & Privacy work area within the Integrating Emerging Technologies area of emphasis.
    - The Commission should consider issuing an order initiating the Data Access & Privacy work area, acknowledging and incorporating guidance from Senate Resolution 143 as appropriate.
    - The Commission should further consider bifurcating the two elements it identified as comprising the Data Access & Privacy work area – System Data Access and

Customer Data Access – such that the Customer Data Access section can be integrated into a workgroup in the Customer Engagement area of focus within MI Power Grid, in order to ensure that issues related to customers' ability to access their usage data on a timely and ongoing basis, and to have control over how or whether that information is shared, are being discussed in the context of broader issues related to customer engagement.

- On September 17, 2020, the FERC issued Order 2222, which requires regional transmission organizations to establish tariffs allowing aggregators of distributed energy resources to participate in wholesale markets.
    - The Commission should consider leveraging previously identified MI Power Grid work areas or establishing a new work area to evaluate the impact of this order on distributed energy resources within Michigan.
- In its April 15, 2020 Order in Case No. U-20757, responding to the COVID-19 pandemic, the Commission indicated that the Customer Education and Participation work area within the Customer Engagement area of focus would launch in the fall of 2020 as part of Phase II of MI Power Grid.
    - The Commission should consider revising the timeline for initiating the Customer Education and Participation work area to allow for additional time to conduct internal planning in preparation for a launch of stakeholder activities as part of Phase III in the first half of 2021.
- As noted above, several MI Power Grid work areas have yet to be initiated and are unlikely to kick off until the first part of 2021 at the earliest. The Commission ordered Staff to provide a final report on the MI Power Grid activities during the third quarter of 2021 – i.e., by the end of September at the latest. This deadline may not allow for the results of later MI Power Grid activities to be captured in the final report.
    - Given the importance of the remaining work areas, and the need to ensure adequate time for stakeholder efforts, Staff review and recommendations, and Commission action, the Commission should consider requesting Staff to submit a second status report during the third quarter of 2021, and extending the deadline for the MI Power Grid final report until 2022, in order to allow for a fuller accounting of MI Power Grid activities.

Since MI Power Grid was launched, the Commission, Staff, and stakeholders have taken an active role in identifying and responding to emerging issues relative to the ongoing transition to a cleaner, more distributed energy system. While these efforts have been complicated by the need to respond to the COVID-19 global pandemic, it is clear that the energy transition continues its momentum, and that the work of MI Power Grid remains as important today as upon its launch nearly a year ago. Staff appreciates the efforts of the numerous stakeholders, presenters, commenters, and other work group participants in contributing to the achievements of MI Power Grid to date. Staff further wishes to commend the Commission for its vision and guidance in initiating MI Power Grid and looks forward to building on the strong foundation that has been laid over the past year.