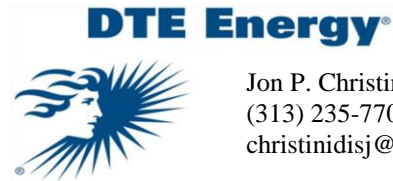


DTE Electric Company
One Energy Plaza, 1635 WCB
Detroit, MI 48226-1279



Jon P. Christinidis
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March 12, 2019

Ms. Kavita Kale
Executive Secretary
Michigan Public Service Commission
7109 West Saginaw Highway
Lansing, Michigan 48909

Re: In the matter, on the Commissions own motion, establishing the method and avoided cost calculation for DTE ELECTRIC COMPANY to fully comply with the Public Utilities Regulatory Policy Act of 1978, 16 USC 2601 et seq.
Case No. U-18091 (Paperless e-file)

Dear Ms. Kale:

Attached for electronic filing in the above-captioned matter are DTE Electric Company's Direct Testimony and Exhibits on Remand of Witnesses, Timothy A. Bloch, Frank Niscoromni, Angela P. Wojtowicz, and David Swiech, as well as the Direct Testimony on Remand of Witnesses, Don M. Stanczak, and Stephanie A. Buway. Also attached is the Proof of Service.

Very truly yours,

Jon P. Christinidis

JPC/lah
Attachments

cc: Service List

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

QUALIFICATIONS

AND

DIRECT TESTIMONY

ON REMAND

OF

DON M. STANCZAK

DTE ELECTRIC COMPANY
QUALIFICATIONS ON REMAND OF DON M. STANCZAK

Line
No.

1 **Q. Please state your name, business address and by whom you are employed.**

2 A. My name is Don M. Stanczak. My business address is One Energy Plaza, Detroit,
3 Michigan 48226. I am employed by DTE Energy Corporate Services, LLC a
4 subsidiary of DTE Energy as Vice President, Regulatory Affairs.

5

6 **Q. On whose behalf are you testifying?**

7 A. I am testifying on behalf of DTE Electric Company (DTE Electric or Company).

8

9 **Q. What is your education background?**

10 A. I received a Bachelor of Science Degree in Business Administration, with a major in
11 Finance, from Central Michigan University. In addition, I received a Master of
12 Business Administration Degree, with a major in Accounting, from Wayne State
13 University.

14

15 **Q. What work experience do you have?**

16 A. I joined Michigan Consolidated Gas Company ("MichCon") in 1983 and through
17 1994 had several assignments of increasing responsibility in a number of areas within
18 MichCon, including Financial Services, Regulatory Affairs, Corporate Planning, Gas
19 Supply and Supply Chain. In 1994, I was promoted to Director, Market Planning. In
20 1999, I transferred to Gas Transmission and Resource Planning as Director. In 2000
21 I moved back to Regulatory Affairs as Director, responsible for all of MichCon's
22 regulatory activities. In 2001, MichCon's parent, MCN Energy, was acquired by
23 DTE Energy, DTE Electric's (formerly Detroit Edison) parent. In 2005, I
24 transitioned my responsibility to Director for DTE Electric's regulatory activities. In
25 2013, I assumed my present position having responsibility for the development and

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1 implementation of regulatory strategy and administration for both DTE Electric and
2 DTE Gas (formerly MichCon).

3

4 **Q. Have you previously sponsored testimony before the Michigan Public Service**
5 **Commission (“MPSC” or “Commission”)?**

6 A. Yes. I sponsored testimony in the following DTE Electric, Detroit Edison, DTE Gas,
7 and MichCon cases:

8 U-10544 MichCon Facility Application

9 U-10547 MichCon Facility Application

10 U-10744 MichCon Conservation Plan

11 U-10640 MichCon GCR Plan

12 U-10915 MichCon GCR Plan

13 U-11145 MichCon GCR Plan

14 U-12762 MichCon GCR Suspension Termination

15 U-13060 MichCon GCR Plan

16 U-13060-R MichCon GCR Reconciliation

17 U-13549-R MichCon GCR Reconciliation

18 U-13808 Detroit Edison Rate Case

19 U-13898 MichCon Rate Case

20 U-13933 Detroit Edison Low-Income Credit

21 U-14399 Detroit Edison Rate Unbundling

22 U-14428 Detroit Edison Other Post Employment Benefit Equalization
23 Mechanism

24 U-15768 Detroit Edison Rate Case

25 U-16472 Detroit Edison Rate Case

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1	U-16489	Detroit Edison deferred pension and post-employment benefits
2		expense for future amortization and recovery
3	U-16780	Detroit Edison Revenue Decoupling Mechanism Reconciliation
4	U-16952	Detroit Edison 2011 Choice Incentive Mechanism Reconciliation
5	U-17437	DTE Electric PLD Transitional Cost Recovery Plan
6	U-17689	DTE Electric Public Act 169 of 2014 Filing
7	U-17767	DTE Electric Rate Case
8	U-17999	DTE Gas Rate Case
9	U-18014	DTE Electric Rate Case
10	U-18248	DTE Electric Capacity Charge Case
11	U-18255	DTE Electric Rate Case
12	U-18419	DTE Electric Certificate of Necessity
13	U-20162	DTE Electric Rate Case

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF DON M. STANCZAK

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1 **Q. What is the purpose of your testimony in this proceeding?**

2 A. The purpose of my testimony is to:

- 3 • Provide an overview of the case;
- 4 • Describe the necessary criteria in determining the existence of a capacity
- 5 need;
- 6 • Provide feedback on the three (3) planning horizon options as requested in
- 7 the Commission’s December 20, 2018 remanded order (“Remand Order”) in
- 8 this proceeding;
- 9 • Describe the Company’s proposed avoided cost methodology;
- 10 • Address the status of DTE Electric’s new Natural Gas Combined Cycle
- 11 (“NGCC”) plant in the context of avoided cost, as required in the Remanded
- 12 Order;
- 13 • Discuss the Company’s position regarding the appropriate standard offer
- 14 threshold;
- 15 • Discuss the Company’s position regarding the standard offer contract
- 16 duration.

17

18 **Case Overview**

19 **Q. Can you provide an overview of the history of this proceeding?**

20 A. This proceeding was initiated by the Commission to consider various aspects of the

21 continuing implementation of the Public Utilities Regulatory Policy Act of 1978

22 (“PURPA”) by its Order issued May 3, 2016. The Commission’s Order directed the

23 Electric Reliability Division of the Commission Staff (“Staff”) to form a PURPA

24 Technical Advisory Committee (“TAC”) involving representatives from electric

25 utilities, electric cooperatives, Qualified Facilities under PURPA (“QFs”), small

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1 power producers and distributed generation advocates. The result of these meetings
2 was a PURPA TAC report, prepared by the Staff, which presented recommendations
3 for a possible avoided cost methodology; the Staff's TAC report addressed other
4 PURPA policy issues as well. Consistent with PURPA's requirement that avoided
5 costs be determined specifically and uniquely for each electric utility, the
6 Commission required each utility to preliminarily submit its avoided costs in
7 individual dockets, which DTE Electric timely accomplished on June 17, 2016.
8 Specifically, the order required the Company to provide avoided cost calculations
9 using: 1) hybrid proxy methodology proposed in Staff's PURPA TAC report, 2) the
10 transfer price method developed under 2008 PA 295, and 3) another method, if any,
11 that the company wished to propose. The Order also required that the Company
12 propose standard offer PURPA tariffs. On July 31, 2017, the Commission issued an
13 interim order finding that Staff's hybrid proxy methodology was the most appropriate
14 way to calculate avoided costs and requested that the parties file proposed inputs for
15 further examination.

16

17 **Q. What have been DTE Electric's previous positions in this proceeding regarding**
18 **how avoided costs should be calculated?**

19 A. Assuming the Company has a capacity need, DTE Electric has previously stated that
20 the appropriate basis for avoided costs should be the Company's expected next
21 significant generation investment that can be avoided by purchasing energy and
22 capacity from a QF. In July 2017, the Company requested Certificates of Necessity
23 ("CON") in Case No. U-18419 for a new 1,100 Natural Gas Combined Cycle
24 ("NGCC") plant, now known as the Blue Water Energy Center ("BWEC"). At the
25 time the Company filed its rehearing request, BWEC was the most appropriate basis

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1 for determining avoided cost. On August 30, 2017, DTE Electric filed a rehearing
2 request, relative to the Commission's July 31, 2017 interim Order in this proceeding,
3 which explained that the record did not support the Commission's adoption of the
4 Staff Hybrid Proxy methodology, that DTE Electric's Certificate of Necessity filing
5 in Case No. U-18419 provided the appropriate basis to determine DTE Electric's
6 avoided cost, that DTE Electric cannot lawfully be required to purchase capacity that
7 it does not need, and that decisions regarding the cost of capacity threaten long-term
8 consequences for Michigan ratepayers.

9

10 **Q. Can you summarize the key findings of the Commission's December 20, 2018**
11 **Order on rehearing and remand in this proceeding?**

12 A. Yes. The Company's petition for rehearing was granted in part. In its rehearing
13 Order, the Commission agreed with DTE Electric that facts and circumstances had
14 changed since the record closed in this proceeding. While the Commission indicated
15 that it did not intend to address certain issues, such as, ownership of QF RECs and
16 Standard Offer term lengths, the Commission indicated that it was revisiting avoided
17 cost methodology, and inputs to avoided cost. Specifically, the Commission
18 indicated that the case was remanded for the purposes of addressing the inputs to be
19 used for avoided costs based on the new NGCC plant, DTE Electric's capacity needs,
20 the appropriate PURPA capacity planning horizon, the Standard Offer tariff, and
21 receiving into evidence an annual energy forecast based on the NGCC plant for at
22 least a 10-year period.

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Q. What do you consider to be the key policy issues relative to the implementation of PURPA and establishment of avoided cost pricing for QFs?

A. First and foremost, PURPA avoided cost must be just and reasonable, in the public interest, and must reflect the costs that the Company can avoid as a result of obtaining energy and/or capacity from QFs. Avoided cost should not be based on a theoretical calculation that does not reasonably reflect the costs that the Company can avoid as a result of obtaining energy and/or capacity from QFs. Similarly, our customers should only pay QFs for capacity based on the cost of the Company's next significant generation investment when the Company has a persistent need for such generation capacity that can be avoided by purchasing from QFs. Absent a significant and persistent long-term capacity need, the most appropriate PURPA avoided cost would be based on short-term market options represented by MISO's Locational Marginal Prices ("LMP") for energy needs and MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs. Moreover, a persistent capacity need should be defined as a projected need to fulfill MISO's resource adequacy requirements over multiple years; investing in generation for other purposes does not constitute a capacity need. For example, adding resources for renewable energy compliance purposes does not inherently constitute a capacity need. Finally, to protect customers and prevent overpaying for PURPA resources when there is a significant and persistent capacity need, a price cap should be set equal to the all-in Levelized Cost of Energy ("LCOE") of the utility's lowest cost alternative renewable resource regardless of what type of asset the utility would otherwise build to fulfill that need.

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1 **CAPACITY DEMONSTRATION**

2 **Q. How does the Company propose that generation capacity need be**
3 **demonstrated?**

4 A. Under PURPA, capacity payments to QFs can only be required when the procurement
5 of capacity from a QF actually permits the Company to reduce its need to provide
6 capacity by deferring either the construction of new a new plant, or commitments to
7 firm power purchases. The Company's need to procure capacity is identified through
8 periodic Integrated Resource Plan ("IRP") proceedings. Therefore, Company
9 proposes that in the future, generation capacity need be evaluated in periodic IRP
10 proceedings.

11

12 **Q. Why is the Company proposing that generation capacity need be evaluated in**
13 **future IRP proceedings?**

14 A. Future IRP proceedings are the ideal vehicle for evaluating the Company's capacity
15 position, because such proceedings entail a comprehensive review of the Company's
16 electric generation resource needs, available generation resources and proposed
17 incremental generation resources. In addition, these proceedings will take place at
18 least once every five years, and possibly more frequently.

19

20 **Q. Does the Company have an approved IRP?**

21 A. No. The Company will be filing its first IRP under the new legislation as defined
22 under 2016 PA 341 ("PA 341"), section 6t on March 29, 2019. An initial order is
23 expected by January 23, 2020 in that proceeding, with a final order issued not later
24 than March 23, 2020.

25

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1 **Q. Until a final order is issued in its upcoming IRP proceeding how should the**
2 **Company’s need for capacity be evaluated?**

3 A. In the recent past, the Company has reported to the Commission regarding its
4 capacity position. Specifically, the Company filed documents pertaining to its
5 capacity position in December 2018 in Case No. U-20154, relative to the
6 administration of the State Reliability Mechanism (“SRM”), the Company filed a
7 report documenting its capacity position. In that proceeding, the Company indicated
8 that it did not expect to make any MISO PRA purchases during the MISO plan years
9 2020-21 through 2029-30. In addition, the Company is including an updated view of
10 its capacity position in this case, which is the same data that will be included in the
11 Company’s IRP filing which will be submitted to the Commission on March 29th,
12 2019. This capacity assessment is supported by Company Witness Niscoromni, and
13 is reflected on Exhibit DE-6. As reflected in the Company’s December 2018
14 submission in Case No. U-20154 and reflected on Exhibit DE-6, the Company does
15 not have a persistent need for incremental capacity over the next 10 years.

16

17 **Q. Why is a persistent capacity need key to informing a utility’s PURPA**
18 **obligations?**

19 A. If a persistent capacity need does not exist, then there is no new plant construction or
20 long-term purchase contract to defer, and therefore no avoided cost associated with
21 such deferral; I address short-term or intermittent needs later in my testimony. DTE
22 Electric would not build a physical generation asset to meet a short-term or
23 intermittent capacity need, nor would DTE Electric sign a long-term capacity contract
24 to meet such a need. More cost-efficient ways exist to meet short-term, insignificant
25 capacity shortfalls, these include market purchases and demand response. Assuming

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1 that the Company would invest in assets or enter into Purchase Power Agreements
2 (“PPA”) in order to meet non-existent or minimal intermittent capacity shortfalls is
3 therefore not appropriate in the context of setting PURPA avoided cost pricing.
4 Again, this would violate the requirement that the Company, and therefore its
5 customers, not pay more in avoided cost to the QF than it would have paid if the
6 Company would have self-generated or purchased the power, absent the QF.

7
8 **Q. What are the proper criteria to determine whether a utility has a persistent**
9 **capacity need?**

10 A. A persistent capacity need identified in an IRP must 1) be a significant projected
11 shortfall in the utility's ability to demonstrate resource adequacy to MISO, and 2)
12 represent an avoidable investment in generation capacity with the primary objective
13 of addressing said shortfall. Any short duration or sporadic capacity need within the
14 relevant planning horizon should not be viewed as persistent.

15
16 **Q. In its December 20, 2018 Order on rehearing in this proceeding, did the**
17 **Commission address the capacity planning horizon issue?**

18 A. Yes. The Commission specifically requested that the parties address the following
19 three potential planning horizon options: 1) a five-year planning horizon given
20 current emerging planning and resource acquisition and development practices, 2) a
21 10-year planning horizon in which full avoided costs are paid to QFs in the year that
22 the capacity need is projected and thereafter, and 3) a 10-year planning horizon in
23 which the capacity payment varies depending on the amount of capacity needed and
24 when it occurs in the planning horizon. In a footnote, the Commission provided some
25 additional detail relative to options two and three.

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1 **Q. What PURPA planning horizon is DTE Electric supporting in this proceeding?**

2 A. A five-year outlook is the most appropriate timeframe for determining a capacity
3 need under PURPA. A five-year outlook is consistent with the IRP cycle in Michigan
4 as well as with the requirement relative to the Commission reviewing PURPA
5 avoided costs. Moreover, investments for new generation that are expected to occur
6 within the five-year PURPA capacity outlook period that will come on-line after the
7 five-year PURPA capacity outlook period, will still count as a persistent need,
8 leveraging the IRP's longer term outlook. For example, if an IRP calls for new
9 physical generation in the last year of the five-year planning horizon, and that new
10 capacity would also be needed in years subsequent to the year five IRP planning
11 horizon, such new capacity could constitute the basis for the avoided cost of capacity
12 if the QF purchase allows the Company to defer construction of the new capacity.
13 Investments that begin beyond the next five years should not be considered when
14 determining capacity need under PURPA. Forecasts more than five years out are
15 subject to significant uncertainty including; technology cost, efficiency and
16 availability, and changes in peak demand and usage. Thus, expanding the time
17 horizon for quantifying an explicit capacity need beyond five years increases risk for
18 DTE Electric's retail electric customers. Potential capacity needs that may occur
19 further than five years out can be addressed in subsequent IRP proceedings or
20 additional filings to update critical assumptions.

21

22 **Q. Should renewable generation build to meet renewable energy goals be**
23 **considered a persistent capacity need?**

24 A. No. Adding resources to meet renewable energy goals, either state-mandated or
25 customer-imposed, does not inherently constitute a capacity need. These investments

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1 are driven by the requirement to meet a percentage of the Company's *energy* needs
2 with renewable sources or to reduce carbon emissions, and are not driven by capacity
3 needs. While these investments also generate some MISO Zonal Resource Credits
4 ("ZRC") as a byproduct, they are not made to support resource adequacy. In addition,
5 PURPA contracts cannot be relied upon to avoid the need to purchase from other
6 resources to meet renewable compliance obligations because PURPA contracts do
7 not convey Renewable Energy Credits ("REC"); FERC has determined that RECs
8 tied to PURPA QFs do not accrue to the host utility unless explicitly provided by
9 state law, which is not the case in Michigan. Thus, PURPA contracts would not be
10 expected to defer renewable investments by DTE Electric. At a minimum, DTE
11 Electric – and thus its customers – would have to make additional payments to a QF
12 in order to obtain the RECs. Note that the Company is willing to explore the purchase
13 of RECs from operating QFs in the future pursuant to renewable energy filings if
14 doing so proves economical, but purchasing RECs does not constitute a capacity need
15 under PURPA.

16
17 **Q. Should renewable generation build to meet voluntary green pricing programs**
18 **be considered a persistent capacity need?**

19 A. No. Similar to renewable build to meet renewable energy mandates, renewable
20 generation build to support voluntary green pricing tariffs should not be construed as
21 a capacity need. These investments are driven by a subset of our customers who are
22 interested in sourcing a higher share of their energy needs from renewables. So,
23 while these investments also generate some MISO ZRCs, they are not made to
24 support resource adequacy. In addition, a significant portion of these renewable
25 additions are tied to agreements between DTE Electric and large retail electric

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1 customers that specify terms, including pricing. The pricing in turn is based on
2 specific projects and in-service dates; hence, replacing them with PURPA contracts
3 is not feasible. Such a replacement would also presumably shift the cost from specific
4 customers in the voluntary renewable program to all of DTE Electric's customers. If
5 the Company did not offer these voluntary programs, the renewable resources would
6 not be built and thus these investments are not avoided costs in the context of
7 PURPA.

8

9 **Q. Would an expectation of making PRA purchases indicate a need for capacity for**
10 **the purposes of determining PURPA pricing?**

11 A. No. As I indicated earlier, and also shown on Exhibit DE-6, the Company does not
12 have any capacity need through 2030 and thus does not expect to be making PRA
13 purchases in this timeframe. However, even if a short-term capacity need did emerge
14 that would result in some PRA purchases, a short-term need does not represent a
15 capacity need for the purposes of determining PURPA pricing.

16

17 **Q. Should interim assessments of the Company's capacity position be allowed**
18 **between IRP proceedings?**

19 A. Yes. The Commission should allow the Company to update its capacity assessment
20 between IRP proceedings, because unexpected events could change the Company's
21 capacity position between IRP proceedings.

22

23 **AVOIDED COST ABSENT A PERSISTENT CAPACITY NEED**

24 **Q. What would be the appropriate standard offer avoided cost if DTE Electric does**
25 **not have a persistent capacity need?**

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1 A. Absent a persistent capacity need, avoided costs should be based on short-term
2 market options. The avoided cost should be the applicable day-ahead MISO LMP,
3 since those are the costs the utility would be avoiding without a QF purchase. It
4 would be improper to utilize the variable fuel cost of a physical generation asset in
5 this instance, since the Company meets its load obligations through purchasing
6 energy from MISO. Thus, an energy only PURPA contract should be priced at the
7 applicable day-ahead MISO LMP. Capacity should be valued at the actual annual
8 MISO PRA price. In the event of a minor short-term capacity need, the Company
9 would purchase capacity from MISO to ensure compliance with the Planning Reserve
10 Margin in MISO Zone 7. Therefore, the MISO PRA price becomes the cost avoided
11 by the Company by contracting with the QF; this of course assumes that the QF has
12 made its capacity available to DTE Electric. If there is no capacity need, the
13 Company will essentially sell off the capacity from the PURPA agreement into the
14 MISO PRA and thus DTE Electric's customers will be held harmless.

15

16 **Q. If a QF is only interested in selling energy, what is the appropriate standard**
17 **offer avoided cost?**

18 A. The avoided cost should be actual day-ahead MISO LMP, with no payment for
19 capacity. An energy-only PURPA contract may be preferred by QFs whose
20 generation is primarily utilized onsite but occasionally has excess energy it wishes to
21 sell to the Company. Under an energy-only PURPA contract, the QF is not making
22 a commitment to provide generating capacity to DTE, and thus the Company would
23 not be offering any capacity into MISO's annual PRA associated with this type of
24 energy only contract.

25

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1 **Q. Should the PRA and LMP prices you just addressed be based on actual or**
2 **forecasted prices?**

3 A. Avoided cost rates should be based on actual values because actual values reflect the
4 cost the Company actually avoids when purchasing from a QF.

5
6 **Q. If there is a persistent capacity need, what should the PURPA standard offer**
7 **avoided cost pricing be based on?**

8 A. When there is a persistent capacity need, PURPA avoided cost should be based on
9 the next supply side resource identified in the IRP that can be avoided by purchasing
10 from the QF instead. This is the case since the IRP process considers reliability and
11 operating characteristics of the various available technologies when identifying the
12 most reasonable and prudent plan. More specifically, the IRP planning process
13 considers characteristics related to capacity, energy production, and dispatchability.
14 It would not be just and reasonable or in the public interest for customers to pay a
15 price higher than the resource identified in the IRP as the most reasonable and
16 prudent.

17
18 **Q. How should the avoided cost be priced in terms of capacity and energy?**

19 A. Avoided cost pricing should be based on the levelized cost of avoidable generation
20 investment as determined by a competitive solicitation. The all-in levelized cost of
21 energy inherently compensates for both energy and capacity. Thus, there is no need
22 to define separate energy and capacity pricing. This addresses the inappropriate
23 results that may occur relative to pricing through attempts to establish different
24 capacity prices for different technologies.

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1 **Q. What inappropriate results are you referring to relative to attempts to establish**
2 **different capacity prices for different generation technologies?**

3 A. As addressed by Company Witness Buway, the actual expected LCOE for wind based
4 on actual bids is \$45 per MWh. Requiring the Company to pay more than this least
5 cost renewable for a solar based PURPA contract would clearly be not in the public
6 interest and would not reasonably reflect the Company's avoided cost of an
7 incremental renewable resource.

8

9 **Q. In light of your last answer, do you have any additional recommendations**
10 **relative to PURPA avoided cost pricing?**

11 A. Yes. Regardless of the method the Commission adopts for avoided cost pricing when
12 there is a persistent capacity need, a price cap should be established that is equal to
13 the all-in LCOE of the utility's lowest cost alternative renewable resource.
14 Moreover, this price cap should be used regardless of what incremental generation
15 capacity technology is chosen by the IRP. Such a price cap would ensure that,
16 consistent with the requirements of PURPA, DTE Electric retail customers would
17 only pay the avoided cost and not more than they would have paid absent the PURPA
18 purchase. Again, the all in LCOE compensates for both capacity and energy. Thus,
19 no adjustments would need to be made to this price cap regardless of what energy
20 technology was being offered. As Witnesses Niscoromni and Buway indicate, wind
21 is the Company's next renewable generation build with an expected LCOE of \$45
22 per MWh. Thus, a PURPA standard offer price cap should be established at \$45 per
23 MWh, on an LCOE basis.

24

25 **Q. In its order granting rehearing, the Commission agreed with DTE Electric's**

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1 **rehearing request indicating that the Blue Water Energy Center, the combined**
2 **cycle natural gas plant that was the subject of the certificates of necessity in Case**
3 **No. U-18419, is the Company's next generation and thus avoided cost should be**
4 **based on BWEC costs. Does the Company still view BWEC as avoidable?**

5 A. No. As reflected in the Company's August 30, 2017 petition for rehearing relative to
6 the July 2017 Order, BWEC was the next generation as of the summer of 2017.
7 However, since that time, the Commission approved CONs for the BWEC, contracts
8 associated with the construction of BWEC have been executed and the BWEC
9 construction is now underway. Thus, the cost of BWEC is, for all practical purposes,
10 no longer avoidable. Moreover, as will be reflected in the Company's soon to be
11 filed IRP, BWEC is reflected as an integral component of the Company's generation
12 fleet beginning in 2022. Thus, it is no longer appropriate to view BWEC as DTE
13 Electric's next generation investment, since wind is expected to be the next
14 generation build.

15
16 **Q. When did the Company no longer view BWEC as being the basis for DTE**
17 **Electric's avoided cost?**

18 A. Generally, as I touched on in my prior answer, BWEC was no longer the next avoided
19 generation cost when the costs associated with the construction of BWEC became
20 unavoidable. That essentially occurred when the Commission issued the CONs in
21 Case No. U-18419 and/or when the Company executed contracts for the construction
22 of BWEC. As I indicated earlier, not only has the Commission issued the CONs, but
23 the Company has executed agreements for construction of BWEC.

24
25 **Q. Notwithstanding your position that BWEC is no longer appropriate to be used**

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1 as the Company's avoided cost, is the Company providing costs for BVEC in
2 this proceeding?

3 A. Yes. Company Witness Niscoromni supports Exhibit DE-4 with costs for BVEC.
4

5 **STANDARD CONTRACT TERMS**

6 **Q. Is the company proposing any changes to the standard offer tariff?**

7 A. Yes. The Company is proposing changes to the size threshold and duration of a
8 standard PURPA contract.
9

10 **Q. What should be the appropriate standard offer size threshold?**

11 A. Although DTE Electric appreciates the progress made in the December 20, 2018
12 Rehearing Order in lowering the standard offer threshold from 2MW to 550kW, the
13 Company believes the appropriate standard offer threshold should be 150 kW.
14 Although PURPA requires the Company make available standard offer contracts for
15 QFs up to 100 kW, the Company is proposing standard offer contracts be made
16 available to QFs up to 150 kW. The 150 kW limit is consistent with MCL 460.1173
17 which limits the size of generators eligible to participate in the distributed generation
18 program. Therefore, it appears that the legislature intended to treat customers with
19 generator facilities smaller than 150 kW different from those with generation
20 facilities with larger capacity.
21

22 **Q. What should be the appropriate length of PURPA contracts?**

23 A. To limit exposing DTE Electric retail electric customers to above market prices in
24 PURPA contracts, DTE proposes that PURPA contracts be no longer than 10 years.
25 This is especially necessary if the MPSC chooses an avoided cost methodology that

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1 escalates energy payments based on long-term price forecasts, particularly natural gas
2 price forecasts. As Witness Swiech explains in his testimony, forecasted natural gas
3 prices have had an upward bias and can escalate to very high levels when inflation
4 assumptions are compounded over long time horizons.

5

6 **Q. What is the contract duration in other states?**

7 A. Standard offer contract duration terms vary from state to state and those with longer
8 terms have taken subsequent actions to reduce them. For example, Wyoming, Utah,
9 Oregon, and Idaho all initially set 20-year terms, but have recently taken up legislative
10 or regulatory efforts to reduce the terms. Utah and Idaho ultimately reduced the duration
11 to 15 and 2 years respectively.

12

13 **Q. Does this complete your direct testimony?**

14 A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

QUALIFICATIONS
AND
DIRECT TESTIMONY
ON REMAND
OF
STEPHANIE A. BUWAY

DTE ELECTRIC COMPANY
QUALIFICATIONS ON REMAND OF STEPHANIE A. BUWAY

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1 **Q. Will you please state your name, business address and by whom are you**
2 **employed?**

3 A. My name is Stephanie A. Buway. My business address is: One Energy Plaza,
4 Detroit, Michigan 48226. I am employed by DTE Electric Company within
5 Renewable Energy Business Development as a Strategist.

6

7 **Q. On whose behalf are you testifying?**

8 A. I am testifying on behalf of DTE Electric Company (DTE Electric or Company)
9 formerly, The Detroit Edison Company (Detroit Edison).

10

11 **Q. What is your educational background?**

12 A. I graduated from the University of Oklahoma in 2005 with a Bachelor of Arts
13 degree in Geography. In 2007, I received a Master of Arts from the University of
14 Oklahoma, also in Geography, with a concentration in renewable energy.

15

16 **Q. Have you completed any other courses of study?**

17 A. Yes, I am currently enrolled in the Master of Business Administration program at
18 Wayne State University in Detroit, Michigan.

19

20 **Q. What work experience do you have?**

21 A. In 2007 I joined EDP Renewables, N.A. as a Project Developer and later was
22 promoted to a Project Manager, on the Southwest Region Development Team.
23 Throughout my career at EDP Renewables, N.A., I was responsible for various
24 management assignments in the evaluation, development, construction, and
25 operation phases of numerous wind projects in Oklahoma, Texas, and Kansas.

Line
No.

1 In May 2012, I joined DTE Electric Company as a Real Estate Associate and was
2 later promoted to a Contract Administrator on the Renewable Energy Development
3 Team. I managed and executed the contractual obligations for over 1,000
4 customers with wind and solar energy contracts, and related infrastructure on their
5 property. Additionally, I managed budgets, financial forecasts, and customer
6 interactions. In March 2017, I began my current position as a Strategist in DTE
7 Electric's Renewable Energy Business Development group. In this position, I
8 manage the Request for Proposal (RFP) process for acquisition of new renewable
9 energy assets, assist in drafting regulatory filings, and provide support in the
10 analysis of financial models for regulatory compliance and project economics. I
11 also sponsored an affidavit in support of Company's request for approval of the
12 Polaris Wind Park Build-Transfer Contract, in Case No. U-18111.

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF STEPHANIE A. BUWAY

Line
No.

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to describe the process and results of how the
3 Company acquired pricing for the next renewable generation build that will
4 commence construction and achieve commercial operation in 2020.

5

6 **Q. Are you sponsoring any exhibits?**

7 A. No.

8

9 **Q. What does DTE Electric expect to be its next generation investment after the**
10 **completion of the Blue Water Energy Center (BWEC)?**

11 A. DTE Electric will be asking the Commission for approval in Spring 2019 for the
12 purchase of one or more wind projects in 2020; contract negotiations are in the final
13 stages. The wind projects are expected to reach commercial operation by
14 December 31, 2020. The generation from these projects will fulfill customer
15 demand for the Large Customer Voluntary Green Pricing Program.

16

17 **Q. How did DTE Electric select these projects?**

18 A. The projects selected were a result of a Wind Development Build-Transfer RFP that
19 DTE Electric developed and issued in May 2018 in consultation with the MPSC
20 Staff pursuant to and consistent with the December 4, 2008 Temporary Order and
21 December 23, 2008 Amendatory Order in Case No. U-15800. The RFP conformed
22 to the guidelines for RFPs approved by the Commission under 2008 PA 295. In
23 Case No. U-15800, Attachment D to the Commission's December 4, 2008
24 Temporary Order specifically provided that the "bid evaluation process may include
25 an assessment of both price and non-price factors." The bidding criteria utilized by

Line
No.

1 the Company for the RFP were experience, safety and quality, project feasibility,
2 proposed technology, pricing, deviation from proforma contract terms and
3 conditions, scope and specifications, and financial strength and creditworthiness.
4 The Company utilized scorecards that were reviewed by the MPSC Staff, and were
5 consistent with Attachment D to the December 4, 2008 Temporary Order in MPSC
6 Case No. U-15800 and Exhibit No. A-33 (CLC-1) admitted in MPSC Case No. U-
7 15806-RPS.

8
9 **Q. What were the results of the 2018 RFP?**

10 A. The RFP issued in May 2018 was a closed-bid event in which nine (9) wind
11 developers with projects already in the Mid-Continent Independent System
12 Operator queue were invited to participate. DTE Electric received a total of eleven
13 (11) proposals from seven (7) developers. These proposals varied by turbine
14 technology, location, price, and capacity. Using the evaluation scorecard, DTE
15 Electric ranked the projects and shortlisted five (5) of the eleven (11) projects. The
16 Company subsequently entered into negotiations with the three (3) developers
17 responsible for the five shortlisted projects. The resulting bids and completed
18 evaluation scorecards were reviewed by Staff in October 2018.

19
20 The Company is willing to review and discuss on-site with Staff, confidentially, the
21 results and status of the RFP. However, to ensure the confidentiality of the bid
22 results, to ensure that the Company continues to receive the most economic
23 proposals in response to its RFPs, and to protect the sensitive commercial nature of
24 the Developers' projects, this information should not be disclosed to others that are
25 likely to utilize it to their commercial advantage and all confidential information

Line
No.

1 should otherwise be properly protected.

2

3 **Q. What pricing information was given in the RFP bid responses?**

4 A. To ensure the best pricing, the projects were required to meet commercial operation
5 by December 31, 2020 and be eligible for 100% production tax credits. Installed
6 cost estimates range from approximately \$1,430/kW - \$1,840/kW. The Company
7 expects to execute an agreement with a levelized cost of energy ("LCOE") of
8 \$45/MWh or, if multiple contracts are executed, an average LCOE of \$45/MWh.
9 The Company is willing to review and discuss on-site with Staff, confidentially, the
10 projects' pricing. However, to ensure the confidentiality of the price estimates, to
11 ensure that the Company continues to receive the most economic proposals in
12 response to its RFPs, and to protect the sensitive commercial nature of the
13 Developers' projects, this information should not be disclosed to others that are
14 likely to utilize it to their commercial advantage and all confidential information
15 should otherwise be properly protected.

16

17 **Q. How does this RFP pricing affect Case No. U-18091?**

18 A. The 2018 RFP pricing affects Case U-18091 in two ways. First, because wind is
19 the next generating asset contemplated by the Company, as discussed by Witness
20 Niscoromni, the final negotiated price resulting from this RFP will represent the
21 Company's PURPA price during periods of persistent capacity need. Secondly, the
22 final negotiated price resulting from this RFP also represents the lowest cost
23 renewable resource available to the Company at this time. As described in Witness
24 Stanczak's testimony, a price cap should be established that is equal to the all-in
25 LCOE of the utility's lowest cost alternative renewable resource.

Line
No.

1 **Q. Does this complete your direct testimony?**

2 A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

DIRECT TESTIMONY

ON REMAND

OF

TIMOTHY A. BLOCH

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF TIMOTHY A. BLOCH

Line
No.

1 **Q. Will you please state your name, business address and by whom are you**
2 **employed?**

3 A. My name is Timothy A. Bloch. My business address is: One Energy Plaza, Detroit,
4 Michigan 48226. I am employed by DTE Energy Corporate Services, LLC within
5 Regulatory Affairs as Principal Financial Analyst.

6

7 **Q. On whose behalf are you testifying?**

8 A. I am testifying on behalf of DTE Electric Company (DTE Electric or Company).

9

10 **Q. Have you previously filed direct and rebuttal testimony in this proceeding on behalf of**
11 **the DTE Electric Company?**

12 A. Yes, I did.

13

14 **Q. What is the purpose of your testimony?**

15 A. The purpose of my testimony is to revise the Rider No. 5 tariff submitted by the
16 Company on August 15, 2017 in response to the Michigan Public Service
17 Commission's (Commission) December 20, 2018 and February 21, 2019 Orders in
18 this case.

19

20 **Q. Are you sponsoring any exhibits?**

21 A. Yes. I am sponsoring the following exhibits:

<u>Exhibit</u>	<u>Description</u>
22 DE-1a	BWEC Tariff Sheet - Standard Contract Rider No.5
23 DE-1b	DTE Electric Proposed Tariff Sheet - Standard Contract Rider
24	No.5
25	

Line
No.

1 **Q. Were these exhibits prepared by you or under your direction?**

2 A. Yes.

3

4 **Q. Can you please describe Exhibits DE-1a and DE-1b?**

5 A. As instructed by Witness Stanczak, I prepared two tariff exhibits. Both Exhibits
6 reflect proposed changes from the tariff filed by the Company pursuant to the
7 Commission's July 31, 2017 Order. Exhibit DE-1a presents the Company's
8 proposed tariff changes and follows the Commission December 20, 2018 Order to
9 use the Blue Water Energy Center (BWECC) for avoided costs, set the standard offer
10 size limit to 550kW, and provide standard offer contract terms of 5, 10, 15 and 20
11 years. As discussed by Witness Stanczak, the Company does not support using
12 Blue Water Energy Center for purposes of determining avoided costs for several
13 reasons. Fundamentally, attempting to determine DTE Electric's equivalent
14 avoided costs for intermittent renewable energy QFs, using a dispatchable base load
15 NGCC plant (BWECC), is not only complicated and places unnecessary risk on DTE
16 Electric's customers, but is also unnecessary given that the Company's next
17 avoidable resource is renewable. In addition, while the Company appreciates the
18 Commission reducing the standard offer size limit to 550kW, it believes the
19 Standard Offer size limit should be set to 150kW as explained by Witness Stanczak
20 and further the standard offer term should be 5 or 10 years. Exhibit DE-1b presents
21 the Company's proposed tariff changes with avoided costs and the Standard Offer
22 rate based on the next supply-side resource that is still avoidable, standard offer size
23 limit set to 150kW, and standard offer term set to 5 or 10 years. Except for the
24 changes noted above, all other terms and condition of the proposed tariffs presented
25 in Exhibits DE-1a and DE-1b are the same.

Line
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1 **Q. Can you generally describe the types of purchasing agreements with**
2 **Qualifying Facilities (QFs) under the proposed tariffs?**

3 A. As addressed in further detail by Witness Stanczak, there are three general types of
4 purchase agreements; 1) Energy only agreements available to QFs electing to sell
5 only energy to the Company as the customer determines such energy to be
6 available. 2) Capacity and Energy when the Company has a persistent capacity
7 need, and 3) Capacity and Energy when the Company has a short term, intermittent
8 or no capacity need.

9

10 **Q. Can you describe the proposed pricing for each type of purchasing agreement?**

11 A. For energy only purchase agreements the rate is based on the day-ahead MISO
12 hourly locational marginal price for the DTE Electric appropriate load node. For
13 capacity and energy purchase agreements when the Company has a persistent
14 capacity need, the rate is based on the next supply-side resource that is avoidable.
15 A standard offer rate and contract is available to QFs with installed capacities of
16 150 kW or less. The rate for QFs having a capacity over 150 kW up to 20 MW will
17 be made under negotiated agreement. Exhibit DE-1a reflects a standard offer rate
18 based on the BWECC and consists of a fixed capacity cost of \$14.02/MWh and
19 variable energy cost of \$25.25/MWh beginning 2019, as supported by Witness
20 Niscoromni. Exhibit DE-1b reflects the combined capacity and energy rate of the
21 next supply-side resource which is wind as indicated by Witness Niscoromni. As
22 discussed by Witness Buway, the final negotiated price resulting from the current
23 RFP for these wind resources will represent the Company's PURPA price during
24 periods of persistent capacity need and, also represents the lowest cost renewable
25 resource available to the Company at this time and therefore is the cap price

Line
No.

discussed by Witness Stanczak. The Company expects the levelized cost of energy (LCOE) for the resources in this RFP to be \$45/MWh or average \$45/MWh if several contracts are executed. Therefore, I have included the expected price of \$45/MWh in Exhibit DE-1b until replaced by the final negotiated prices resulting from the RFP. For capacity and energy purchase agreements when the Company has a short term, intermittent or no capacity need, the capacity rate will be based on MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs and the energy rate will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node. A standard offer rate and contract is available to QFs with installed capacities of 150 kW or less. The rate for QFs having a capacity over 150 kW up to 20 MW will be made under negotiated agreement.

Q. Can you generally describe the non-pricing provisions of the Company's proposed standard offer included in the proposed tariff in Exhibit DE-1b?

A. The following provisions apply under the standard offer:

a. Renewable Energy Credits (RECs): 1) RECs under the standard offer are owned by the Customer; 2) the Company may, but need not, purchase RECs from the customer at a mutually agreeable price, and; 3) any agreement for the purchase of RECs shall be under separate agreement.

b. Contract Term: All Customers must select a contract term of 5 or 10 years.

c. Early Termination: Customers will compensate the Company for all damages resulting from Customer's failure to complete the contracted term.

d. Standard Offer Contract: Customers will be required to execute a Standard Offer Contract with the Company. The specific terms and conditions of the

Line
No.

- 1 Standard Offer Contract are sponsored by Witness Wojtowicz.
- 2 e. A one mill per kilowatthour charge shall be assessed to all customers on this
- 3 rate to offset the Company's additional administrative expenses associated
- 4 with these transactions.
- 5
- 6 **Q. Does this complete your direct testimony?**
- 7 A. Yes, it does.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

REMAND EXHIBITS

OF

TIMOTHY A. BLOCH

M.P.S.C. No. 1 - Electric
DTE Electric Company

Cancels _____ Revised Sheet No. D-xx.00

Revised Sheet No. D-xx.00

STANDARD CONTRACT RIDER NO. 5

**SMALL POWER PRODUCTION
AND COGENERATION FACILITIES
20 MW AND SMALLER**

AVAILABILITY: Full service customers with on-site small power production or cogeneration facilities 20MW and smaller that seek to sell electric output from their facility to the Company may receive service under this tariff. This rate is available only to customers who obtain qualifying facility (QF) status from the Federal Energy Regulatory Commission. Prior to interconnection, the customer shall provide a copy of such notification to the Company. A Standard Offer under this tariff is applicable to QF's with less than or equal to 550 kW~~2-MW~~. ~~A Non-Standard Offer under this tariff is applicable to QF's between 2-MW and 20-MW.~~

CHARACTER OF SERVICE:

A Sales to customers:

1. As specified under the applicable filed rate.

B Sales by the Customer to the Company:

1. As specified under the Standard Offer or negotiated ~~Non-Standard Offer~~ contractual agreement.

C The customer shall install, at their expense, the necessary controlling, additional metering and protective equipment according to specifications of the Company. The Company shall not be liable for damage to customer-owned equipment caused by the interconnection.

D Billing for both sales to and sales from the customer will be calculated by the Company.

RATE:

A Sales to Customers:

1. Customer loads that are normally served by the customer's generator or prime mover must take standby service under Rider 3 unless otherwise exempted under the provisions of Rider 3, and must take supplemental service under an appropriate full service base tariff.

B Sales by the Customer to the Company:

~~1. Standard Offer Rate New Facilities:~~

~~a. Energy Only Sales: For all energy supplied by the customer, the customer shall receive an energy payment equal to one of the rate options below, as selected by the customer and applicable for the term of the standard offer contract. A one mill per kilowatthour charge shall be assessed to all customers on this rate to offset the Company's additional administrative expenses associated with these transactions. The rate will be based on the day ahead MISO locational hourly marginal energy price for the DTE Electric appropriate load node.~~

Issued _____, 2019
D. M. Stanczak
Vice President
Regulatory Affairs

Detroit, Michigan

Effective for service rendered on
and after _____, 2017

Issued under authority of the
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M.P.S.C. No. 1 - Electric
DTE Electric Company

Revised Sheet No. D-xx.00
Cancels Revised Sheet No. D-xx.00

STANDARD CONTRACT RIDER NO. 5 (Contd.)

**SMALL POWER PRODUCTION
AND COGENERATION FACILITIES
20 MW AND SMALLER**

<u>1. As Available Rate</u>	<u>MISO Real Time Locational Marginal Price (LMP) at the Company's load node plus Fixed ICE of \$0.00336/kWh** and less Administrative Fee of \$0.001/kWh.</u>							
<u>2. LMP Energy Rate Forecast*</u>	<u>MISO Forecast Locational Marginal Price (LMP) at the Company's load node indicated below, plus Fixed ICE of \$0.00336/kWh** less the Administrative Fee of \$0.001/kWh.</u>							
<u>Contract Term</u>	<u>5 Years</u>		<u>10 Years</u>		<u>15 Years</u>		<u>20 Years</u>	
	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>
	<u>\$0.03601</u>	<u>\$0.02594</u>	<u>\$0.03779</u>	<u>\$0.02858</u>	<u>\$0.04180</u>	<u>\$0.03267</u>	<u>\$0.04511</u>	<u>\$0.03586</u>
<u>3. Proxy Plant Variable Rate Forecast***</u>	<u>Projection of the variable costs of operating the proxy plant indicated below plus Fixed ICE of \$0.00336/kWh** and less the Administrative Fee of \$0.001/kWh.</u>							
<u>Contract Term</u>	<u>5 Years</u>		<u>10 Years</u>		<u>15 Years</u>		<u>20 Years</u>	
	<u>\$0.02713</u>		<u>\$0.02903</u>		<u>\$0.03141</u>		<u>\$0.03347</u>	

* LMP Energy Rate Forecast is based on MPSC Case No. U 18091 Exhibit A 13

** Fixed ICE is capacity component paid as an energy rate adjustment factor approved by the Commission in MPSC Case No. U 18091, Exhibit A 11.

*** Proxy Plant Variable Rate Forecast is based on MPSC Case No. U 18091 Exhibit A 12.

b. Capacity and Energy Sales: The seller shall receive a monthly capacity payment based on the proxy capacity rate. If capacity is needed, the rate will be based on the avoided capacity and energy costs in the Company's biennial avoided cost filing with the Commission. This rate will be adjusted to be reflective of the forecasted capacity factor, availability, operating schedule and the ability of the Company to dispatch the customer's generation. The rate so determined will apply to facilities with a capacity of 100 kW or less. The rate for facilities having a capacity over 100 kW up to 20MW will be made under negotiated agreement.

<u>Proxy Capacity Rate</u>	<u>Standard Offer Monthly Capacity Rate</u>
<u>\$95.72/kW Year</u>	<u>\$95.72/kW Year /12* Qualifying Facility Nameplate Capacity in kW * Electric Load Carrying Capability as shown below.</u>

<u>Type of Technology</u>	<u>Effective Load Carrying Capability for Qualifying Facility</u>
<u>Hydro MISO ELCC</u>	<u>92%</u>
<u>Biomass MISO ELCC</u>	<u>87%</u>
<u>Landfill Gas MISO ELCC</u>	<u>87%</u>
<u>Solar DTE ELCC</u>	<u>39%</u>
<u>Wind DTE ELCC</u>	<u>17%</u>

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M.P.S.C. No. 1 - Electric
DTE Electric Company

Revised Sheet No. D-xx.00
Cancels _____ Revised Sheet No. D-xx.00

~~2. Non Standard Offer Rate Existing Facilities:~~

~~a. Energy Only Sales: Same as Section B (1)(a) under the Standard Offer Rate. The rate will be based on the day-ahead MISO locational hourly marginal energy price for the DTE Electric appropriate load node.~~

~~b. Capacity and Energy Sales: When the Company is in need of capacity during the subsequent 10 year planning cycle, the Proxy Capacity Rate set forth above in Section 1B(b) shall be the basis for capacity payment, subject to negotiation between Company and Customer consistent with 18 CFR 292.304(e). When the Company has no capacity needs during the entire subsequent 10 year planning cycle, the Company shall, nevertheless, set capacity sales rates for new customer capacity based upon the latest MISO Prompt Resource Auction (PRA) price. No recognition will be made for capacity unless substantial proof is shown that the generator and protective equipment is new or equivalent to new. Refurnishing old equipment will not qualify the facility as new capacity.~~

~~c. On a case by case basis, the energy rate may be negotiated for line losses due to the interconnection location of the Qualifying Facility on the distribution system.~~

1. Energy Only Sales: For customer's electing to sell only energy to the Company as the customer determines such energy to be available. The rate will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node.

2. Capacity and Energy Sales:

Persistent Capacity Need

When the Company has a persistent capacity need during its 5-year planning horizon, the capacity and energy rate shall be based on the Blue Water Energy Center and paid as set forth below. A Standard Offer Rate will apply to facilities with a capacity of 550 kW or less. The rate for facilities having a capacity over 550kW up to 20MW will be made under negotiated agreement. For existing facilities, no recognition will be made for capacity unless substantial proof is shown that the generator and protective equipment is new or equivalent to new.

Standard Offer Rate - Persistent Capacity Need:

The rate will be based on the combined capacity and energy costs of Blue Water Energy Center and will consist of a fixed capacity component of \$14.02 per MWh and variable energy component for variable O&M and fuel costs. The variable energy component will be determined annually based on prior year actual variable O&M and fuel costs for the Blue Water Energy Center. The variable energy component is \$25.25 per MWh for 2019. The combined cost of capacity and energy shall not exceed the Company's cost cap, which is a fixed levelized cost of energy rate of \$45.00 per MWh.

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M.P.S.C. No. 1 - Electric
DTE Electric Company

Revised Sheet No. D-xx.00
Cancels _____ Revised Sheet No. D-xx.00

Renewable Energy Credits: Renewable Energy Credits (RECS) are owned by the Customer. The Company may, but need not, purchase RECs from Customers at a mutually agreeable price. Any agreement for the purchase of RECs shall be under separate agreement.

Contract Term: All customers must select a contract term of 5, 10, 15 or 20 years.

~~Customers will compensate the Company for all damages resulting from Customer's failure to complete the contracted term. Early Termination: Customer shall pay the Company the Standard Offer Monthly Capacity Rate for any remaining unfulfilled contract term or in the event of failure to generate at a rate of 70% of the expected annual energy purchases. In addition, the customer shall refund any overpayments related to energy sales which shall be determined as the price difference between the contracted energy rates and the energy rates the customer would have otherwise received based on the actual term completed, applied to all energy sales, plus interest.~~

~~In the alternative, at the Company's choice, the Customer shall be required, based on the options made available by the Company, to select a form of security to cover the financial risk associated with the Company's cost for replacement energy and capacity in the event the QF ceases operation prior to the term of the Power Purchase Agreement (PPA). The amount of security required will be based on the estimated amount of energy and capacity the customer will deliver and the term of the contract.~~

Customer's will be required to execute a Standard Offer ~~PPA Contract~~ with the Company.

Short Term, Intermittent or No Capacity Need

During periods when the Company does not need capacity or when only a short term or intermittent capacity need exists during its 5-year planning cycle, the Company will contract to purchase capacity and energy with capacity rates based on MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs in MISO Zone 7 corresponding to each year capacity is provided and energy rates will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node. A Standard Offer Rate will apply to facilities with a capacity of 550 kW or less. The rate for facilities having a capacity over 550kW up to 20MW will be made under negotiated agreement.

Standard Offer Rate – Short Term, Intermittent or No Capacity Need:

The capacity rate will be based on MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs in MISO Zone 7 corresponding to each year capacity is provided and the energy rate will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node.

Renewable Energy Credits: Renewable Energy Credits (RECS) are owned by the Customer. The Company may, but need not, purchase RECs from Customers at a mutually agreeable price. Any agreement for the purchase of RECs shall be under separate agreement.

Contract Term: All customers must select a contract term of 5, 10, 15 or 20 years.

Customers will compensate the Company for all damages resulting from Customer's failure to complete the contracted term.

Customer's will be required to execute a Standard Offer Contract with the Company.

Issued _____, 2019
D. M. Stanczak
Vice President
Regulatory Affairs

Detroit, Michigan

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M.P.S.C. No. 1 - Electric
DTE Electric Company

Cancels _____ Revised Sheet No. D-xx.00

Revised Sheet No. D-xx.00

1. A one mill per kilowatthour charge shall be assessed to all customers on this rate to offset the Company's additional administrative expenses associated with these transactions.

SPECIAL PROVISIONS AND CONDITIONS:

A Capacity Sales to the Company:

1. Annually the customer shall supply the Company with a schedule of all planned outages for the year in question. The customer and the Company shall agree to a maintenance schedule of mutual benefit.
2. Contract Capacity: The contract must specify the minimum and maximum kW capacity available to the utility from the facility under normal operating conditions.
3. Availability: The customer shall supply the Company with a statement of the projected annual availability of the capacity stated in the Contract Capacity.

B Additional Provisions and Conditions for Cogeneration:

1. Capacity Factor: The customer shall supply the Company with a statement of the projected capacity factor and operating schedule for the cogeneration facility.
2. Failure of the cogeneration facility to operate at the level of performance forecasted by the customer shall result in the Company adjusting the capacity purchase price to reflect the demonstrated performance of the cogeneration facility in question.

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Vice President
Regulatory Affairs

Detroit, Michigan

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M.P.S.C. No. 1 - Electric
DTE Electric Company

Revised Sheet No. D-xx.00
Cancels Revised Sheet No. D-xx.00

STANDARD CONTRACT RIDER NO. 5

**SMALL POWER PRODUCTION
AND COGENERATION FACILITIES
20 MW AND SMALLER**

AVAILABILITY: Full service customers with on-site small power production or cogeneration facilities 20MW and smaller that seek to sell electric output from their facility to the Company may receive service under this tariff. This rate is available only to customers who obtain qualifying facility (QF) status from the Federal Energy Regulatory Commission. Prior to interconnection, the customer shall provide a copy of such notification to the Company. A Standard Offer under this tariff is applicable to QF's with less than or equal to 150 kW2-MW. ~~A Non-Standard Offer under this tariff is applicable to QF's between 2 MW and 20 MW.~~

CHARACTER OF SERVICE:

- A Sales to customers:
 - 1. As specified under the applicable filed rate.
- B Sales by the Customer to the Company:
 - 1. As specified under the Standard Offer or negotiated ~~Non-Standard Offer~~ contractual agreement.
- C The customer shall install, at their expense, the necessary controlling, additional metering and protective equipment according to specifications of the Company. The Company shall not be liable for damage to customer-owned equipment caused by the interconnection.
- D Billing for both sales to and sales from the customer will be calculated by the Company.

RATE:

- A Sales to Customers:
 - 1. Customer loads that are normally served by the customer's generator or prime mover must take standby service under Rider 3 unless otherwise exempted under the provisions of Rider 3, and must take supplemental service under an appropriate full service base tariff.
- B Sales by the Customer to the Company:
 - 1. ~~Standard Offer Rate~~ New Facilities:
 - a. ~~Energy Only Sales: For all energy supplied by the customer, the customer shall receive an energy payment equal to one of the rate options below, as selected by the customer and applicable for the term of the standard offer contract. A one mill per kilowatthour charge shall be assessed to all customers on this rate to offset the Company's additional administrative expenses associated with these transactions. The rate will be based on the day ahead MISO locational hourly marginal energy price for the DTE Electric appropriate load node.~~

Issued _____, 2019
D. M. Stanczak
Vice President
Regulatory Affairs
Detroit, Michigan

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dated _____, 201_
in Case No. U-18091

M.P.S.C. No. 1 - Electric
DTE Electric Company

Revised Sheet No. D-xx.00
Cancels Revised Sheet No. D-xx.00

STANDARD CONTRACT RIDER NO. 5 (Contd.)

**SMALL POWER PRODUCTION
AND COGENERATION FACILITIES
20 MW AND SMALLER**

<u>1. As Available Rate</u>	<u>MISO Real Time Locational Marginal Price (LMP) at the Company's load node plus Fixed ICE of \$0.00336/kWh** and less Administrative Fee of \$0.001/kWh.</u>							
<u>2. LMP Energy Rate Forecast*</u>	<u>MISO Forecast Locational Marginal Price (LMP) at the Company's load node indicated below, plus Fixed ICE of \$0.00336/kWh** less the Administrative Fee of \$0.001/kWh.</u>							
<u>Contract Term</u>	<u>5 Years</u>		<u>10 Years</u>		<u>15 Years</u>		<u>20 Years</u>	
	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>	<u>On Peak</u>	<u>Off Peak</u>
	<u>\$0.03601</u>	<u>\$0.02594</u>	<u>\$0.03779</u>	<u>\$0.02858</u>	<u>\$0.04180</u>	<u>\$0.03267</u>	<u>\$0.04511</u>	<u>\$0.03586</u>
<u>3. Proxy Plant Variable Rate Forecast ***</u>	<u>Projection of the variable costs of operating the proxy plant indicated below plus Fixed ICE of \$0.00336/kWh** and less the Administrative Fee of \$0.001/kWh.</u>							
<u>Contract Term</u>	<u>5 Years</u>		<u>10 Years</u>		<u>15 Years</u>		<u>20 Years</u>	
	<u>\$0.02713</u>		<u>\$0.02903</u>		<u>\$0.03141</u>		<u>\$0.03347</u>	

* LMP Energy Rate Forecast is based on MPSC Case No. U-18091 Exhibit A-13

** Fixed ICE is capacity component paid as an energy rate adjustment factor approved by the Commission in MPSC Case No. U-18091, Exhibit A-11.

*** Proxy Plant Variable Rate Forecast is based on MPSC Case No. U-18091 Exhibit A-12.

b. Capacity and Energy Sales: The seller shall receive a monthly capacity payment based on the proxy capacity rate. If capacity is needed, the rate will be based on the avoided capacity and energy costs in the Company's biennial avoided cost filing with the Commission. This rate will be adjusted to be reflective of the forecasted capacity factor, availability, operating schedule and the ability of the Company to dispatch the customer's generation. The rate so determined will apply to facilities with a capacity of 100 kW or less. The rate for facilities having a capacity over 100 kW up to 20MW will be made under negotiated agreement.

<u>Proxy Capacity Rate</u>	<u>Standard Offer Monthly Capacity Rate</u>
<u>\$95.72/kW Year</u>	<u>\$95.72/kW Year /12* Qualifying Facility Nameplate Capacity in kW * Electric Load Carrying Capability as shown below.</u>

<u>Type of Technology</u>	<u>Effective Load Carrying Capability for Qualifying Facility</u>
<u>Hydro MISO ELCC</u>	<u>92%</u>
<u>Biomass MISO ELCC</u>	<u>87%</u>
<u>Landfill Gas MISO ELCC</u>	<u>87%</u>
<u>Solar DTE ELCC</u>	<u>39%</u>
<u>Wind DTE ELCC</u>	<u>17%</u>

Issued _____, 2019
D. M. Stanczak
Vice President
Regulatory Affairs
Detroit, Michigan

Effective for service rendered on
and after _____, 2017

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M.P.S.C. No. 1 - Electric
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Revised Sheet No. D-xx.00
Cancels Revised Sheet No. D-xx.00

~~2. Non Standard Offer Rate Existing Facilities:~~

- ~~a. Energy Only Sales: Same as Section B (1) (a) under the Standard Offer Rate. The rate will be based on the day-ahead MISO locational hourly marginal energy price for the DTE Electric appropriate load node.~~
- ~~b. Capacity and Energy Sales: When the Company is in need of capacity during the subsequent 10 year planning cycle, the Proxy Capacity Rate set forth above in Section 1B(b) shall be the basis for capacity payment, subject to negotiation between Company and Customer consistent with 18 CFR 292.304(e). When the Company has no capacity needs during the entire subsequent 10 year planning cycle, the Company shall, nevertheless, set capacity sales rates for new customer capacity based upon the latest MISO Prompt Resource Auction (PRA) price. No recognition will be made for capacity unless substantial proof is shown that the generator and protective equipment is new or equivalent to new. Refurnishing old equipment will not qualify the facility as new capacity.~~
- ~~c. On a case by case basis, the energy rate may be negotiated for line losses due to the interconnection location of the Qualifying Facility on the distribution system.~~

~~1. Energy Only Sales: For customer's electing to sell only energy to the Company as the customer determines such energy to be available. The rate will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node.~~

~~2. Capacity and Energy Sales:~~

~~**Persistent Capacity Need**~~

~~When the Company has a persistent capacity need during its 5-year planning horizon, the capacity and energy rate shall be based on the next supply-side resource that is still avoidable and paid as set forth below. A Standard Offer Rate will apply to facilities with a capacity of 150 kW or less. The rate for facilities having a capacity over 150kW up to 20MW will be made under negotiated agreement. For existing facilities, no recognition will be made for capacity unless substantial proof is shown that the generator and protective equipment is new or equivalent to new.~~

~~**Standard Offer Rate - Persistent Capacity Need:**~~

~~The rate will be based on the combined capacity and energy costs of the next supply-side resource that is still avoidable which is currently a fixed levelized cost of energy rate of \$45.00 per MWh. The combined cost of capacity and energy shall not exceed the Company's cost cap, which is a fixed levelized cost of energy rate of \$45.00 per MWh.~~

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Revised Sheet No. D-xx.00
Cancels Revised Sheet No. D-xx.00

Renewable Energy Credits: Renewable Energy Credits (RECS) are owned by the Customer. The Company may, but need not, purchase RECs from Customers at a mutually agreeable price. Any agreement for the purchase of RECs shall be under separate agreement.

Contract Term: All customers must select a contract term of 5, or 10, ~~15 or 20~~ years.

~~Customers will compensate the Company for all damages resulting from Customer's failure to complete the contracted term. Early Termination: Customer shall pay the Company the Standard Offer Monthly Capacity Rate for any remaining unfulfilled contract term or in the event of failure to generate at a rate of 70% of the expected annual energy purchases. In addition, the customer shall refund any overpayments related to energy sales which shall be determined as the price difference between the contracted energy rates and the energy rates the customer would have otherwise received based on the actual term completed, applied to all energy sales, plus interest.~~

~~In the alternative, at the Company's choice, the Customer shall be required, based on the options made available by the Company, to select a form of security to cover the financial risk associated with the Company's cost for replacement energy and capacity in the event the QF ceases operation prior to the term of the Power Purchase Agreement (PPA). The amount of security required will be based on the estimated amount of energy and capacity the customer will deliver and the term of the contract.~~

Customer's will be required to execute a Standard Offer ~~PPA Contract~~ with the Company.

Short Term, Intermittent or No Capacity Need

During periods when the Company does not need capacity or when only a short term or intermittent capacity need exists during its 5-year planning cycle, the Company will contract to purchase capacity and energy with capacity rates based on MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs in MISO Zone 7 corresponding to each year capacity is provided and energy rates will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node. A Standard Offer Rate will apply to facilities with a capacity of 150 kW or less. The rate for facilities having a capacity over 150kW up to 20MW will be made under negotiated agreement.

Standard Offer Rate – Short Term, Intermittent or No Capacity Need:

The capacity rate will be based on MISO's annual one-year Planning Resource Auction ("PRA") for short-term capacity needs in MISO Zone 7 corresponding to each year capacity is provided and the energy rate will be based on the day-ahead MISO hourly locational marginal price for the DTE Electric appropriate load node.

Renewable Energy Credits: Renewable Energy Credits (RECS) are owned by the Customer. The Company may, but need not, purchase RECs from Customers at a mutually agreeable price. Any agreement for the purchase of RECs shall be under separate agreement.

Contract Term: All customers must select a contract term of 5 or 10 years.

Customers will compensate the Company for all damages resulting from Customer's failure to complete the contracted term.

Customer's will be required to execute a Standard Offer Contract with the Company.

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DTE Electric Company

____ Revised Sheet No. D-xx.00
Cancels _____ Revised Sheet No. D-xx.00

3. A one mill per kilowatthour charge shall be assessed to all customers on this rate to offset the Company's additional administrative expenses associated with these transactions.

SPECIAL PROVISIONS AND CONDITIONS:

A Capacity Sales to the Company:

1. Annually the customer shall supply the Company with a schedule of all planned outages for the year in question. The customer and the Company shall agree to a maintenance schedule of mutual benefit.
2. Contract Capacity: The contract must specify the minimum and maximum kW capacity available to the utility from the facility under normal operating conditions.
3. Availability: The customer shall supply the Company with a statement of the projected annual availability of the capacity stated in the Contract Capacity.

B Additional Provisions and Conditions for Cogeneration:

1. Capacity Factor: The customer shall supply the Company with a statement of the projected capacity factor and operating schedule for the cogeneration facility.
2. Failure of the cogeneration facility to operate at the level of performance forecasted by the customer shall result in the Company adjusting the capacity purchase price to reflect the demonstrated performance of the cogeneration facility in question.

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

QUALIFICATIONS
AND
DIRECT TESTIMONY
ON REMAND
OF
FRANK NISCOROMNI

DTE ELECTRIC COMPANY
QUALIFICATIONS ON REMAND OF FRANK NISCOROMNI

Line
No.

1 **Q. Will you please state your name, business address and by whom are you**
2 **employed?**

3 A. My name is Frank Niscoromni. My business address is: One Energy Plaza, Detroit,
4 Michigan 48226. I am employed by DTE Electric Company (DTE Electric or
5 Company) within Integrated Resource Planning (IRP) as a Supervisor Professional.

6

7 **Q. On whose behalf are you testifying?**

8 A. I am testifying on behalf of DTE Electric.

9

10 **Q. What is your educational background?**

11 A. I graduated from the University of Michigan – Dearborn in 2000 with a Bachelor of
12 Science Degree in Mechanical Engineering. In 2013, I received a Masters of
13 Business Administration from Michigan State University Eli Broad College of
14 Business.

15

16 **Q. What is your employment history?**

17 A. After graduating from the University of Michigan – Dearborn I began my
18 professional career with TRW Automotive as a systems engineer focused on vehicle
19 brake system performance. Throughout my career at TRW Automotive, I was
20 primarily responsible for vehicle testing, leading issue resolution with cross
21 functional engineering teams, and supporting new vehicle launches at assembly
22 plants.

23

24 In 2005, I joined Duff & Phelps, LLC as an analyst in their cost segregation
25 practice. My job responsibilities as a cost segregation analyst included the review

Line
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1 of the tax basis for various commercial buildings and allocation of the tax basis to
2 appropriate depreciable tax lives depending on the buildings' use. In 2007, I
3 accepted a position as a senior associate with KPMG, LLP in their tax fixed asset
4 practice focused on executing cost segregation engagements with clients. Within
5 two years, I was promoted to manager where my role included resource
6 management, proposal development, and identifying new business opportunities.

7
8 In 2013, I joined DTE Energy as a senior strategist working with the renewable
9 energy business development team. In this role, I performed financial analysis on
10 renewable energy projects, participated in project request for proposals and contract
11 negotiations, and led competitive bid audits with the MPSC Staff. In 2015, I
12 assumed the role of program manager for the Company's utility-owned
13 SolarCurrents program. My responsibilities in this position included site selection
14 for new solar farms, negotiating land easements with site hosts, and collaborating
15 with internal and external stakeholders regarding project budgets, municipal
16 approvals, and corporate communications. In 2018, I began my current role as
17 Supervisor Professional within the Integrated Resource Planning (IRP) team. My
18 current responsibilities include short-term and long-term generation strategy and
19 economic analysis.

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF FRANK NISCOROMNI

Line
No.

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to submit inputs to be used for avoided costs based
3 on the Natural Gas Combined Cycle (NGCC) plant, now known as the Blue Water
4 Energy Center (BWEC), approved in Case No. U-18419, in accordance with the
5 Commission's Order in this proceeding dated December 20, 2018 (hereafter, "the
6 Order"). In addition, I am supporting the Company's capacity assessment, which
7 will be consistent with the IRP to be submitted on March 29, 2019.

8

9 **Q. Are you sponsoring any exhibits?**

10 A. Yes. I am sponsoring the following exhibits:

<u>Exhibit</u>	<u>Description</u>
DE-2	BWEC Capacity Cost
DE-3	BWEC Variable Cost
DE-4	BWEC Cost
DE-5	BWEC Heat Rate and Capacity Factor
DE-6	Capacity Need Assessment

17

18 **Q. Were these exhibits prepared by you or under your direction?**

19 A. Yes, they were.

20

21 **Q. What are the Company's inputs for calculating avoided costs as requested in**
22 **the Order?**

23 A. The inputs for calculating avoided costs are based on BWEC approved in Case U-
24 18419 and include plant capacity, heat rate, plant availability, capacity factor, fixed

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1 O&M and an annual levelized fixed cost. The respective BWEC value for each
2 input is included in Exhibit DE-2.

3

4 **Q. Can you please explain the details of Exhibit DE-2 “BWEC Capacity Cost”?**

5 A. Yes. Exhibit DE-2 provides the inputs (column c, lines 1 – 5) utilized to calculate
6 the capacity cost of BWEC. Additionally, Exhibit DE-2 shows the calculations
7 (column c, lines 6 – 7) of the capacity cost of BWEC. The plant capacity and fixed
8 O&M are the same as in the Company’s filed and approved Certificate of Necessity
9 (CON) application in case U-18419. These inputs will remain the same and be
10 included in the Company’s to be filed 2019 Integrated Resource Plan (IRP) in case
11 U-20471 on March 29, 2019. The heat rate and capacity factor are the result from
12 modeling BWEC along with forecasted gas and power prices in the to be filed 2019
13 Integrated Resource Plan (IRP) in case U-20471 on March 29, 2019. The plant
14 availability is based on the MISO class average forced outage rate for combined
15 cycles in the years 2011 – 2015 plus an assumed periodic outage rate. The net
16 present value of the assumed year by year revenue requirement of BWEC
17 considering fixed costs (i.e. return on capital, depreciation, fixed O&M, property
18 tax, and insurance) is calculated over the assumed useful life of BWEC. This net
19 present value is then levelized over the life of BWEC to calculate the annual
20 levelized fixed cost. The Company calculated a cost of capacity for BWEC of
21 \$104,668/MW-yr (column (c), line 6)

22

23 **Q. How did you determine the Heat Rate for BWEC?**

24 A. The Heat Rate of 6,485 Btu/kWh shown in Exhibit DE-2, column (c), line (2), was
25 determined by using the operational characteristics of BWEC as inputs to the

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1 company's PROMOD model and averaging the modeling output over the years
2 2023 to 2040. These inputs included seasonal variations, start-up fuel, and heat rate
3 degradation projections over the 18 years considered. The duct fired portion of the
4 unit was modeled separately from the main BWEC unit in the PROMOD Model.
5 The heat rate was calculated by taking the total heat consumed by the main BWEC
6 unit and the duct fired portion and dividing it by the total energy produced by the
7 main BWEC unit and the duct fired portion on an annual basis. These annual heat
8 rates were then averaged to yield the resulting heat rate of 6,485 Btu/kWh, as
9 shown in Exhibit DE-5, column (aa), line (6).

10

11 **Q. How did you determine the capacity factor for BWEC?**

12 A. The Capacity Factor of 85.2% shown in Exhibit DE-2, column (c), line (4), was
13 determined by using the operational characteristics of BWEC as inputs to the
14 company's PROMOD model and averaging the modeling output over the years
15 2023 to 2040. These inputs included seasonal variations, and capacity degradation
16 projections over the 18 years considered. The duct fired portion of the unit was
17 modeled separately from the main BWEC unit in the PROMOD Model. The
18 capacity factor was calculated by taking the total energy produced by the main
19 BWEC unit and the duct fired portion and dividing it by the product of the BWEC
20 capacity shown in Exhibit DE-2, column (c), line 1 and 8,760 (hours in a year) on
21 an annual basis. These annual capacity factors were then averaged to yield the
22 resulting capacity factor of 85.2%, as shown in Exhibit DE-5, column (aa), line (3).

23

Line
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1 **Q. Can you please explain the details of Exhibit DE-3, “BWECE Variable Cost”?**

2 A. Yes. This Exhibit is used to calculate the BWECE yearly variable cost. The
3 Company started with the Dawn Hub forecasted gas price, which is a combination
4 of forwards and fundamental price forecasts. Then an adder for gas delivery to
5 burner tip is applied. As discussed by Witness Swiech, the adder shown in column
6 (d) of the exhibit includes all costs associated with transportation, storage, lateral,
7 and compression for the gas. The BWECE Heat Rate of 6,485 Btu/kWh was used.
8 The BWECE heat rate was obtained by modeling the BWECE operational
9 characteristics in the PROMOD model, as described above. This heat rate value
10 includes all start up fuel and projected lifetime heat rate degradation. The BWECE
11 variable O&M cost of \$2.47/MWH is the same as in the Company’s filed and
12 approved Certificate of Necessity application in Case No. U-18419 and as used in
13 the Company’s to be filed 2019 Integrated Resource Plan in Case No. U-20471 on
14 March 29, 2019. This value was then escalated by DTE Electric’s assumed
15 escalation rate (shown in Exhibit DE-3, Columns (h) and (i)) that is the basis of the
16 2018 fundamental forecast that will be included in Company’s 2019 Integrated
17 Resource Plan. It is based on the DTEE CPI forecast and averages 2.1% each year.

18
19 **Q. Can you please explain the details of the fundamental forecast used in the**
20 **BWECE variable cost calculations, Exhibit DE-3 “BWECE Variable Cost”?**

21 A. Yes. The Company engaged PACE Global (PACE), a Siemens business, to
22 perform the long-term natural gas forecast. The forecast developed by PACE stems
23 from a national fundamental forecast. Fundamental models capture supply and
24 demand interactions and provide more accurate projections for long-term analysis
25 when compared to an extrapolation of a forward price curve for 20 years. The

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1 Company has been working with PACE Global since 2014 on the Fundamental
2 Modeling used in the Company's Long-Term Forecasts for Integrated Resource
3 Planning. The fundamental gas price forecast was generated in a supply and
4 demand modeling process together with the energy market. The fundamental gas
5 model considers the entire North American supply, demand, and infrastructure
6 dynamics to generate prices at numerous hubs. The fundamental forecast used in
7 the BWEC variable cost calculations begin in 2023 and carry forward through 2029
8 (column (c), lines 11 – 17). Witness Swiech supports the methodology for the
9 combined use of market future prices and the PACE fundamental long-term forecast
10 in determining the forecasted BWEC variable costs.

11
12 **Q. Can you explain the details of Exhibit DE-4?**

13 A. Exhibit DE-4, shows the BWEC capacity and energy cost based on the inputs from
14 this filing in columns (a) to (d). The capacity portion is \$104,668/MW-yr or an
15 equivalent of \$14.02/MWh. The energy portion is based on actual 2018 gas prices
16 with the estimated fuel adder and variable O&M included to yield a cost of
17 \$25.25/MWh. The total BWEC cost considering capacity and energy on a MWh
18 basis is \$39.27/MWh as shown in column (d), line 1. However, as Witness
19 Stanczak explains in his testimony, the Company believes that BWEC is no longer
20 avoidable and thus should no longer be the basis for calculating avoided costs.

21
22 **Q. Can you describe the details of the capacity assessment in Exhibit DE-6?**

23 A. Exhibit DE-6 consists of four pages and shows the Company's capacity position
24 from years 2020 through 2029. Each page represents the capacity position
25 associated with a proposed course of action pathway (PCA-A, PCA-B, PCA-C, and

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1 PCA-D) that is based on analysis and assumptions consistent with the Company's
2 to be filed 2019 Integrated Resource Plan in case U-20471 on March 29, 2019.

3

4 **Q. Does the Company have a persistent need for capacity over the next 5 years?**

5 A. No. As shown in Exhibit DE-6 Pages 1 thru 4 (column (b) thru column (f), line 37)
6 the Company does not have a persistent need for capacity over the next 5 years.

7

8 **Q. What is the Company's next new supply-side generation investment?**

9 A. As of the time of this filing as supported by Exhibit DE-6 and the to be filed 2019
10 Integrated Resource Plan in case U-20471 on March 29, 2019 the Company's next
11 significant new supply-side generation investment is planned to be a renewable
12 energy project sourced from wind.

13

14 **Q. Does this complete your direct testimony?**

15 A. Yes, it does.

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Case No. U-18091

REMAND EXHIBITS

OF

FRANK NISCOROMNI

Michigan Public Service Commission
DTE Electric Company
BWECE Capacity Cost

Case No.: U-18091
Exhibit: DE-2
Witness: F. Niscoromni
Page: 1 of 5

Line (a) (b) (c) (d)

DTE Electric Company Calculation of Capacity Cost based on BWECE Updated 03-12-2019			
Input Name	Units	Input	Notes/Comments
1 Capacity	MW	1150	NGCC as filed in the DTE CON U-18419, Exhibit A-43
2 Heat Rate	BTU/kWh	6485	Exhibit DE-5; line 6, column (aa)
3 Equivalent Availability	%	94.4%	MISO forced outage rate 3.56%. Assumed periodic outage rate 2%.
4 Capacity Factor	%	85.2%	Exhibit DE-5; line 3, column (aa)
5 Annual Lev. Fixed Cost	\$M	113.68	Exhibit DE-2, Page 2; line 20, column (c)
6 Capacity Cost of BWECE	\$/MW-year	104,668	= line 5 / line 1 / line 3 * 1000000
7 Capacity cost of BWECE	\$/MWh	\$ 14.02	= line 9 / (line 4 * 8760)

Case No.: U-18091
Exhibit: DE-2
Witness: F. Niscoromni
Page: 2 of 5

[illegible]

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[illegible]

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Exhibit: DE-2
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Michigan Public Service Commission
DTE Electric Company
BWEC Capacity Cost

Case No.: U-18091
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Witness: F. Niscoromni
Page: 5 of 5

Line No.	Description	Capitalization Amounts (\$000)	Pctg. of Perm. Capital	Pctg. of Overall Capitalization	Cost %	Weighted Cost %	After Tax Rate of Return %	Pre-Tax Multiplier	Pre-Tax Rate of Return %	Permanent Capital Pre-Tax Rate of Return %
1	Long-Term Debt	5,670,166	50.00%	36.84%	4.42%	2.21%	1.63%	100.00%	1.63%	2.21%
2	Preferred Stock	-	0.00%	- %	0.00%	0.00%	0.00%	134.88%	0.00%	0.00%
3	Common Shareholders' Equity	5,670,166	50.00%	36.84%	10.00%	5.00%	3.68%	134.88%	4.97%	6.74%
4	Total Permanent Capital	11,340,332	100.00%			7.21%				8.96%
5										
6	Short-Term Debt	201,903		1.31%	1.85%		0.02%	100.00%	0.02%	
7										
8	Regulatory Liability - REP	-		- %	0.00%		0.00%	100.00%	0.00%	
9										
10	Job Development - ITC - Debt	3,895		0.03%	4.42%		0.00%	100.00%	0.00%	
11	Job Development - ITC Equity	4,057		0.03%	10.00%		0.00%	134.88%	0.00%	
12	Total Job Development - ITC	7,952								
13										
14	Deferred Income Taxes (Net)	3,841,151		24.96%	0.00%		0.00%		0.00%	
15										
16	Total	15,391,337		100.00%			5.34%		6.63%	

Line (a) (b) (c) (d) (e) (f) (g) (h) (i)

1 Average Heat Rate as modeled, including degradation and start up fuel: 6485 BTU/kWh

BWEK Nominal Variable Cost						
Year	Gas Price Source	BWEK Burner Tip Gas Price (\$/MBtu)	Adder (\$/MBtu)	Total Gas price (\$/MBTU)	Variable O&M (\$/MWh)	BWEK Variable Cost (\$/MWh)
2018	Actual	3.13	0.37	3.50	2.57	25.25
2019	Forward	2.68	0.37	3.05	2.61	22.38
2020	Transition	2.75	0.37	3.12	2.68	22.90
2021	Transition	2.96	0.37	3.33	2.75	24.33
2022	Transition	3.36	0.37	3.73	2.82	26.99
2023	Fundamental	3.80	0.37	4.17	2.88	29.91
2024	Fundamental	4.00	0.37	4.37	2.95	31.26
2025	Fundamental	4.26	0.37	4.63	3.01	33.01
2026	Fundamental	4.40	0.37	4.77	3.07	34.02
2027	Fundamental	4.35	0.37	4.72	3.14	33.75
2028	Fundamental	4.39	0.37	4.76	3.20	34.06
2029	Fundamental	4.40	0.37	4.77	3.27	34.18

Inflation Index	
Year	Index
2015	0.971
2016	0.983
2017	1.000
2018	1.023
2019	1.040
2020	1.068
2021	1.096
2022	1.122
2023	1.148
2024	1.174
2025	1.198
2026	1.223
2027	1.248
2028	1.274
2029	1.300

Michigan Public Service Commission
DTE Electric Company
BWECE Cost

Case No.: U-18091
Exhibit: DE-4
Witness: F. Niscoromni
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Line No.	(a) Technology	(b) Capacity ¹ \$/MWh	(c) Energy ² \$/MWh	(d) Total \$/MWh
1	BWEC	\$ 14.02	\$ 25.25	\$ 39.27

Source:
1. Exhibit DE-2, column (c), line 11
2. 2018 Actuals; Exhibit DE-3, column (g), line 6

Michigan Public Service Commission
DTE Electric Company
BWEC Heat Rate and Capacity Factor

Case No.: U-18091
Exhibit: DE-5
Witness: F. Niscoromni
Page: 1 of 1

Line	(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)
Capacity Factor (%)																											
		Year																									
Unit		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	Average
1	BWEC							80.2	90.6	90.3	90.6	89.8	90.6	90.9	91.3	92.6	92.6	92.3	92.2	91.0	91.4	90.4	89.6	88.0	86.8	90.4	90.6
2	BWEC Duct							42.1	43.9	43.3	43.7	40.1	37.9	38.9	41.5	47.6	51.8	52.9	52.5	50.9	51.6	52.5	53.6	49.9	50.2	75.2	48.8
3	BWEC Combined							50.5%	84.9%	84.6%	84.9%	84.0%	84.5%	84.9%	85.4%	87.0%	87.2%	87.0%	86.9%	85.7%	86.1%	85.2%	84.6%	82.9%	81.8%	86.6%	85.2%
Heat Rate (Btu/kWh)																											
		Year																									
Unit		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	Average
4	BWEC							6379	6397	6395	6395	6397	6395	6396	6394	6392	6392	6392	6393	6396	6393	6394	6401	6403	6408	6392	6396
5	BWEC Duct							9013	9008	9008	9005	9002	8987	9012	9010	9010	9005	9000	8995	9013	9005	8986	8986	8986	8999	8990	9000
6	BWEC Combined							6468	6478	6476	6476	6472	6465	6468	6471	6478	6486	6487	6487	6489	6487	6490	6499	6497	6503	6528	6485
Generation (GWh)																											
		Year																									
Unit		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	Average
7	BWEC							4921	8287	8281	8291	8215	8287	8339	8354	8472	8469	8463	8437	8323	8360	8290	8199	8046	7940	8293	8297
8	BWEC Duct							171	266	263	265	243	230	236	252	289	314	322	318	309	313	319	325	303	305	457	296
9	BWEC Combined							5092	8553	8544	8556	8458	8517	8575	8606	8761	8783	8785	8756	8632	8673	8609	8524	8349	8244	8751	8593
Total Heat Consumed (MMBtu)																											
		Year																									
Unit		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
10	BWEC							31391	53008	52958	53020	52553	52993	53334	53419	54151	54135	54093	53937	53228	53442	53005	52482	51525	50875	53013	
11	BWEC Duct							1546	2398	2371	2385	2189	2067	2130	2267	2600	2830	2897	2864	2783	2818	2866	2921	2719	2740	4113	

PCA A - Planning Reserve Margin Requirements and Planning Resources to be Acquired (ZRC)											
Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		PY 2020-2021	PY 2021-2022	PY 2022-2023	PY 2023-2024	PY 2024-2025	PY 2025-2026	PY 2026-2027	PY 2027-2028	PY 2028-2029	PY 2029-2030
1	Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (from Ex. 1) - Excl. Trans. Losses	10,343	10,298	10,212	10,161	10,114	10,064	10,020	10,002	9,979	9,958
2	Internal Demand Response Programs that are applied as an adjustment to the Peak forecast, MW	-	-	7	7	7	7	7	7	7	7
3	Adjusted Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (line 1 - line 2)	10,343	10,298	10,205	10,154	10,107	10,057	10,013	9,995	9,972	9,951
4	Load Diversity Factor coincident to MISO, %.	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%
5	Adjusted Forecasted Bundled (or AES) Coincident Peak Demand, MW (line 3 x line 4)	9,920	9,877	9,788	9,739	9,694	9,645	9,603	9,586	9,564	9,544
6	Transmission Losses, %	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
7	Planning Reserve Margin % UCAP Basis	7.90%	7.90%	8.10%	8.10%	7.60%	7.60%	7.60%	7.60%	7.60%	7.60%
8	Total Planning Reserve Margin Requirement, ZRC ((line 5) x (1 + line 7))	10,703	10,657	10,580	10,528	10,431	10,378	10,333	10,314	10,291	10,269
9	Company Owned, In-State, Non-Intermittent, ZRC	9,574	9,653	9,276	9,277	9,277	9,277	9,277	9,277	9,277	8,789
10											
11		-	-	-	-	-	-	-	-	-	-
12	Company Owned, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
13	Company Owned, In-State, Non-Intermittent (BTMG), ZRC	3	3	3	3	3	3	3	3	3	3
14	Company Owned, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
15	Company Owned, In-State, Intermittent, ZRC	126	200	260	309	355	444	524	596	660	716
16	Company Owned, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
17	Company Owned, In-State, Intermittent (BTMG), ZRC	33	38	38	38	37	37	36	35	34	33
18	Company Owned, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
19	Total Company Owned Generation, ZRC (sum of lines 9-18)	9,736	9,895	9,578	9,627	9,673	9,761	9,840	9,912	9,975	9,541
20	Total Load Modifying Resources, Treated as Capacity, ZRC (from Ex. 4)	746	782	836	858	859	859	859	859	859	859
21	Proposed Course of Action; DR Build Plan - CVR (Assume 5-year ramp-up)	-	-	-	-	-	-	10	20	30	40
22	Proposed Course of Action; DR Build Plan - Other (Assume 5-year ramp-up)	-	-	-	-	-	-	-	-	-	-
23	Proposed Course of Action; Ramp-up to 1.75% EWR by 2021	11	31	56	81	107	132	158	175	194	209
24	Proposed Course of Action; Ramp-up to 2.0% EWR by 2026	-	-	-	-	-	-	-	-	-	-
25	PPA, In-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
26	PPA, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
27	PPA, In-State, Non-Intermittent (BTMG), ZRC	105	105	105	105	105	105	105	105	105	105
28	PPA, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
29	PPA, In-State, Intermittent, ZRC	72	72	72	72	72	72	72	72	72	72
30	PPA, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
31	PPA, In-State, Intermittent (BTMG), ZRC	1	1	1	1	1	1	1	1	1	1
32	PPA, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
33	Other Forward Capacity Contract, ZRC - In-State	-	-	-	-	-	-	-	-	-	-
34	Other Forward Capacity Contract, ZRC - Out-of-State	200	-	-	-	-	-	-	-	-	-
35	Total PPA, ZRC (sum of lines 25-34)	378	178	178	178	178	178	178	178	178	178
36	Total Planning Resources, ZRC (line 19 + sum of lines 20-24 + line 35)	10,871	10,886	10,648	10,744	10,817	10,930	11,045	11,144	11,236	10,827
37	UCAP Surplus/(Shortfall), MW (line 36 - line 8)	168	229	68	216	386	552	712	830	944	558

PCA-B - Planning Reserve Margin Requirements and Planning Resources to be Acquired (ZRC)

Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		PY 2020-2021	PY 2021-2022	PY 2022-2023	PY 2023-2024	PY 2024-2025	PY 2025-2026	PY 2026-2027	PY 2027-2028	PY 2028-2029	PY 2029-2030
1	Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (from Ex. 1) - Excl. Trans. Losses	10,343	10,298	10,212	10,161	10,114	10,064	10,020	10,002	9,979	9,958
2	Internal Demand Response Programs that are applied as an adjustment to the Peak forecast, MW	-	-	7	7	7	7	7	7	7	7
3	Adjusted Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (line 1 - line 2)	10,343	10,298	10,205	10,154	10,107	10,057	10,013	9,995	9,972	9,951
4	Load Diversity Factor coincident to MISO, %.	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%
5	Adjusted Forecasted Bundled (or AES) Coincident Peak Demand, MW (line 3 x line 4)	9,920	9,877	9,788	9,739	9,694	9,645	9,603	9,586	9,564	9,544
6	Transmission Losses, %	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
7	Planning Reserve Margin % UCAP Basis	7.90%	7.90%	8.10%	8.10%	7.60%	7.60%	7.60%	7.60%	7.60%	7.60%
8	Total Planning Reserve Margin Requirement, ZRC ((line 5) x (1 + line 7))	10,703	10,657	10,580	10,528	10,431	10,378	10,333	10,314	10,291	10,269
9	Company Owned, In-State, Non-Intermittent, ZRC	9,574	9,653	9,276	9,277	9,277	9,277	9,277	9,277	9,277	8,789
10											
11		-	-	-	-	-	-	-	-	-	-
12	Company Owned, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
13	Company Owned, In-State, Non-Intermittent (BTMG), ZRC	3	3	3	3	3	3	3	3	3	3
14	Company Owned, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	0
15	Company Owned, In-State, Intermittent, ZRC	126	200	260	309	355	444	524	596	660	716
16	Company Owned, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
17	Company Owned, In-State, Intermittent (BTMG), ZRC	33	38	38	38	37	37	36	35	34	33
18	Company Owned, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
19	Total Company Owned Generation, ZRC (sum of lines 9-18)	9,736	9,895	9,578	9,627	9,673	9,761	9,840	9,912	9,975	9,541
20	Total Load Modifying Resources, Treated as Capacity, ZRC (from Ex. 4)	746	782	836	858	859	859	859	859	859	859
21	Proposed Course of Action; DR Build Plan - CVR (Assume 5-year ramp-up)	-	-	-	-	-	-	-	-	-	-
22	Proposed Course of Action; DR Build Plan - Other (Assume 5-year ramp-up)	-	-	-	-	-	-	-	-	-	-
23	Proposed Course of Action; Ramp-up to 1.75% EWR by 2021	11	31	56	81	107	132	158	175	194	209
24	Proposed Course of Action; Ramp-up to 2.0% EWR by 2026	-	-	-	-	-	-	-	-	-	-
25	PPA, In-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
26	PPA, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
27	PPA, In-State, Non-Intermittent (BTMG), ZRC	105	105	105	105	105	105	105	105	105	105
28	PPA, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
29	PPA, In-State, Intermittent, ZRC	72	72	72	72	72	72	72	72	72	72
30	PPA, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
31	PPA, In-State, Intermittent (BTMG), ZRC	1	1	1	1	1	1	1	1	1	1
32	PPA, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
33	Other Forward Capacity Contract, ZRC - In-State	-	-	-	-	-	-	-	-	-	-
34	Other Forward Capacity Contract, ZRC - Out-of-State	200	-	-	-	-	-	-	-	-	-
35	Total PPA, ZRC (sum of lines 25-34)	378	178	178	178	178	178	178	178	178	178
36	Total Planning Resources, ZRC (line 19 + sum of lines 20-24 + line 35)	10,871	10,886	10,648	10,744	10,817	10,930	11,035	11,124	11,206	10,787
37	UCAP Surplus/(Shortfall), MW (line 36 - line 8)	168	229	68	216	386	552	702	810	914	518

PCA-C - Planning Reserve Margin Requirements and Planning Resources to be Acquired (ZRC)

Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		PY 2020-2021	PY 2021-2022	PY 2022-2023	PY 2023-2024	PY 2024-2025	PY 2025-2026	PY 2026-2027	PY 2027-2028	PY 2028-2029	PY 2029-2030
1	Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (from Ex. 1) - Excl. Trans. Losses	10,343	10,298	10,212	10,161	10,114	10,064	10,020	10,002	9,979	9,958
2	Internal Demand Response Programs that are applied as an adjustment to the Peak forecast, MW	-	-	7	7	7	7	7	7	7	7
3	Adjusted Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (line 1 - line 2)	10,343	10,298	10,205	10,154	10,107	10,057	10,013	9,995	9,972	9,951
4	Load Diversity Factor coincident to MISO, %.	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%
5	Adjusted Forecasted Bundled (or AES) Coincident Peak Demand, MW (line 3 x line 4)	9,920	9,877	9,788	9,739	9,694	9,645	9,603	9,586	9,564	9,544
6	Transmission Losses, %	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
7	Planning Reserve Margin % UCAP Basis	7.90%	7.90%	8.10%	8.10%	7.60%	7.60%	7.60%	7.60%	7.60%	7.60%
8	Total Planning Reserve Margin Requirement, ZRC ((line 5) x (1 + line 7))	10,703	10,657	10,580	10,528	10,431	10,378	10,333	10,314	10,291	10,269
9	Company Owned, In-State, Non-Intermittent, ZRC	9,574	9,653	9,276	9,277	9,277	9,277	9,277	9,277	9,277	8,789
10											
11		-	-	-	-	-	-	-	-	-	-
12	Company Owned, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
13	Company Owned, In-State, Non-Intermittent (BTMG), ZRC	3	3	3	3	3	3	3	3	3	3
14	Company Owned, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
15	Company Owned, In-State, Intermittent, ZRC	126	200	236	260	283	305	336	374	408	439
16	Company Owned, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
17	Company Owned, In-State, Intermittent (BTMG), ZRC	33	38	38	38	37	37	36	35	34	33
18	Company Owned, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
19	Total Company Owned Generation, ZRC (sum of lines 9-18)	9,736	9,895	9,554	9,578	9,601	9,622	9,652	9,690	9,723	9,264
20	Total Load Modifying Resources, Treated as Capacity, ZRC (from Ex. 4)	746	782	836	858	859	859	859	859	859	859
21	Proposed Course of Action; DR Build Plan - CVR (Assume 5-year ramp-up)	-	-	-	-	-	-	10	20	30	40
22	Proposed Course of Action; DR Build Plan - Other (Assume 5-year ramp-up)	-	-	-	-	-	-	20	40	60	80
23	Proposed Course of Action; Ramp-up to 1.75% EWR by 2021	-	-	-	-	-	-	-	-	-	-
24	Proposed Course of Action; Ramp-up to 2.0% EWR by 2026	11	31	56	81	107	146	199	245	290	332
25	PPA, In-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
26	PPA, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
27	PPA, In-State, Non-Intermittent (BTMG), ZRC	105	105	105	105	105	105	105	105	105	105
28	PPA, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
29	PPA, In-State, Intermittent, ZRC	72	72	72	72	72	72	72	72	72	72
30	PPA, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
31	PPA, In-State, Intermittent (BTMG), ZRC	1	1	1	1	1	1	1	1	1	1
32	PPA, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
33	Other Forward Capacity Contract, ZRC - In-State	-	-	-	-	-	-	-	-	-	-
34	Other Forward Capacity Contract, ZRC - Out-of-State	200	-	-	-	-	-	-	-	-	-
35	Total PPA, ZRC (sum of lines 25-34)	378	178	178	178	178	178	178	178	178	178
36	Total Planning Resources, ZRC (line 19 + sum of lines 20-24 + line 35)	10,871	10,886	10,624	10,695	10,745	10,805	10,919	11,032	11,141	10,753
37	UCAP Surplus/(Shortfall), MW (line 36 - line 8)	168	229	44	167	314	427	586	717	850	484

PCA-D - Planning Reserve Margin Requirements and Planning Resources to be Acquired (ZRC)

Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		PY 2020-2021	PY 2021-2022	PY 2022-2023	PY 2023-2024	PY 2024-2025	PY 2025-2026	PY 2026-2027	PY 2027-2028	PY 2028-2029	PY 2029-2030
1	Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (from Ex. 1) - Excl. Trans. Losses	10,343	10,298	10,212	10,161	10,114	10,064	10,020	10,002	9,979	9,958
2	Internal Demand Response Programs that are applied as an adjustment to the Peak forecast, MW	-	-	7	7	7	7	7	7	7	7
3	Adjusted Forecasted Bundled (or AES) Non-Coincident Peak Demand, MW (line 1 - line 2)	10,343	10,298	10,205	10,154	10,107	10,057	10,013	9,995	9,972	9,951
4	Load Diversity Factor coincident to MISO, %.	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%	95.91%
5	Adjusted Forecasted Bundled (or AES) Coincident Peak Demand, MW (line 3 x line 4)	9,920	9,877	9,788	9,739	9,694	9,645	9,603	9,586	9,564	9,544
6	Transmission Losses, %	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
7	Planning Reserve Margin % UCAP Basis	7.90%	7.90%	8.10%	8.10%	7.60%	7.60%	7.60%	7.60%	7.60%	7.60%
8	Total Planning Reserve Margin Requirement, ZRC ((line 5) x (1 + line 7))	10,703	10,657	10,580	10,528	10,431	10,378	10,333	10,314	10,291	10,269
9	Company Owned, In-State, Non-Intermittent, ZRC	9,574	9,653	9,276	9,277	9,277	9,277	9,277	9,277	9,277	8,789
10											
11		-	-	-	-	-	-	-	-	-	-
12	Company Owned, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
13	Company Owned, In-State, Non-Intermittent (BTMG), ZRC	3	3	3	3	3	3	3	3	3	3
14	Company Owned, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
15	Company Owned, In-State, Intermittent, ZRC	126	200	236	260	283	305	336	374	408	439
16	Company Owned, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
17	Company Owned, In-State, Intermittent (BTMG), ZRC	33	38	38	38	37	37	36	35	34	33
18	Company Owned, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
19	Total Company Owned Generation, ZRC (sum of lines 9-18)	9,736	9,895	9,554	9,578	9,601	9,622	9,652	9,690	9,723	9,264
20	Total Load Modifying Resources, Treated as Capacity, ZRC (from Ex. 4)	746	782	836	858	859	859	859	859	859	859
21	Proposed Course of Action; DR Build Plan - CVR (Assume 5-year ramp-up)	-	-	-	-	-	-	-	-	-	-
22	Proposed Course of Action; DR Build Plan - Other (Assume 5-year ramp-up)	-	-	-	-	-	-	-	-	-	-
23	Proposed Course of Action; Ramp-up to 1.75% EWR by 2021	11	31	56	81	107	132	158	175	194	209
24	Proposed Course of Action; Ramp-up to 2.0% EWR by 2026	-	-	-	-	-	-	-	-	-	-
25	PPA, In-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
26	PPA, Out-of-State, Non-Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
27	PPA, In-State, Non-Intermittent (BTMG), ZRC	105	105	105	105	105	105	105	105	105	105
28	PPA, Out-of-State, Non-Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
29	PPA, In-State, Intermittent, ZRC	72	72	72	72	72	72	72	72	72	72
30	PPA, Out-of-State, Intermittent, ZRC	-	-	-	-	-	-	-	-	-	-
31	PPA, In-State, Intermittent (BTMG), ZRC	1	1	1	1	1	1	1	1	1	1
32	PPA, Out-of-State, Intermittent (BTMG), ZRC	-	-	-	-	-	-	-	-	-	-
33	Other Forward Capacity Contract, ZRC - In-State	-	-	-	-	-	-	-	-	-	-
34	Other Forward Capacity Contract, ZRC - Out-of-State	200	-	-	-	-	-	-	-	-	-
35	Total PPA, ZRC (sum of lines 25-34)	378	178	178	178	178	178	178	178	178	178
36	Total Planning Resources, ZRC (line 19 + sum of lines 20-24 + line 35)	10,871	10,886	10,624	10,695	10,745	10,791	10,847	10,903	10,954	10,510
37	UCAP Surplus/(Shortfall), MW (line 36 - line 8)	168	229	44	167	314	413	514	588	663	241

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

QUALIFICATIONS

AND

DIRECT TESTIMONY

ON REMAND

OF

DAVID SWIECH

DTE ELECTRIC COMPANY
QUALIFICATIONS ON REMAND OF DAVID SWIECH

Line
No.

1 **Q. Would you please state your name and position?**

2 A. My name is David Swiech. My position is Manager, Planning and Procurement,
3 within the Fuel Supply department of DTE Electric Company.

4

5 **Q. What is your business address and on whose behalf are you testifying?**

6 A. My business address is One Energy Plaza, Detroit, Michigan 48226. I am testifying
7 on behalf of DTE Electric Company (Company or DTE Electric).

8

9 **Q. What is your educational background?**

10 A. I received a Bachelor of Science degree in Mechanical Engineering from the
11 University of Michigan in 2001 and a Master of Business Administration degree from
12 the University of Michigan's Stephen M. Ross School of Business in 2010.

13

14 **Q. Please summarize your professional experience.**

15 A. I have been employed by DTE Energy since 2010. From 2010 through 2012, I held
16 various positions within the Controller's Organization, including budgeting and
17 forecasting for DTE Gas Company (DTE Gas), corporate capital planning and
18 analysis, and financial support for DTE Electric's Renewable Energy Program. In
19 2013, I joined DTE Gas's Midstream Services group as a Marketing Program
20 Manager. In this role, I marketed and sold natural gas storage and transportation
21 services to off-system customers. In late 2013, I was promoted to manage the
22 optimization of DTE Gas's storage and transmission assets, and performed that
23 function through early 2016. In 2016, I transferred to the Fuel Supply department of
24 DTE Electric as Manager, Planning and Procurement.

25

Line
No.

1 Prior to joining DTE Energy, I worked for American Mitsuba Corporation from 2002
2 – 2005, and ASMO Detroit, Inc from 2005 – 2010. During this time, I was
3 responsible for the design and development of small motor applications in the
4 automotive industry.

5

6 **Q. What are your duties and responsibilities in your current position?**

7 As Manager, Planning and Procurement, I have the responsibility of managing the
8 Company's purchases of fossil fuels and associated transportation used for electric
9 generation. I also have the responsibility of managing the Company's preparation of
10 budgets and forecasts regarding all fossil fuels used for electric generation.

11

12 **Q. Have you previously sponsored testimony before the Michigan Public Service**
13 **Commission (MPSC or Commission)?**

14 A. Yes. I sponsored rebuttal testimony in the DTE Electric 2016 Power Supply Cost
15 Recovery (PSCR) Plan, Case No. U-17920. I also sponsored testimony in the
16 Company's Application for Approval of Certificates of Necessity for a natural gas
17 combined cycle generating facility, Case No. U-18419. I have also sponsored
18 reopened rebuttal testimony previously in this case.

19

20 **Q. Have you provided support to other DTE Electric witnesses in cases before the**
21 **Michigan Public Service Commission?**

22 A. Yes, I have provided support to other DTE Electric witnesses in the following cases:

23 U-16991 Renewable Energy Depreciation Case

24 U-16656 2011 Renewable Energy Plan Reconciliation

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF DAVID SWIECH

Line
No.

1 **Q. What is the purpose of your testimony in this proceeding?**

2 A. The purpose of my testimony is to present the Company's projection of delivered fuel
3 costs based on the Company's Blue Water Energy Center (BWEC) approved by the
4 Michigan Public Service Commission in U-18419. The delivered fuel cost projection
5 is comprised of a natural gas price forecast and a natural gas transportation and
6 storage cost forecast. This projection is presented in Witness Niscoromni's Exhibit
7 DE-3, page 1, columns (c) and (d).

8

9 **Q. Are you sponsoring any exhibits in the proceeding?**

10 A. Yes, I am sponsoring the following exhibits:

<u>Exhibit</u>	<u>Description</u>
DE-7	Henry Hub Price Forecast Accuracy – EIA Annual Energy Outlook 2009 - 2017
DE-8	Henry Hub Price Forecast Accuracy – Market Futures 2009 - 2017
DE-9	Henry Hub Price Forecast Accuracy – PACE vs EIA AEO 2014- 2017

17

18 **Q. Were these exhibits prepared by you or under your direction?**

19 A. Yes, they were.

20

21 **NATURAL GAS PRICE FORECAST**

22 **Q. How was the natural gas price forecast developed?**

23 A. The natural gas price forecast was developed using the same methodology the
24 Company uses for natural gas price forecasts in annual PSCR filings. For 2019,
25 market futures prices were utilized. For years 2020 through 2022, the Company

Line
No.

1 transitioned from the market futures to the fundamental long-term forecast. Years
2 2023 and beyond utilized a fundamental long-term natural gas price forecast acquired
3 by the Company, as addressed by Witness Niscoromni.

4

5 **Q. What was the methodology used for the beginning of the forecast?**

6 A. The Company utilized the prices at the applicable natural gas hub location in or
7 around Michigan, in this case the Dawn Hub. These prices were determined by using
8 the Chicago Mercantile Exchange (CME) Group/New York Mercantile Exchange
9 (NYMEX) near-term futures prices for Dawn. As previously mentioned, market
10 futures prices were utilized for 2019. For years 2020 through 2022, the market
11 futures prices were blended with the fundamental long-term gas price forecast,
12 creating a smooth transition to the fundamental long-term gas price forecast in years
13 2023 and beyond.

14

15 **Q. What information was utilized to develop the fundamental long-term natural**
16 **gas price forecast in years 2023 and beyond?**

17 A. For the natural gas price forecast in years 2023 and beyond, where the futures market
18 is less liquid and pricing is less reliable for forecasting purposes, the Company
19 utilized the expertise of PACE Global Energy Services, LLC, and acquired a
20 fundamental long-term natural gas price forecast. DTE Electric Company Witness
21 Niscoromni describes the PACE natural gas price forecast in more detail. I have
22 reviewed the result of this modeling and found the price forecast to be reasonable.

Line
No.

1 **Q. Witness Niscoromni's Exhibit DE-3 also presents the actual natural gas price**
2 **for 2018. What is the source of the 2018 actual natural gas price?**

3 A. Platts Gas Daily publishes a price guide on a monthly basis that provides the prior
4 month's daily spot price average. This monthly average for the Dawn Hub is the
5 source of the actual natural gas prices in 2018.

6
7 **Q. How has the accuracy of the Company's natural gas price forecasts utilizing this**
8 **methodology compared to those of the U.S. Energy Information Administration**
9 **(EIA) Annual Energy Outlook (AEO)?**

10 A. DTE Electric's natural gas price forecast methodology has been more accurate than
11 the EIA AEO price forecasts. The EIA AEO forecasts have historically been higher
12 than the actual price of natural gas. Exhibit DE-7 shows the EIA AEO nominal Henry
13 Hub Natural Gas Spot Price projections published from 2009 – 2017 in lines 4-12.
14 Line 1 shows the actual Henry Hub spot prices from 2010 – 2018. Lines 15-23 show
15 the percent error of the forecasts compared to the actual prices.

16
17 This exhibit demonstrates that the EIA AEO forecast prices for individual years in
18 2010 – 2018 were higher than the actual price in 44 out of 45 predictions. These
19 predictions averaged 79% higher than actual, with the percent error being as much as
20 229%. While all forecasts contain error, one would expect that multiple unbiased
21 forecasts would produce some predictions that are higher than actual and some
22 predictions that are lower than actual.

23
24 **Q. How has the Company's forecast methodology performed over the same period?**

25 A. Exhibit DE-8 shows the historical accuracy of the market futures, which the

Line
No.

1 Company uses for the first year of the forecast, before transitioning into the long-
2 term PACE forecast. While the market futures have been higher than actual prices
3 in recent history, they have been more accurate than the EIA AEO projections.
4 Exhibit DE-8 shows the percent error of the market futures compared to the actual
5 prices. The market futures averaged 65% higher than actuals while the EIA AEO has
6 been 79% higher. In addition, the market futures were a better predictor of actual
7 spot prices than the EIA AEO in 33 of 45 instances.

8
9 The Company has used PACE for the long-term natural gas price forecasts since
10 2014. While this is a limited sample of forecasts, PACE's 2014 through 2017
11 forecast accuracy can be compared against the EIA AEO over the same time period.
12 Exhibit A-9 shows this comparison. Like the market futures, PACE's forecasts were
13 also more accurate than the EIA AEO natural gas price forecasts. The PACE
14 forecasts averaged 24% higher than actuals while the EIA AEO has been 43% higher.
15 As a result, if the PURPA avoided cost is to be based upon the BWECE forecasted
16 costs, the Company recommends using the natural gas price forecast presented by
17 Witness Niscoromni in Exhibit DE-3, page 1, column (c).

NATURAL GAS TRANSPORTATION COSTS

20 **Q. How does DTE Electric's delivered natural gas cost forecast incorporate the cost**
21 **to deliver the natural gas from the Dawn Hub to the BWECE?**

22 A. Transportation and storage service costs were added to the Dawn Hub prices to
23 represent the costs associated with transporting the natural gas from the hub to the
24 BWECE.

Line
No.

1 **Q. How does the Company intend to procure these transportation and storage**
2 **services for the BWEC?**

3 A. DTE Electric is in the process of contracting for firm transportation and storage and
4 the construction of a lateral pipeline to provide economic and reliable natural gas
5 supply to the BWEC. Three large natural gas transmission pipelines – Vector
6 Pipeline, DTE Gas Company, and Great Lakes Gas Transmission – run
7 approximately one mile north of the site. The site is further advantaged by several
8 nearby natural gas storage facilities. DTE Gas Company, Washington 10 Storage
9 Corporation, Enbridge Gas, ANR Pipeline Company, and Bluewater Gas Storage
10 have more than 400 Bcf of storage capacity within approximately 50 miles of the site.
11 In addition, natural gas hubs at MichCon (upstream) and Dawn (downstream) provide
12 liquid markets to procure natural gas supplies.

13

14 **Q. What are the forecasted costs to provide these transportation and storage**
15 **services?**

16 A. The Company expects to enter into firm transportation and storage agreements that
17 require fixed costs that contribute to the total delivered cost. The Company estimated
18 annual fixed costs of \$15.7 million for transportation and \$4.5 million for storage.
19 These cost adders average \$0.37/MMBtu and are incremental to the Dawn natural
20 gas price. The adder is shown in Witness Niscoromni's Exhibit DE-3, page 1, column
21 (d). The Company believes that these estimates accurately reflect the cost of natural
22 gas transportation and storage.

23

24 **Q. Does this complete your testimony?**

25 A. Yes, it does.

STATE OF MICHIGAN

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Case No. U-18091

REMAND EXHIBITS

OF

DAVID SWIECH

Michigan Public Service Commission
DTE Electric Company
Henry Hub Price Forecast Accuracy - EIA Annual Energy Outlook
2009 - 2017

Case No.: U-18091
Exhibit: DE-7
Witness: D. Swiech
Page: 1 of 1

<u>Line</u>	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
			<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
1	Actual Henry Hub Spot Price		\$ 4.37	\$ 4.00	\$ 2.75	\$ 3.73	\$ 4.37	\$ 2.62	\$ 2.52	\$ 2.99	\$ 3.17	
2												
3	<u>Publication</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
4	EIA AEO	2009	\$ 7.01	\$ 7.06	\$ 7.33	\$ 7.49	\$ 7.73	\$ 7.99	\$ 8.30	\$ 8.68	\$ 9.13	
5	EIA AEO	2010		\$ 5.93	\$ 6.53	\$ 6.60	\$ 6.67	\$ 6.99	\$ 7.23	\$ 7.38	\$ 7.57	
6	EIA AEO	2011			\$ 4.65	\$ 4.79	\$ 4.89	\$ 5.09	\$ 5.27	\$ 5.41	\$ 5.58	
7	EIA AEO	2012				\$ 4.24	\$ 4.41	\$ 4.62	\$ 4.67	\$ 4.79	\$ 4.93	
8	EIA AEO	2013					\$ 3.28	\$ 3.32	\$ 3.86	\$ 4.06	\$ 4.42	
9	EIA AEO	2014						\$ 3.93	\$ 4.41	\$ 4.76	\$ 5.27	
10	EIA AEO	2015							\$ 3.90	\$ 4.09	\$ 4.61	
11	EIA AEO	2016								\$ 3.21	\$ 3.83	
12	EIA AEO	2017									\$ 3.55	
13												
14	<u>Percent Error</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
15	EIA AEO	2009	60%	77%	167%	101%	77%	205%	229%	190%	188%	
16	EIA AEO	2010		48%	138%	77%	53%	167%	187%	147%	139%	
17	EIA AEO	2011			69%	29%	12%	94%	109%	81%	76%	
18	EIA AEO	2012				14%	1%	76%	85%	60%	56%	
19	EIA AEO	2013					-25%	27%	53%	36%	39%	
20	EIA AEO	2014						50%	75%	59%	66%	
21	EIA AEO	2015							55%	37%	45%	
22	EIA AEO	2016								7%	21%	
23	EIA AEO	2017									12%	
24	Average Error		60%	62%	124%	55%	23%	103%	113%	77%	71%	Total 79%

Michigan Public Service Commission
DTE Electric Company
Henry Hub Price Forecast Accuracy - Market Futures
2009 - 2017

Case No.: U-18091
Exhibit: DE-8
Witness: D. Swiech
Page: 1 of 1

<u>Line</u>	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
			<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
1	Actual Henry Hub Spot Price		\$ 4.37	\$ 4.00	\$ 2.75	\$ 3.73	\$ 4.37	\$ 2.62	\$ 2.52	\$ 2.99	\$ 3.17	
2												
3	<u>Publication</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
4	CME/NYMEX Henry Hub Futures	2009	\$ 5.96	\$ 6.77	\$ 6.94	\$ 7.05	\$ 7.19	\$ 7.34	\$ 7.48	\$ 7.63	\$ 7.78	
5	CME/NYMEX Henry Hub Futures	2010		\$ 4.95	\$ 5.36	\$ 5.56	\$ 5.69	\$ 5.79	\$ 5.91	\$ 6.01	\$ 6.11	
6	CME/NYMEX Henry Hub Futures	2011			\$ 4.55	\$ 4.97	\$ 5.23	\$ 5.45	\$ 5.65	\$ 5.86	\$ 6.09	
7	CME/NYMEX Henry Hub Futures	2012				\$ 3.57	\$ 3.98	\$ 4.19	\$ 4.38	\$ 4.58	\$ 4.83	
8	CME/NYMEX Henry Hub Futures	2013					\$ 3.70	\$ 3.97	\$ 4.14	\$ 4.32	\$ 4.59	
9	CME/NYMEX Henry Hub Futures	2014						\$ 3.99	\$ 4.09	\$ 4.26	\$ 4.41	
10	CME/NYMEX Henry Hub Futures	2015							\$ 3.12	\$ 3.24	\$ 3.30	
11	CME/NYMEX Henry Hub Futures	2016								\$ 3.05	\$ 2.96	
12	CME/NYMEX Henry Hub Futures	2017									\$ 3.02	
13												
14	<u>Percent Error</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
15	CME/NYMEX Henry Hub Futures	2009	36%	69%	152%	89%	64%	180%	197%	155%	145%	
16	CME/NYMEX Henry Hub Futures	2010		24%	95%	49%	30%	121%	135%	101%	93%	
17	CME/NYMEX Henry Hub Futures	2011			66%	33%	20%	108%	124%	96%	92%	
18	CME/NYMEX Henry Hub Futures	2012				-4%	-9%	60%	74%	53%	52%	
19	CME/NYMEX Henry Hub Futures	2013					-15%	51%	64%	45%	45%	
20	CME/NYMEX Henry Hub Futures	2014						52%	62%	43%	39%	
21	CME/NYMEX Henry Hub Futures	2015							24%	8%	4%	
22	CME/NYMEX Henry Hub Futures	2016								2%	-7%	
23	CME/NYMEX Henry Hub Futures	2017									-5%	
24	Average Error		36%	46%	104%	42%	18%	95%	97%	63%	51%	Total 65%

Case No.: U-18091
Exhibit: DE-9
Witness: D. Swiech
Page: 1 of 1

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Line			<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
1	Actual Henry Hub Spot Price		\$ 4.37	\$ 4.00	\$ 2.75	\$ 3.73	\$ 4.37	\$ 2.62	\$ 2.52	\$ 2.99	\$ 3.17	
2												
3	<u>Publication</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
4	PACE forecast for DTE	<u>2014</u>						\$ 4.10	\$ 4.14	\$ 4.19	\$ 4.44	
5	PACE forecast for DTE	<u>2015</u>							\$ 3.32	\$ 3.57	\$ 3.81	
6	PACE forecast for DTE	<u>2016</u>								\$ 2.70	\$ 2.85	
7	PACE forecast for DTE	<u>2017</u>									\$ 2.90	
8												
9	<u>Percent Error</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
10	PACE forecast for DTE	<u>2014</u>						56%	64%	40%	40%	
11	PACE forecast for DTE	<u>2015</u>							32%	19%	20%	
12	PACE forecast for DTE	<u>2016</u>								-10%	-10%	
13	PACE forecast for DTE	<u>2017</u>									-9%	
14	Average Error							56%	48%	17%	10%	Total
15												24%
16												
17	<u>Publication</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
18	EIA AEO	<u>2014</u>						\$ 3.93	\$ 4.41	\$ 4.76	\$ 5.27	
19	EIA AEO	<u>2015</u>							\$ 3.90	\$ 4.09	\$ 4.61	
20	EIA AEO	<u>2016</u>								\$ 3.21	\$ 3.83	
21	EIA AEO	<u>2017</u>									\$ 3.55	
22												
23	<u>Percent Error</u>	<u>Year</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	
24	EIA AEO	<u>2014</u>						50%	75%	59%	66%	
25	EIA AEO	<u>2015</u>							55%	37%	45%	
26	EIA AEO	<u>2016</u>								7%	21%	
27	EIA AEO	<u>2017</u>									12%	Total
28	Average Error							50%	65%	34%	36%	43%

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

QUALIFICATIONS
AND
DIRECT TESTIMONY
ON REMAND
OF
ANGELA P. WOJTOWICZ

DTE ELECTRIC COMPANY
QUALIFICATIONS ON REMAND OF ANGELA P. WOJTOWICZ

Line
No.

1 **Q. What is your name, business address and by whom are you employed?**

2 A. My name is Angela P. Wojtowicz. My business address is 414 S. Main Street, Suite
3 300, Ann Arbor, Michigan 48104. I am employed DTE Electric Company (DTE
4 Electric or Company).

5

6 **Q. What is your current position with the Company?**

7 A. I am the Director of the Generation Optimization department.

8

9 **Q. What is your educational background?**

10 A. I received a Bachelor of Science Degree in Nuclear Engineering from The University
11 of Michigan in 1991. I also received a Master of Science Degree in Nuclear
12 Engineering from The University of Michigan in 1992.

13

14 **Q. Do you now or have you held any electric industry relevant certifications?**

15 A. Yes. I was certified as a North American Electric Reliability Council (NERC)
16 Certified System Operator for balancing and interchange from 2006 through 2017. I
17 also hold a Black Belt certification in Lean Six Sigma Business Management
18 Strategy.

19

20 **Q. What is your work experience?**

21 A. After obtaining my Bachelor's degree from The University of Michigan in the spring
22 of 1991, I was employed by Advent Engineering Services. During my employment
23 at Advent, I worked as an engineering consultant performing mechanical and nuclear
24 engineering design calculations and analyses for several electric utility company
25 power plants across the country, both nuclear and fossil.

Line
No.

1 I began my employment with The Detroit Edison Company in 1995 as a System
2 Engineer at the Fermi 2 Nuclear Power Plant. As a System Engineer, I was
3 responsible for performing system monitoring and inspections, establishing
4 predictive and preventive maintenance, identifying and implementing system
5 modifications and enhancements, performing system testing, writing maintenance
6 and operations procedures, and troubleshooting system problems. In 2000, I began
7 a developmental assignment at Fermi 2 as the Balance of Plant, System Engineering
8 Lead Engineer, an assignment which was later made permanent. As the Lead
9 Engineer, I was responsible for oversight of all the Fermi 2 Balance of Plant systems
10 and the direct supervision of several system engineers.

11
12 In 2004, I transferred to the Generation Optimization group. My areas of
13 responsibility included analyzing power purchases and sales, including summer
14 capacity purchases, managing Detroit Edison's financial transmission rights (FTR)
15 portfolio, managing Detroit Edison's resource adequacy requirements with the
16 Midwest Independent Transmission System Operator (MISO), preparing registration
17 submittals for Detroit Edison's generation assets with MISO, preparing the
18 Transmission and MISO Energy Market Expense exhibits for Detroit Edison's Power
19 Supply Cost Recovery (PSCR) cases, and supporting the relevant witnesses in those
20 Michigan Public Service Commission (Commission or MPSC) cases.

21
22 In 2007, I was promoted to Supervisor, Midterm Optimization, supervising all my
23 previous responsibilities and adding the responsibilities of administration of the REC
24 portfolio to address Public Act 295 of 2008 (the "clean, renewable, and efficient
25 energy act") and management of the Renewable Energy Certificate (REC) portfolio

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for the Company's voluntary GreenCurrents program.

In 2011, I was promoted to Manager, Wholesale Power, managing all my previous responsibilities and adding the responsibility of managing the Company's wholesale power contracts. In 2013, my management responsibilities were expanded to include the Settlements group which is responsible for the validation and payment of all MISO transactions and power purchase agreements. In 2014, the Settlements Team was moved under another manager and I took on management of the Merchant Analytics Team which is responsible for the dispatch strategies and modeling and forecasting of the generation fleet. In 2015, I was promoted to my current role as Director of the Generation Optimization organization.

Q. What are your duties and responsibilities in your current position?

A. As the Director of Generation Optimization, I am responsible for the oversight and strategic direction of the Generation Optimization organization which acquires wholesale power electric supply to reliably and economically serve the energy and demand requirements of the Company's customers. The Generation Optimization organization includes the Merchant Operations Center, which is responsible for the dispatch of the Company's generation fleet in the wholesale energy market; the Merchant Analytics Team, which is responsible for the dispatch strategies and modeling/forecasting of the generation fleet; the Contracts and Settlements Team, which is responsible for Power Purchase Agreement (PPA) negotiation and management as well as validation and payment of all wholesale energy related transactions; and the Wholesale Market Development team, which is responsible for advocacy on behalf of the Company in the MISO market and development of

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1 infrastructure to integrate new energy assets and market changes into the Company's
2 processes.
3
4 **Q. Have you previously provided testimony to the Commission?**
5 A. Yes. I sponsored testimony in the following Detroit Edison/DTE Electric cases:
6 U-15002-R 2007 Power Supply Cost Recovery Plan Reconciliation
7 U-15417-R 2008 Power Supply Cost Recovery Plan Reconciliation
8 U-15677 2009 Power Supply Cost Recovery Plan
9 U-15677-R 2009 Power Supply Cost Recovery Plan Reconciliation
10 U-16047 2010 Power Supply Cost Recovery Plan
11 U-16047-R 2010 Power Supply Cost Recovery Plan Reconciliation
12 U-16356 2009 Renewable Cost Reconciliation
13 U-16357 2010 Renewable Cost Reconciliation
14 U-16434 2011 Power Supply Cost Recovery Plan
15 U-16434-R 2011 Power Supply Cost Recovery Plan Reconciliation
16 U-16472 2010 General Electric Rate Case
17 U-16582 2011 Renewable Energy Plan Review and Amendment
18 U-16656 2011 Renewable Cost Reconciliation
19 U-16892 2012 Power Supply Cost Recovery Plan
20 U-16892-R 2012 Power Supply Cost Recovery Plan Reconciliation
21 U-17097 2013 Power Supply Cost Recovery Plan
22 U-17302 2013 Renewable Energy Plan Review and Amendment
23 U-17319 2014 Power Supply Cost Recovery Plan
24 U-18248 PA 341Section 6w Capacity Charge Case
25 U-18255 2017 General Electric Rate Case

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1	U-18419	Certificates of Necessity
2	U-18444	MCL 460.6w Forward Locational Requirements

DTE ELECTRIC COMPANY
DIRECT TESTIMONY ON REMAND OF ANGELA P. WOJTOWICZ

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1 **Q. What is the purpose of your testimony in this proceeding?**

2 A. The purpose of my testimony is to present DTE Electric's Standard Offer Power
3 Purchase Agreement (PPA) for Energy and Capacity from Qualified Facilities (QF)
4 under the Public Utilities Regulatory Policy Act of 1978 (PURPA).

5

6 **Q. Are you sponsoring any exhibits in this proceeding?**

7 A. Yes. I am sponsoring the following exhibits:

8 DE-10 DTE Electric Standard Offer PPA for Energy and Capacity (Solar)

9

10 **Q. What is the intended purpose of DTE Electric's Standard Offer PPA for Energy**
11 **and Capacity presented in this proceeding?**

12 A. The intended purpose of the Company's Standard Offer PPA is to provide a
13 standardized, non-negotiable PPA to QFs with design capacity of 150 kW or less.
14 The Standard Offer PPA for Energy and Capacity that I am presenting in this
15 proceeding is designed for solar QFs because of the high level of interest by solar
16 developers and would be utilized for QFs selling energy and capacity to DTE Electric
17 when DTE Electric has established that it has a persistent capacity need as described
18 by Company Witness Stanczak. The pricing structure of the Standard Offer PPA is
19 such that the Contract Rate is the full compensation for both energy and capacity at
20 the Company's avoided cost.

21

22 **Q. How would DTE Electric address a QF that wanted to sell capacity when DTE**
23 **Electric did not have a persistent capacity need?**

24 A. If DTE Electric did not have a persistent capacity need and a QF with a design
25 capacity of 150 kW or less wanted to sell capacity in addition to energy, and the QF

Line
No.

1 was willing to comply with capacity performance requirements, DTE Electric would
2 sell the capacity from the QF into the MISO Planning Resource Auction (PRA) and
3 pay the QF the resultant PRA clearing price.

4

5 **Q. Could the Standard Offer PPA for Energy and Capacity presented in this**
6 **proceeding be used if DTE Electric did not have a persistent capacity need and**
7 **would sell the capacity from the QF into the MISO PRA?**

8 A. In large part, yes, but minor modifications to the pricing structure would be needed.
9 The Standard Offer PPA for Energy and Capacity presented in this proceeding has a
10 fixed Contract Rate that represents the Company's full avoided cost for both capacity
11 and energy. The PPA would have to be modified to have separate energy and
12 capacity rates, where the capacity rate would be the actual PRA clearing price and
13 the energy rate would be the MISO day-ahead Locational Marginal Price (LMP) for
14 the DTE Electric appropriate load node.

15

16 **Q. Could the Standard Offer PPA for Energy and Capacity presented in this**
17 **proceeding be used for any QF technology?**

18 A. In large part, yes, but minor modifications to the performance obligations and
19 development and operating securities would be needed to make it specific to the
20 particular QF technology.

21

22 **Q. What tenets was the Company seeking to address when the Company drafted**
23 **the DTE Electric Standard Offer PPA?**

24 A. The DTE Electric Standard Offer PPA for Energy and Capacity was drafted to ensure
25 that DTE Electric's customers receive safe, reliable and affordable generation service

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1 from the QF. Additionally, DTE Electric is a market participant in the MISO
2 markets, and as such, must comply with many tariff requirements and operational
3 rules. The Standard Offer PPA was designed to ensure that the Company is able to
4 effectively comply with the various MISO rules and requirements.

5
6 **Q. How did the Company address safety and reliability in the DTE Electric**
7 **Standard Offer PPA?**

8 A. Several sections of the PPA ensure that the QF will be operated in a safe and reliable
9 manner, including, but not limited to, Construction of Generating Facility,
10 Modification, Operation and Maintenance, Emergency and Curtailment, Planned and
11 Forced Outages, and Compliance.

12
13 **Q. How did the Company address affordability in the DTE Electric Standard Offer**
14 **PPA?**

15 A. Several sections of the PPA address affordability by ensuring that any costs incurred
16 by the Company due to the QF that exceed the Company's avoided cost are paid by
17 the QF. The PPA sections that address affordability include Supply Obligations,
18 Invoicing and Payments, Approvals, Creditworthiness and Security, Force Majeure,
19 Dispute Resolution, and Defaults and Remedies, as well as other terms and
20 conditions.

21
22 **Q. Do you believe that the DTE Electric Standard Offer PPA meets the intent of**
23 **PURPA while protecting the interests DTE Electric customers?**

24 A. Yes.

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No.

1 **Q. Does this complete your direct testimony?**

2 A. Yes, it does

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)
 establishing the method and avoided cost calculation)
 for **DTE ELECTRIC COMPANY** to fully)
 comply with the Public Utilities Regulatory)
Policy Act of 1978, 16 USC 2601 et seq.)

Case No. U-18091

REMAND EXHIBIT

OF

ANGELA P. WOJTOWICZ

DTE Electric Standard Offer PPA for Energy and Capacity (Solar)

POWER PURCHASE AGREEMENT

BETWEEN

DTE ELECTRIC COMPANY

AND

[_____]

[_____] [____], 201[_____]

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POWER PURCHASE AGREEMENT

This Power Purchase Agreement (this “Agreement”) is entered into as of [____] [____], 20[____] (the “Effective Date”) between DTE ELECTRIC COMPANY (“Buyer”) and [____], a [insert State of organization], [insert form of organization] (“Supplier”). Buyer and Supplier are referred to individually as a “Party” and collectively as the “Parties.”

WHEREAS, Buyer is an operating electric public utility, subject to the applicable rules and regulations of the MPSC and the FERC;

WHEREAS, Supplier plans to build, own, and operate a proposed [____] MW_{AC} (the “Contract Capacity”) solar photovoltaic generating facility in [____] County, Michigan (including any associated facilities and equipment required to deliver Energy to the Delivery Point, as further described in Exhibits 3.1B and 3.1C hereto, the “Generating Facility”), which it intends to designate as a Renewable Energy System with the MPSC and to certify as a Qualifying Facility with FERC in order to comply with the requirements of this Agreement;

WHEREAS, the parties intend that the Generating Facility will be, and will at all times remain, qualified as a Qualified Facility;

WHEREAS, Supplier desires to sell to Buyer, and Buyer desires to purchase, the Capacity of, and Energy generated by, the Generating Facility, in each case upon the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the covenants and conditions contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Buyer and Supplier, intending to be legally bound, hereby agree as follows:

1. DEFINITIONS

1.1 Defined Terms. As used in this Agreement, the following terms have the meanings set forth below:

“Abandonment Event” means (a) prior to the Commercial Operation Date, Supplier or Supplier’s contractors cease activities related to the development, construction planning, construction, testing, or inspection of the Project for a period of 30 consecutive days and such cessation is not caused by Force Majeure; (b) following the Commercial Operation Date, Supplier ceases operation and maintenance of the Generating Facility for a period of 30 consecutive days and such cessation is not caused by Force Majeure; (c) any event occurs that results in physical damage to a material portion of the Generating Facility or to any material equipment at the Generating Facility (including as a result of Force Majeure) and Supplier either elects to not, or is not permitted to, repair or restore the Generating Facility to substantially the same condition as existed prior to the occurrence of such event; or (d) or a condemnation event occurs with respect to the Generating Facility or a material portion of the Site.

“Act” means the Clean and Renewable Energy and Energy Waste Reduction Act enacted by the State of Michigan and codified as Michigan Compiled Laws, chapter MCL 460.1001 to 460.1211, and the regulations promulgated thereunder, as such Laws may be amended or superseded.

“Adjusted Delivered Amount” means, with respect to a Contract Year, the sum of the Delivered Amount for such Contract Year plus the aggregate amount of Deemed Delivered Amount for such Contract Year that accrued as a result of Excused Curtailments.

“Administrative Fee” has the meaning ascribed to that term in Section 3.9.2.

“Affiliate” means, with respect to any Person, each Person that directly or indirectly, controls or is controlled by or is under common control with such Person. For the purposes of this definition, “control” (including, with correlative meanings, the terms “controlled by” and “under common control with”), as used with respect to any Person, shall mean the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

“After Tax Basis” means that any payment received or deemed to have been received by a Party must be supplemented by a further payment to such Party so that the net amount actually received by the Party after taking into account all Taxes that would result from the receipt or accrual of such payments is equal to the full amount of the original payment that the Party would have received if no deduction or withholding had been required.

“Agreement” has the meaning ascribed to that term in the preamble of this Agreement.

“A.M. Best” means A.M. Best Company, Inc.

“Auction Clearing Price” and “ACP” mean with respect to a MISO Planning Year, the price (expressed in \$ per MW·Day) determined and announced by MISO in the Planning Resource Auction for such MISO Planning Year for capacity that is located in the Local Resource Zone in which Buyer’s service territory is located and clears in such Planning Resource Auction.

“Bankruptcy Code” means Title 11, United States Code, and any other state or U.S. federal insolvency, reorganization, moratorium or similar law for the relief of debtors, or any successor statute.

“Billing Period” has the meaning ascribed to that term in Section 4.1.1.

“Business Day” means any day other than Saturday, Sunday, Federal Reserve Bank holiday, or other day that is a holiday observed by Buyer.

“Buyer” has the meaning ascribed to that term in the preamble of this Agreement.

“Buyer’s Required Regulatory Approvals” means the approvals, consents, authorizations or permits of, or filing with, or notification to the Governmental Authorities listed on Exhibit 23.3.

“Capacity” means the instantaneous rate at which Energy can be delivered, received or transferred measured in MW from the Generating Facility.

“Capacity Factor” means with respect to a MISO Planning Year, the value equal to (a) the total Adjusted Delivered Amount for the MISO Planning Year divided by (b) the amount equal to (i) the Contract Capacity multiplied by (ii) the number of hours in the MISO Planning Year.

“Capacity Multiplier” means the capacity factor determined by reference to the table included in Exhibit 3.3, which table reflects the factors that MISO utilizes as of the Effective Date to accredit capacity for a MISO Planning Year.

“Capacity Notification Date” means with respect to a MISO Planning Year, the February 1st that immediately precedes the start of such MISO Planning Year, or if such date is not a Business Day, the immediately preceding Business Day.

“Capacity Shortfall Damages” means with respect to a MISO Planning Year, the amount calculated for such MISO Planning Year pursuant to the equation set forth in Section 3.10.1.

“Capacity Value” means the amount of capacity in MW (equivalent to a Zonal Resource Credit) accredited to the Generating Facility for a specific MISO Planning Year, as calculated pursuant to Exhibit 3.3.

“Capitalization” means on any date of determination, the amount equal to (i) the Total Funded Debt as of such date plus (ii) the Consolidated Net Worth as of such date.

“Change in Control” means the Ultimate Parent ceases to own, directly or indirectly, 100% of the economic and voting interests in Supplier; other than as a result of the sale of equity interests in Supplier to tax equity investors pursuant to the terms of a Financing.

“Commercial Operation” means that Supplier has (a) demonstrated to Buyer’s satisfaction that the requirements set forth in Section 5.4 and Exhibits 5.4A have been satisfied with respect to the Generating Facility, and (b) delivered a certificate to Buyer in the form of Exhibit 5.4B executed by a Responsible Officer of Supplier, together with the required supporting documentation.

“Commercial Operation Date” means the date on which Commercial Operation occurs.

“Confidential Information” has the meaning ascribed to that term in Section 25.1.

“Consolidated Net Worth” means as of any date of determination, the total equity value of Supplier as of such date, determined in accordance with generally accepted accounting principles in the United States, consistently applied.

“Construction Agreement” means the Construction Agreement for generator interconnection to DTE’s Distribution System, dated as of [_____] [___], 20[___], between Supplier as “Project Developer” and Distribution Provider as “DTE”, as amended, restated, supplemented, or otherwise modified from time to time.

“Contract Rate” means \$[___] per MWh.

“Contract Representative” of a Party means the individual designated by that Party in Exhibit 26.1 who is responsible for ensuring effective communication, coordination and cooperation between the Parties.

“Contract Capacity” has the meaning ascribed to that term in the recitals to this Agreement.

“Contract Year” means period of 12 calendar months beginning on January 1st of a year and continuing through December 31st of the same year, except that (i) the first Contract Year will begin on the Commercial Operation Date and continue through December 31st of the year in which the Commercial Operation Date occurred, and (ii) the final Contract Year will begin on January 1st of the year during which this Agreement terminates and continue through the day prior to the anniversary of the Commercial Operation Date during such year, or if this Agreement is early terminated, the early termination date of this Agreement.

“Credit Rating” means with respect to a Person and a Relevant Rating Agency, the rating assigned by such Relevant Rating Agency to the long-term, senior, unsecured debt (not supported by third-party credit enhancement) or deposit obligations of such Person, or if no such ratings exists for such Person, the “issuer rating” or “issuer credit rating” (as applicable based on the Relevant Rating Agency) for such Person then assigned by the Relevant Rating Agency.

“Credit Support” means a Letter of Credit or cash.

“Day-Ahead Market” has the meaning ascribed to the term “Day Ahead Energy and Operating Reserve Market” in the MISO Tariff.

“Day-Ahead Schedule” means Supplier’s forecast of (a) the projected availability of the Generating Facility for each hour of the next Operating Day and (b) the projected hourly amount of Energy in MWh, based on projected availability of the Generating Facility and other matters deemed to be relevant by Supplier, that the Generating Facility will produce and deliver to Buyer during each hour of the next Operating Day.

“Daylight Hours” means with respect to a day, the period that starts with and includes the first full hour following sunrise on such day and continues through and includes the last full hour before sunset on such day, in each case in Detroit, Michigan as specified by the National Weather Service, or any successor agency that reports sunrise and sunset data, for such day.

“Deemed Delivered Amount” means with respect to a period of time, the quantity of Energy expressed in MWh as calculated in accordance with Exhibit 3.10.3, that would have

been produced by the Generating Facility and delivered to the Delivery Point during such period but was not so produced and delivered as a result of an Excused Curtailment.

“Defaulting Party” has the meaning ascribed to that term in Section 21.1.

“Delay Damages” has the meaning ascribed to that term in Section 5.7.1.

“Delivered Amount” means with respect to any period, the actual amount of Energy delivered by Supplier and accepted by Buyer at the Delivery Point in accordance with the terms of this Agreement during such period.

“Delivery Point” means the Generating Facility’s point of interconnection with the Distribution System, as more particularly defined in Exhibit 3.1B and Exhibit 3.1C.

“Development Security” has the meaning ascribed to that term in Section 13.1.1.

“Disclosing Party” has the meaning ascribed to that term in Section 25.1.

“Dispute” has the meaning ascribed to that term in Section 17.1.1.

“Distribution Provider” means DTE Electric Company, in its capacity as the owner and operator of the Distribution System.

“Distribution System” means the sub-transmission and distribution systems owned and operated by the Distribution Provider.

“DNP3” means the DNP3 distributed network protocol.

“Effective Date” has the meaning ascribed to that term in the preamble of this Agreement.

“Electric Storage Resource” means a resource capable of receiving electric energy from the grid and storing it for later injection of electricity back to the grid regardless of where the resource is located on the electrical system.

“Emergency” means any circumstance or combination of circumstances or any condition of the Generating Facility, the Interconnection Facilities, the Transmission System, the Distribution System, or the transmission or distribution system of other electric utilities that is (a) reasonably likely to endanger life or property and necessitates immediate action to avert injury to persons or serious damage to property or (b) is reasonably likely to adversely affect, degrade or impair Transmission System or Distribution System reliability or transmission or distribution system reliability of other electric utilities, and including any “Emergency” as such term is defined in the MISO Tariff.

“Energy” means [single][three]-phase,¹ 60-hertz alternating current electrical energy (measured in MWh) generated by the Generating Facility and delivered to the Delivery Point (less Station Service).

“EPC Contracts” has the meaning ascribed to that term in Section 5.4.

“EPC Contractor” means the contractor(s) engaged by Supplier to engineer, procure and construct the Generating Facility pursuant to the EPC Contracts.

“EPT” means Eastern Standard Time or Eastern Daylight Time, whichever is then prevailing.

“Event of Default” has the meaning ascribed to that term in Section 21.1.

“Excused Curtailment” means a curtailment of the Generating Facility issued or that occurs as a result of (a) any Force Majeure; (b) any Emergency not caused, directly or indirectly, by the fault or negligence of Supplier or by Supplier’s breach of its obligations under this Agreement; or (c) the inability or failure of Buyer to accept Energy for any reason other than the fault or negligence of Supplier or Supplier’s breach of its obligations under this Agreement, including as a result of any curtailment resulting from an Emergency declared by MISO, the Transmission Provider, or the Distribution Provider or due to “light-load operations” as described in Section 7.5, but excluding curtailments that occur pursuant to Section 3.7, 5.8.2, or 9.1.

“External Communications Interface” means the electronic connection point at which the Generating Facility’s data is made available to Buyer.

“FERC” means the Federal Energy Regulatory Commission.

“Financing” means any of the following by Supplier’s Lenders: (a) lending money, extending credit, purchasing notes or providing loan guarantees (whether directly to Supplier or to an Affiliate of Supplier) as follows: (i) for the construction, interim or permanent financing or refinancing of the Generating Facility; (ii) for working capital or other ordinary business requirements of the Generating Facility (including the maintenance, repair, replacement or improvement of the Generating Facility); (iii) for any development financing, bridge financing, credit support, credit enhancement or interest rate protection in connection with the Generating Facility; or (iv) for any capital improvement or replacement related to the Generating Facility; or (b) participating as an tax equity investor in the Generating Facility.

“Forced Outage” means (a) the removal from availability of a generating unit, transmission line, or other facility for emergency reasons or a condition in which the equipment is unavailable due to unanticipated failure resulting in a decrease to available Capacity and (b) the reduction in output of the Generating Facility due to the panels being covered by snow or other debris.

¹ **Note to Draft:** Include as applicable based on the design of the Generating Facility.

“Force Majeure” has the meaning ascribed to that term in Section 16.2.

“Generating Facility” has the meaning ascribed to that term in the preamble of this Agreement.

“Good Utility Practice” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision is made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather, intended to include acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act Section 215(a)(4). In the case of Supplier, Good Utility Practice also specifically means those practices, methods, techniques, standards and acts engaged in or approved by a significant portion of the solar power industry in the United States or any of the practices, methods, techniques, standards and acts that, in the exercise of reasonable judgment in light of the facts known (or that a qualified and prudent contractor or operator, as applicable, could reasonably be expected to have known) at the time a decision is made, would have been expected to accomplish a desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition, in each case for use in connection with the design, engineering, supply, construction, start-up, testing, commissioning, completion, operation or maintenance of similar equipment at solar photovoltaic energy facilities in the Midwest region of the United States of the same or similar size and type as the Generating Facility, that at the particular time of performance of the work, or of operation of the Generating Facility, (i) in the exercise of that degree of skill, diligence, prudence and foresight which would reasonably be expected from a skilled and experienced licensed engineer, contractor or operator employing generally accepted professional standards with respect to the performance of the work or the operation of the Generating Facility, as the case may be, would have been expected to accomplish the desired result in a manner consistent with applicable Laws, and (ii) conform in all material respects to the design, engineering, construction, testing, operation, maintenance and other recommendations and guidelines applicable to the equipment in question.

“Governmental Authority” means, as to any Person, any federal, state, local, or other governmental, regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority, including NERC, FERC, and MISO, having jurisdiction over such Person or its property or operations.

“Guaranteed Commercial Operation Date” means the date that is 180 days after the Scheduled Commercial Operation Date.

“IEEE-SA” means the Institute of Electrical and Electronics Engineers Standards Association and any successor entity thereto.

“Indemnified Party” has the meaning ascribed to that term in Section 14.1.

“Indemnifying Party” has the meaning ascribed to that term in Section 14.1.

“Interconnection Agreement” means the generator interconnection agreement to be entered into between Supplier as “Applicant” and Distribution Provider as “Utility”, in connection with the Generating Facility, as may be amended, restated, supplemented, or otherwise modified from time to time.

“Interconnection Facilities” means the equipment, supporting software and firmware, and ancillary facilities, including any modifications, additions and upgrades made to such facilities, which are necessary to connect the Generating Facility to the Distribution System as described in Exhibit 3.1B.

“Interest Rate” means, for any date, the lesser of (x) the per annum rate of interest equal to the prime lending rate as may from time to time be published in the *Wall Street Journal* under “Money Rates” on such day (or if not published on such day on the most recent preceding day on which published) plus 2% and (y) the maximum rate permitted by applicable Law.

“Law” means any federal, state, local or other law, common law, treaty, code, rule, ordinance, directive, regulation, judicial or administrative order, judgment, decree, ruling, determination, permit, certificate, authorization, or approval of a Governmental Authority, including the MISO Tariff, that is binding on a Party or any of its property.

“Letter of Credit” means an irrevocable stand-by letter of credit governed by the International Standby Practices (International Chamber of Commerce Pub. 59) and issued by a Qualified Financial Institution for the benefit of Buyer in substantially the form attached as Exhibit 13A to this Agreement.

“Letter of Credit Default” means with respect to an outstanding Letter of Credit, the occurrence of any of the following events: (i) the issuer of the Letter of Credit ceases to be a Qualified Financial Institution; (ii) the issuer of the Letter of Credit fails to comply with or perform its obligations under such Letter of Credit and such failure is continuing after the lapse of any applicable grace period; (iii) the issuer of the Letter of Credit disaffirms, disclaims, repudiates or rejects, in whole or in part, or challenges the validity of, the Letter of Credit; (iv) the Letter of Credit expires or terminates, or fails or ceases to be in full force and effect at any time while required to be maintained pursuant to the terms of this Agreement; or (v) the issuer of the Letter of Credit becomes subject to any event described in Section 21.1.4 or any event analogous thereto occurs with respect to the issuer of the Letter of Credit.

“Local Resource Zone” has the meaning ascribed to that term in the MISO Tariff.

“Loss” means any and all claims, demands, suits, obligations, payments, liabilities, costs, fines, Penalties, sanctions, Taxes, judgments, damages, losses or expenses imposed by a third-party upon an Indemnified Party or incurred in connection with any claim by a third-party against an Indemnified Party pursuant to Article 14.

“Major Contracts” has the meaning ascribed to that term in Section 5.11.1.

“Material Adverse Effect” means, with respect to a Party, any event or occurrence of whatever nature which could reasonably be expected to result in a material adverse change in, or material adverse effect on the ability of such Party to perform its obligations under this Agreement, individually or in the aggregate, or on the business, assets, liabilities, property, results of operations or condition (financial or otherwise) of such Party.

“Meter” means any of the physical or electronic metering devices, data processing equipment and apparatus associated with the meters owned by Buyer, or its designee, required for (a) an accurate determination of the quantities of Delivered Amounts and Station Service from the Generating Facility and for recording other related parameters required for the reporting of data to Buyer; and (b) the computation of the payment due to Supplier from Buyer.

“Minimum Capacity Amount” has the meaning ascribed to that term in the equation set forth in Section 3.10.1

“MISO” means Midcontinent Independent System Operator, Inc. and any successor entity thereto that performs the functions of a regional transmission organization with respect to the region in which Buyer and the Generating Facility are located.

“MISO Planning Year” means a “Planning Year” as such term is defined in the MISO Tariff.

“MISO Tariff” means the Open Access Transmission, Energy and Operating Reserve Markets Tariff for MISO, including the rules, protocols, procedures, business practice manuals, and other standards associated therewith, as the same may be amended, amended and restated, modified or supplemented from time-to-time and approved by FERC.

“Moody’s” means Moody’s Investors Service, Inc.

“MPSC” means the Michigan Public Service Commission.

“MPSC Approval Date” means the later of (x) the date on which an order of the MPSC approving this Agreement in accordance with Section 12.2 is effective, final, and no longer subject to appeal and (y) the date that is 90 days after the date on which the MPSC grants its approval of this Agreement.

“MSA” has the meaning ascribed to that term in Section 5.4.

“MW” means a megawatt of electrical capacity.

“MWh” means a megawatt hour of electrical energy.

“NERC” means the North American Electric Reliability Corporation and any successor entity thereto. References to NERC in this Agreement are deemed to include references to the applicable regional entity designated by NERC.

“Non-Defaulting Party” means the Party that is not the Defaulting Party.

“Operating Day” has the meaning ascribed to that term in the MISO Tariff.

“Operating Representative” means any of the individuals designated by a Party, as set forth in Exhibit 26.1, to transmit and receive routine operating and Emergency communications required under this Agreement.

“Operating Security” has the meaning ascribed to that term in Section 13.2.1.

“Operations and Maintenance Plan” has the meaning ascribed to that term in Section 5.9.6.1.

“Operator” means an experienced provider of operations and maintenance services to solar photovoltaic generating facilities located in the same geographical area as the Generating Facility selected by Supplier and approved by Buyer in its commercially reasonable discretion to serve as the provider of operations and maintenance services for the Generating Facility.

“Party” and “Parties” have the meaning ascribed to those terms in the preamble of this Agreement.

“Penalties” means any penalties, fines, damages, sanctions or charges, including imbalance charges and fines or penalties, whether now existing or that become effective in the future, attributable to this Agreement and actually imposed on Buyer by any Governmental Authority, NERC, MISO, the Transmission Provider, or the Distribution Provider.

“Person” means any natural person, partnership, limited liability company, joint venture, corporation, trust, unincorporated organization, or Governmental Authority.

“Planned Outages” scheduled removal from service, in whole or in part, of the Generating Facility for inspection, maintenance or repair with the approval of Buyer.

“Planned Synchronization Date” means [_____] [___], 20[___],² as may be adjusted pursuant to Section 5.6.

“Planning Resource” has the meaning ascribed to that term in the MISO Tariff.

“Planning Resource Auction” has the meaning ascribed to that term in the MISO Tariff.

“Power Quality Standards” means the power quality standards established or otherwise enforced by NERC, MISO, IEEE-SA, National Electric Safety Code, or the National Electric Code (including their respective successor organizations or codes) and that apply to the Generating Facility, including any power quality standards imposed pursuant to the terms of the Interconnection Agreement or by the Distribution Provider or Transmission

² *Note to Draft:* Date to be included prior to execution.

Provider, as applicable, in each case as they may be amended, restated, superseded, supplemented, or otherwise modified from time to time.

“Product” means all Energy and all Capacity, and excludes Renewable Energy Benefits.

“Project Milestone” means each of the milestones, obligations, and other requirements listed in Exhibit 5.2.

“Project Milestone Schedule” means the schedule of Project Milestones, completion dates and required documentation specified in Exhibit 5.2.

“Qualified Financial Institution” means a commercial bank or trust company organized under the laws of the United States or a political subdivision thereof or the U.S. branch office of a foreign bank, with (a) a Credit Rating of at least “A-” by S&P and “A3” by Moody’s, and (b) having a combined capital surplus of at least \$1,000,000,000.

“Qualifying Facility” and “QF” mean a small power production facility, as such term is defined in 16 U.S.C. § 796(17)(A), that meets the criteria as defined in Title 18, Code of Federal Regulations, §§ 292.201 through 292.207, as such Law may be amended or superseded, and is certified in accordance with requirements of the FERC.

“Receiving Party” has the meaning ascribed to that term in Section 25.1.

“Relevant Rating Agencies” means Moody’s and S&P.

“Renewable Energy Benefits” means any and all renewable and environmental attributes, emissions reductions, credits, offsets, allowances or benefits, however entitled, (a) allocated, assigned, awarded, certified or otherwise transferred or granted by any Governmental Authority in any jurisdiction in connection with the Generating Facility; or (b) associated with the production of electrical energy by the Generating Facility or based in whole or part on the Generating Facility’s use of renewable resources for generation or because the Generating Facility constitutes a renewable energy system or the like or because the Generating Facility does not produce greenhouse gases, regulated emissions or other pollutants, whether any such attributes, reductions, credits, offsets, allowances or benefits exist now or in the future or whether they arise under existing Law or any future Law or whether such attribute, reduction, credit, offset, allowance or benefit or any Law, or the nature of such, is foreseeable or unforeseeable, but in all cases shall not mean Tax Credits. Renewable Energy Benefits includes such attributes, reductions, credits, offsets, allowance or benefits attributable to Energy sold under this Agreement, and Energy consumed by the Generating Facility, such as Station Service.

“Responsible Officer” means with respect to Supplier, a vice president, senior vice president, chief executive officer, president, member, or manager of Supplier, or if documents executed by Supplier are executed by an entity in its capacity as member, manager, or general partner of Supplier, any individual holding such position with such entity.

“S&P” means S&P Global Ratings, a division of S&P Global Inc.

“SCADA” means supervisory control and data acquisition.

“Scheduled Commercial Operation Date” means [_____] [___], 20[___],³ as may be adjusted pursuant to Section 5.6.

“SEC” means the Securities and Exchange Commission.

“Settlement Period” has the meaning ascribed to that term in Section 17.1.1.

“Shortfall” means with respect to a Contract Year, the amount calculated for such Contract Year pursuant to the equation set forth in Section 3.10.1.

“Site” means those parcels of land in [_____] County, Michigan, on which the Generating Facility will be located, and all applicable laterals and appurtenances thereto, including the land associated with the Generating Facility’s substation.

“Station Service” means electrical energy consumed by the Generating Facility and purchased from DTE Electric Company according to Standard Contract Rider No. 3 – Parallel Operation and Standby Service and the related provisions of DTE Electric Company’s Rate Book for Electric Service.

“Supplier” has the meaning ascribed to that term in the preamble of this Agreement.

“Supplier’s Lenders” means any Persons (other than an Affiliate of Supplier) and their permitted successors and assignees (but, for the avoidance of doubt, not any “designee” of Supplier’s Lenders for purposes of Section 20), who in the ordinary course of its business, provides debt or tax equity financing for electricity generating facilities and has agreed to provide Financing for the Generating Facility.

“Supplier’s Required Permits and Approvals” has the meaning ascribed to that term in Exhibit 5.4.

“Supply Amount” means, with respect to any Contract Year, the amount of Energy specified in Exhibit 3.1A for such Contract Year.

“Synchronization Date” means the first date on which the Generating Facility is energized and operates in parallel with the Distribution System and delivers Test Energy to the Delivery Point.

“Tax” means any federal, state, local or foreign income, gross receipts, license, payroll, employment, excise, severance, stamp, occupation, premium, windfall profits, environmental, customs duties, capital stock, franchise, profits, withholding, social security (or similar), unemployment, disability, real property (including assessments, fees or other charges based on the use or ownership of real property), personal property, transactional, sales, use, transfer, registration, value added, alternative or add-on minimum, estimated tax, or other tax of any kind whatsoever, or any liability for unclaimed property

³ **Note to Draft:** Date to be included prior to execution.

or escheatment under common law principles, including any interest, penalty or addition thereto, whether disputed or not, including any item for which liability arises as a transferee or successor-in-interest.

“Tax Credits” means (i) any and all present or future (whether known or unknown) state and federal production tax credits, investment tax credits and any other tax credits which are or will be generated by the Generating Facility, and (ii) present or future (whether known or unknown) cash payments or outright grants of money relating in any way to the ownership or operation of, or the production of Energy from, the Generating Facility.

“Term” has the meaning ascribed to that term in Section 2.2.

“Test Energy” means Energy delivered to and purchased by Buyer prior to the Commercial Operation Date.

“Total Funded Debt” means as of any date of determination, all indebtedness of Supplier outstanding as of such date, including short and long-term loans and notes payable and capital lease obligations.

“Transmission Provider” means International Transmission Company or any successor operator or owner of the Transmission System.

“Transmission System” means the facilities used for the transmission of electric energy in interstate commerce, including any modifications or upgrades made to such facilities, owned or operated by the Transmission Provider.

“Ultimate Parent” means [_____].⁴

“Variance Payment” means with respect to an hour, the amount calculated for such hour pursuant to the equation set forth in Section 3.10.3.

“Zonal Resource Credit” and “ZRC” have the meaning ascribed to that term in the MISO Tariff.

2. **TERM**

2.1 Effective Date. This Agreement is effective on the Effective Date; except that subject to the relevant provisions of Section 12.3, the obligation of Buyer to purchase and take delivery of Product will not be effective until the MPSC Approval Date.

2.2 Term. Supplier’s obligation to deliver Product, and subject to the occurrence of the MPSC Approval Date and the relevant provisions of Section 12.3, Buyer’s obligation to accept and pay for Product, under this Agreement will commence on the Synchronization Date

⁴ *Note to Draft:* Supplier to identify ultimate parent entity prior to execution.

and thereafter continue for a period of [5 or 10] Contract Years, subject to earlier termination of this Agreement pursuant to the terms hereof (the “Term”).

3. **SUPPLY OBLIGATIONS**

- 3.1 Energy. Subject to the other provisions of this Agreement, commencing on the Commercial Operation Date, Supplier shall sell and deliver to Buyer at the Delivery Point, all Energy.
- 3.2 Test Energy. During the period commencing on the Synchronization Date and continuing through the start of the first Contract Year, subject to the condition that (a) Supplier has provided at least 15 days’ prior written notice of Supplier’s intent to generate Test Energy on any day and has otherwise reasonably coordinated with Buyer regarding the scheduling of such Test Energy, and (b) the Generating Facility has been installed and interconnected in accordance with the Interconnection Agreement and such Test Energy is capable of being measured by the Meters, Buyer shall purchase and accept delivery at the Delivery Point of the Test Energy on such day.
- 3.3 Capacity. Buyer has all rights to the Capacity of the Generating Facility during the Term. Supplier shall take all actions as may be necessary or reasonably requested by Buyer to enable Buyer to receive all allowable credit for the full Capacity Value of the Generating Facility in the MISO market or any other wholesale market in which Buyer may participate
- 3.4 Dedication. All Product shall be dedicated exclusively to Buyer for the Term of this Agreement. Supplier shall not, without Buyer’s prior written consent (which Buyer may withhold in its sole and absolute discretion), (a) sell, divert, grant, transfer, or assign Product to any Person other than Buyer; or (b) provide Buyer with electric energy or capacity from any source other than the Generating Facility.
- 3.5 Title and Risk of Loss. Title to and risk of loss with respect to the Product will pass from Supplier to Buyer at the Delivery Point. Until title passes, Supplier will be deemed in exclusive control of such Product and will be responsible for any damage or injury caused thereby. After title to such Product passes to Buyer, Buyer will be deemed in exclusive control of such Product and will be responsible for any damage or injury caused thereby. Supplier shall deliver all Product to Buyer free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any Person.
- 3.6 Buyer’s Obligation and Delivery. Subject to the terms of this Agreement, Buyer shall purchase and take delivery of all Energy produced by the Generating Facility (less Station Service) at the Delivery Point in accordance with the terms of this Agreement. Supplier is responsible for all costs associated with delivery of the Energy to the Delivery Point. Buyer is responsible for all costs associated with receipt of the Energy at the Delivery Point. Notwithstanding anything in this Agreement to the contrary, Buyer is not obligated to purchase or accept delivery of Energy from the Generating Facility if (a) the Generating Facility is not then qualified as a QF or (b) the installed capacity of the Generating Facility is in excess of 20 MW.

- 3.7 No Obligation to Purchase. Buyer has no obligation to purchase or to pay for any Energy produced by the Generating Facility in excess of the Contract Capacity. If the Generating Facility produces Energy in excess of the Contract Capacity when averaged over a two minute period, Buyer will have the right to disconnect or direct the curtailment of the Generating Facility until Supplier has corrected the cause of such excess generation to Buyer's satisfaction. If applicable, Buyer will reconnect the Generating Facility as soon as is reasonably practical after Supplier demonstrates to Buyer's satisfaction that the cause of any excess generation has been corrected. In addition to the foregoing, Buyer has no obligation to purchase or pay for Energy or Capacity from an Electric Storage Resource.
- 3.8 Settlements. Except as otherwise provided in this Agreement, Buyer is responsible for the settlement with MISO of all Energy purchased by Buyer during the Term, including all costs associated therewith, as well as all charges associated with scheduling activities, unless such costs or charges are incurred by Buyer as the result of Supplier's failure to perform its obligations under this Agreement or applicable Law (including the MISO Tariff), or as a result of any inaccurate or incomplete information provided to Buyer with respect to the Generating Facility.
- 3.9 Product Payments.
- 3.9.1 Buyer's Payments to Supplier. Buyer shall pay to Supplier the Contract Rate for each MWh of the Delivered Amount (as determined by data from monthly Meter readings).
- 3.9.2 Supplier's Payments to Buyer. As consideration for the administrative services performed by Buyer in connection with this Agreement, Supplier shall pay to Buyer an administrative fee of \$1.00 per MWh of the Delivered Amount (the "Administrative Fee").
- 3.10 Performance Guarantee.
- 3.10.1 Annual Capacity Guarantee and Capacity Shortfall Damages. With respect to each MISO Planning Year, Supplier shall ensure (i) that the Generating Facility qualifies as a Planning Resource, (ii) that the Capacity Value is at least equal to the Minimum Capacity Amount, and (iii) that all rights associated with the Capacity Value are transferred to Buyer in accordance with the relevant provisions of the MISO Tariff and the instructions of Buyer. Notwithstanding the foregoing, Supplier shall not transfer to Buyer, and Buyer is not required to purchase, any portion of the Capacity Value in respect of the MISO Planning Year during which the last day of the Term is scheduled to occur. Subject to the foregoing sentence, if the Capacity Value transferred to Buyer for any MISO Planning Year is not at least equal to the Minimum Capacity Amount, then Supplier shall pay to Buyer as Capacity Shortfall Damages for such MISO Planning Year, the amount determined in accordance with the following equation:

$$\text{CSD} = \text{DPY} \times (\text{MCA} - \text{CV}) \times \max[\$0, (\text{ACP})]$$

where:

CSD = *Capacity Shortfall Damages* for the MISO Planning Year;

DPY = *Days Per Year*, which is equal to 365 or 366, as applicable;

MCA = *Minimum Capacity Amount*, which is defined as 45% multiplied by the Contract Capacity;

CV = *Capacity Value* for the MISO Planning Year; and

ACP = *Auction Clearing Price*, for the MISO Planning Year;

Buyer is responsible for invoicing Supplier for any Capacity Shortfall Damages due with respect to a MISO Planning Year.

3.10.2 Capacity Factor Guarantee. Supplier shall maintain an average Capacity Factor greater than 40% for each two consecutive MISO Planning Years. If the Generating Facility fails to achieve an average Capacity Factor greater than 40% in any two consecutive MISO Planning Years, then it shall be deemed an Event of Default pursuant to Section 21.2.12.

3.10.3 Variance Payment. Supplier acknowledges that Buyer may use the Day-Ahead Schedule delivered by Supplier to reduce its purchase of day ahead demand in the Day-Ahead Market. If the amount of energy specified by Supplier for an hour in the Day-Ahead Schedule is different than the actual amount of Energy during the corresponding hour of the applicable Operating Day, Supplier shall, if applicable, pay to Buyer the Variance Payment amount for each such hour determined in accordance with the following equation. Supplier shall include the accrued Variance Payment with respect to a Billing Period in its invoice delivered in connection with such Billing Period.

$$\text{VP}_t = \max[\$0, (\text{DA}_t - \text{RT}_t + \text{DDA}_t) \times (\text{RTLMP}_t - \text{DALMP}_t)]$$

where:

VP_t = *Variance Payment* for such hour;

DA_t = *Day-Ahead Schedule* for such hour, expressed in MWh;

DDA_t = *Deemed Delivered Amount* for such hour

RT_t = Quantity of Energy for the corresponding hour of the operating date, expressed in MWh;

RTLMP_t = Real-Time Locational Marginal Price at the commercial price node DECO.NEC for such hour; and

$DALMP_t$ = Day-Ahead Locational Marginal Price at the commercial price node DECO.NEC for such hour.

4. **INVOICING AND PAYMENTS**

4.1 **Invoices.**

- 4.1.1 **Invoicing and Payment.** Promptly following the end of each month (a “Billing Period”), Buyer shall deliver to Supplier a settlement statement, using Buyer’s preferred form, that sets forth the Delivered Amount for such Billing Period, together with such additional information as Buyer determines is necessary to enable Supplier to prepare an invoice with respect to the Billing Period. Within five Business Days following receipt of Buyer’s settlement statement, Supplier shall deliver to Buyer an invoice in a form acceptable to Buyer in its reasonable discretion specifying: (i) the amount due to Supplier for Delivered Amount delivered to Buyer during the Billing Period, (ii) any Variance Payments calculated pursuant to Section 3.10.3, (iii) the Administrative Fee, (iv) subject to Section 4.1.2 below, any other amounts due between the Parties with respect to such Billing Period, and (iv) the net amount due with respect to the Billing Period as determined pursuant to Section 4.1.3. Each such invoice provided by Supplier must be based on Meter data available to Supplier and must be accompanied by supporting documentation sufficient to enable Buyer to verify the accuracy of the amounts specified in the invoice. If data necessary to enable Supplier to calculate any amount is not available by the date it is required to deliver the invoice, Supplier shall calculate such amounts based on its reasonable estimates, subject to accounting once the required data is available.
- 4.1.2 **Buyer Invoiced Amounts.** As set forth in this Agreement, Buyer is responsible for invoicing Supplier for certain amounts due under this Agreement, including, (i) Capacity Shortfall Damages pursuant to Section 3.10.1, (ii) Delay Damages pursuant to Section 5.7.1 in respect of months ended prior to occurrence of the Commercial Operation Date, and (iii) costs and expenses associated with Meters and other equipment pursuant to Section 6.4, and such amounts will not be included in invoices prepared by Supplier pursuant to Section 4.1.1. Supplier shall pay all such amounts invoiced by Buyer within five Business Day following its receipt of Buyer’s invoice for such amount.
- 4.1.3 **Netting.** With the exception of amounts separately invoiced by Buyer, all payment obligations due and owing between the Parties under this Agreement with respect to a Billing Period, including any damages, interest, and payments or credits, will be automatically satisfied and discharged through netting, and if the aggregate amount payable by one Party exceeds the aggregate amount that otherwise would have been payable by the other Party, replaced by an obligation upon which the larger aggregate amount would have been payable to pay to the other Party the excess of the larger aggregate amount over the smaller aggregate amount. In addition to the foregoing, Buyer may setoff amounts

owed by Supplier under this Agreement, including any damages, or any other agreement between the Parties against any amounts owed by Buyer to Supplier under this Agreement. Buyer shall provide notice to Supplier of any such setoff by Buyer, and Supplier shall account for such setoff in its invoice delivered with respect to the applicable Billing Month

- 4.1.4 Method of Payment. All payments under this Agreement must be made by automated clearing house pursuant to the instructions stated on the applicable invoice, or if no instructions are stated on such invoice, then to the applicable account specified in Exhibit 26.1. Except as otherwise specified in this Agreement, payments with respect to a Billing Month are due and payable by the applicable Party on or before the later to occur of (x) the last Business Day of the month that follows the Billing Month and (y) the 10th day after receipt of Suppliers invoice for such Billing Month. With respect to each payment to be made under this Agreement, if the due date for such payment is not a Business Day, then such payment will be due on the next Business Day.
- 4.1.5 Deadline for Invoices. If Supplier fails to render an invoice within one year after the end of a Billing Month, Supplier's right to payment in respect of such Billing Month is waived.
- 4.1.6 Interest. Any undisputed amounts not paid when due will accrue interest on a daily basis at the Interest Rate from and including the date due through but excluding the date paid. All calculations of interest will be computed on the basis of a 365-day year.
- 4.2 Corrections to Invoices. Either Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice under this Agreement, or adjust any invoice for arithmetic or computational error, within 12 months following the date such invoice, or adjustment to an invoice, was rendered. Any dispute with respect to an invoice must be made in writing and state the basis for such dispute. If a Party provides written notice of a dispute with respect to an invoice prior to the applicable due date for such invoice, such Party shall pay the undisputed amount of such invoice when due, but may if not already paid, withhold payment of the disputed portion until such dispute is resolved. If in connection with the resolution of the dispute it is determined that (i) an additional payment is due by a Party, such Party shall make the required payment to the other Party within 10 Business Days following such resolution, together with interest accrued at the Interest Rate from and including the due date to but excluding the date paid or (ii) a Party is entitled to a refund of any amount previously paid, the other Party shall, at the first Party's election either return the amount overpaid within 10 Business Days following such resolution or provide the first Party with a credit on the next invoice delivered following resolution of the dispute equal to the amount overpaid, in each case together with interest accrued at the Interest Rate from and including the date such overpayment was made to but excluding the date repaid by the other Party or reflected as a credit in an invoice delivered by the other Party, as applicable.

- 4.3 Availability of Tax Credits. The payment of the Contract Rate with respect to the Product accounts for Tax Credits for which the Generating Facility is or becomes eligible during the Term of this Agreement. The Contract Rate is not subject to adjustment or amendment if Supplier fails to receive any Tax Credits, or if such Tax Credits expire, are repealed, recaptured, or otherwise cease to apply to Supplier or the Generating Facility in whole or in part, or Supplier or its investors are otherwise unable to receive, retain, or otherwise benefit from such Tax Credits.
- 4.4 Taxes. Buyer is responsible for any Taxes imposed on or associated with the Delivered Amount after delivery or its receipt at the Delivery Point. Supplier is responsible for any Taxes imposed on or associated with the Energy or its delivery to the Delivery Point. Either Party, upon written request of the other Party, shall provide a certificate of exemption or other reasonably satisfactory evidence of exemption if either Party is exempt from Taxes, and shall use reasonable efforts to obtain and cooperate with the other Party in obtaining any exemption from or reduction of any Tax. Each Party shall indemnify and hold harmless the other Party from and against Taxes imposed on the other Party as a result of a Party's actions or inactions and that otherwise would not have occurred in the absence of this Agreement in accordance with Article 14.

5. **FACILITY CONSTRUCTION, OPERATIONS, AND MODIFICATIONS**

- 5.1 Construction of Generating Facility. Supplier is solely responsible for the planning, design, procurement, construction, start-up, testing, and licensing of the Generating Facility. Supplier shall construct the Generating Facility in accordance with Good Utility Practice and to ensure (a) that Supplier is capable of meeting its supply obligations over the Term and (b) that the Generating Facility is at all times qualified as, and in compliance with all requirements applicable to, a Qualified Facility. Attached as Exhibit 3.1B is the proposed single line diagram of the Generating Facility, the Interconnection Facilities, the Delivery Point and the location of the Meters. On or before the Commercial Operation Date, Supplier shall provide an updated version of Exhibit 3.1B to reflect the as-built configuration of the Generating Facility, Interconnection Facilities, Delivery Point, and Meters.
- 5.2 Performance of Project Milestones. Without limiting its obligations under any other provision of this Agreement, Supplier shall complete each Project Milestone set forth in Exhibit 5.2, and promptly following completion of each such Project Milestone shall deliver to Buyer such documentation specified in Exhibit 5.2 together with such additional documentation and supporting evidence reasonably requested by Buyer demonstrating the completion of the applicable Project Milestone. Each written certification provided by Supplier pursuant to Exhibit 5.2 must be executed by a Responsible Officer and be in a form reasonably acceptable to Buyer. Supplier shall notify Buyer promptly, and in any event within five days, following its determination, or its becoming aware of information that leads to a reasonable conclusion, that a Project Milestone will not be met by the applicable date designated in the Project Milestone Schedule, and if requested by Buyer, shall convene a meeting with Buyer to discuss the situation and possible remediation plans not later than 15 days following Buyer's request.

- 5.3 Synchronization Date. At least 15 days, but not more than 20 days, prior to the Synchronization Date, Supplier shall provide written notice to Buyer's Contract Representative that Supplier is preparing to synchronize to the Distribution System and the date on which such synchronization will occur. At such time that Supplier determines that the requirements for the Synchronization Date set forth in Article 5 and Exhibit 5.4A have been satisfied, Supplier shall provide Buyer with written certification thereof and the other supporting documents as set forth in Exhibit 5.4A. Buyer will have a reasonable period of time to review such evidence and raise any commercially reasonable objections to Supplier's satisfaction of any requirements for the achievement of the Synchronization Date.
- 5.4 Commercial Operation Date. Supplier shall provide written notice to Buyer of the Scheduled Commercial Operation Date within 10 days following the MPSC Approval Date; which Scheduled Commercial Operation Date may not be more than two years after the MPSC Approval Date. In the event Supplier designates a Scheduled Commercial Operation Date that is later than two years after the MPSC Approval Date, Buyer will have the right to terminate this Agreement in accordance with Section 5.7.2 as if Supplier had failed to achieve Commercial Operation by the Guaranteed Commercial Operation Date. Supplier shall notify Buyer at least 10 days prior to the commencement of any performance and commissioning tests required by the balance of plant or any other necessary engineering, procurement, and construction agreements entered into by Supplier for the Generating Facility (collectively, the "EPC Contracts"); the panel supply agreement entered into by Supplier for the Generating Facility (the "MSA"); and the Interconnection Agreement [(including the Construction Agreement)]⁵. Buyer has the right to have its representatives present at and witness each such test. At such time that Supplier determines that the requirements for achieving Commercial Operation set forth in Exhibit 5.4A have been satisfied, Supplier shall provide Buyer with a written certificate of a Responsible Officer of Supplier in the form attached as Exhibit 5.4B representing that such requirements have been satisfied and including the supporting documents set forth in Exhibit 5.4A. Buyer will have a reasonable period of time to review such evidence and raise any objections to Supplier's satisfaction of any requirements for the achievement of the Commercial Operation Date. Once Buyer has received Supplier's written certificate and is satisfied that Supplier has satisfied the requirements for achieving Commercial Operation set forth in Exhibit 5.4A, Buyer will confirm the achievement of the Commercial Operation Date by executing the certificate provided by Supplier. If Buyer determines that the requirements for Commercial Operation were satisfied concurrently with or prior to its receipt of Supplier's written certification, then the Commercial Operation Date will be the date on which Buyer received Supplier's written certification, and if Buyer determines that the requirements for Commercial Operation were not so satisfied, the Commercial Operation Date will be the date thereafter on which Buyer determines that the final requirement for Commercial Operation was satisfied, as specified by Buyer in connection with its execution of Supplier's certificate.
- 5.5 Construction Updates and Reporting. Supplier shall on a monthly basis provide to Buyer in a written form acceptable to Buyer a report that includes the status in achieving Project

⁵ **Note to Draft:** Include if applicable in connection with interconnection of the Generating Facility.

Milestones, progress in obtaining any approvals or certificates in connection with achieving the Commercial Operation Date, and a discussion of any foreseeable disruptions or delays. The monthly project reports must be provided by no later than the 15th day of every month for the previous month. Upon request of Buyer, Supplier shall meet with Buyer to review this data and any information related to Supplier's status in achieving the Project Milestone activities listed in the Project Milestone Schedule.

5.6 Planned Synchronization Date and Scheduled Commercial Operation Date. In the event that Supplier's construction, testing, or commissioning of the Generating Facility is delayed due to Force Majeure, Buyer's breach of its obligations under this Agreement, or any delay in the completion of the Interconnection Facilities not attributable to or caused by Supplier, the Planned Synchronization Date and Scheduled Commercial Operation Date will be extended on a day-for-day basis by the period during which the Force Majeure is continuing or Supplier's construction, testing, or commissioning is prevented due to such breach by Buyer or such delay in the completion of the Interconnection Facilities, except that in no event will the duration of such extension be greater than 180 days.

5.7 Delay Damages.

5.7.1 In the event Supplier fails to achieve Commercial Operation by the Scheduled Commercial Operation Date, then for each day thereafter until the date on which Supplier achieves Commercial Operation, Supplier shall pay to Buyer liquidated damages equal to (i) the Auction Clearing Price multiplied by (ii) the Contract Capacity of the Generating Facility multiplied by (iii) the Capacity Multiplier ("Delay Damages"). Buyer will invoice Supplier for accrued Delay Damages on a monthly basis, except that if the Synchronization Date has occurred, then Supplier shall include any Delay Damages payable by Supplier in respect of the month in which the Synchronization Date occurred in its invoice delivered pursuant to Section 4.1.1 with respect to such month.

5.7.2 In the event Supplier fails to achieve Commercial Operation by the Guaranteed Commercial Operation Date, Buyer will have the right to terminate this Agreement by providing written notice of such termination to Supplier, and Supplier shall pay to Buyer as liquidated damages the positive amount, if any, equal to the Development Security less the amount of Delay Damages paid.

5.7.3 The provisions of this Section 5.7 are in addition to, and not in lieu of, any of Buyer's rights or remedies under Article 21.

5.8 Modification.

5.8.1 Supplier shall not make any change or other modification to the Generating Facility, whether temporary or permanent, that (a) could (i) expose Buyer to any additional liability or increase its obligations under this Agreement; (ii) adversely affect Supplier's or Buyer's ability to perform its obligations under this Agreement or any Law or to any Person other than a Party; (iii) adversely affect the useful generating life of the Generating Facility; or (iv)

result in a change to the Capacity Value of the Generating Facility, the Delivery Point, the major equipment (including the inverters, panels, SCADA protection, and control systems) at the Generating Facility, the direct current capacity of the Generating Facility, the response to remote commands, the number of SCADA points, or the rate of production or delivery of Energy; in each case without the prior written consent of Buyer, which may be withheld in its sole and absolute discretion or (b) that is not permitted pursuant to the terms of the Interconnection Agreement. Without limiting the foregoing, Supplier shall provide written notice to Buyer of any temporary or permanent change to the performance or operating characteristics of the Generating Facility. Such notice must be provided as soon as is reasonably practicable under the circumstances, and in any event in advance of the implementation of such change, and must describe in reasonable detail the nature of such change and impact of such change, expected or otherwise, to the Generating Facility, including the rate of production and delivery of Energy and any interconnection and transmission issues, and must include such additional information as may be required by Buyer. Any changes or other modifications to the Generating Facility (including any modification with respect to which Buyer has provided its consent) must be conducted by Supplier in accordance with Good Utility Practice, applicable terms of the Interconnection Agreement, and all applicable Laws and reliability criteria, as such may be amended from time to time.

- 5.8.2 Without limiting any applicable provisions of the Interconnection Agreement, if Buyer at any time determines that the design or operation of the Generation Facility creates any condition that requires modification to Buyer's systems or facilities, Buyer will notify Supplier of such condition and give the Supplier a reasonable opportunity to implement any actions necessary to correct the condition at Supplier's sole cost and expense. If the condition is not corrected by Supplier within a reasonable period of time, Buyer may, at its sole election (i) take such actions as Buyer determines are necessary or appropriate in order to correct the condition, (ii) disconnect or direct Supplier to curtail the output of the Generating Facility until actions necessary to correct the condition have been completed, or (iii) take any combination of the foregoing. If Buyer takes any actions to correct the condition, Supplier shall reimburse Buyer for any and all costs and expenses within five Business Days following Supplier's receipt of Buyer's invoice for such amounts. If disconnected, Buyer will reconnect the Generating Facility as soon as is reasonably practical after Supplier demonstrates to Buyer's satisfaction that the relevant conditions have been corrected.

5.9 Operation and Maintenance.

- 5.9.1 Supplier shall ensure that all Energy generated by the Generating Facility satisfies the Power Quality Standards and all other voltage, power factor, and other interconnection and parallel operating requirements specified in Exhibit 3.1B. Except as required pursuant to the Interconnection Agreement, Supplier shall not install any power factor correction equipment at the primary

voltage level unless Buyer has provided its prior written consent to the installation of such equipment.

- 5.9.2 Supplier shall at all times operate, maintain and repair, or, if applicable, shall cause its Operator to operate, maintain and repair, the Generating Facility in accordance with Good Utility Practice and, without limiting the foregoing, in order to ensure that (a) Supplier is capable of meeting its supply obligations over the Term; (b) the Generating Facility is at all times qualified as a Qualifying Facility; and (c) Supplier is at all times in compliance with all requirements of a Qualifying Facility set forth in applicable Law. In connection with the foregoing, Supplier shall, and as applicable, shall cause the Operator, (i) to maintain records of all operations of the Generating Facility in accordance with Good Utility Practice, (ii) to provide to Buyer, on request, copies of any regularly prepared operations and maintenance status reports of the Generating Facility that Supplier provides to MISO or Supplier's Lenders, (iii) to follow such regulations, directions and procedures of the Transmission Provider, Distribution Provider, MISO, NERC and any applicable Governmental Authority to protect and prevent the Transmission System and Distribution System from experiencing any negative impacts resulting from the operation of the Generating Facility and to otherwise cause the Generating Facility to be operated consistent with all applicable NERC, MISO, and Transmission Provider or Distribution Provider requirements (including applicable requirements under the Interconnection Agreement), and (iv) to cause all Energy generated by the Generating Facility to meet the Power Quality Standards. Each Party shall use all reasonable efforts to avoid any interference with the other's operations.
- 5.9.3 If a representative of the Operator or Supplier identifies an unsafe condition at the Site or with respect to the Generating Facility at any time during the course of performing any inspection of or maintenance at, or while otherwise present at, the Site or the Generating Facility, Supplier shall or shall cause the Operator to promptly provide Buyer with notice of such unsafe condition and the actions being taken and to be taken in order to remedy such unsafe condition. Supplier shall, or shall cause the Operator to, promptly implement appropriate hazard protection measures, including by placing appropriate signage, following the identification of any unsafe condition, and shall maintain such hazard protection measures until such time as Supplier or Operator has corrected the unsafe condition. In addition to the foregoing, Supplier shall at all times maintain at the Site and the Generating Facility, appropriate warning placards and other signage in accordance with Good Utility Practice. Any unsafe conditions at the Site or the Generating Facility may be designated as an Emergency by Buyer.
- 5.9.4 Supplier shall perform such generator testing of the Generating Facility as is necessary or as Buyer may request in order to comply with MISO Tariff or Distribution Provider, as applicable, requirements.

- 5.9.5 Supplier shall, and shall cause the Operator to, comply with all current and future NERC Reliability Standards applicable to either or both Generator Owners and Generator Operators, in each case as they pertain to the Generating Facility, including critical infrastructure protection standards.
- 5.9.6 Following the Commercial Operation Date, Supplier shall:
- 5.9.6.1 Devise and implement, or cause the Operator to devise and implement, an operations and maintenance plan, or implement an existing plan, that includes the status of the Generating Facility and each of the major components thereof in order to maintain such equipment in accordance with Good Utility Practice (the “Operations and Maintenance Plan”). Such Operations and Maintenance Plan must (i) include Supplier’s plan to maintain facilities built on site to support communications and control using Good Utility Practice, (ii) provide for the physical and cyber security of the Generating Facility and its related systems, and (ii) if applicable, be consistent with the requirements of any Financing agreement in place as of such date. Supplier shall keep, or cause the Operator to keep, all records with respect to inspections, maintenance, and repairs of the Generating Facility. The Operations and Maintenance Plan and all records associated therewith must be available for inspection by Buyer at the Generating Facility or at Supplier’s offices during Supplier’s regular business hours upon reasonable notice.
 - 5.9.6.2 If requested by Buyer, on a monthly basis provide Buyer with a written report in a form reasonably acceptable to Buyer containing a detailed description regarding the ongoing operations of the Generating Facility during such month, including the status of the operations of the Generating Facility or any component thereof, any equipment or other operational or maintenance failure, any defects or other issues and any repairs, and any replacements or other remediation provided or to be provided therefor;
 - 5.9.6.3 Provide administrative and periodic reporting, including (a) on a quarterly basis, safety records that include, without limitation, Occupational Safety and Health Administration recordable and non-recordable incidents, Site safety meeting information, and other data reasonably requested by Buyer; (b) on a quarterly and annual basis, operational reports on various aspects of the Generating Facility, including performance, capacity factor, availability, weather, and generation data to confirm that the requirements of this Agreement have been met, which reports shall be in forms reasonably acceptable to Buyer; and (c) on an annual basis, quality assurance and quality control activities.

5.9.6.4 Provide written notice to Buyer describing in reasonable detail any hazardous conditions that develop with or otherwise exist at the Generating Facility, including failure or improper operation of the protective relaying and communications equipment, in each case as soon as is practicable following the occurrence thereof.

5.9.6.5 Provide written notice to Buyer describing in reasonable detail any actual or attempted breach or compromise of the physical or cyber security of the Generating Facility or its related systems, in each case as soon as is practicable following the occurrence thereof.

5.10 Operation and Maintenance Agreement. Supplier shall provide Buyer with a complete copy of the operations and maintenance agreement for the Generating Facility as soon as practicable after the execution thereof, but in no event later than 30 days prior to the Commercial Operation Date. Supplier shall ensure that such agreement requires the Operator to operate and maintain the Generating Facility in accordance with the terms hereof. Contemporaneously with the provision of such agreement(s), Supplier shall also provide (a) a certified copy of a certificate warranting that the Operator is a corporation, limited liability company or partnership in good standing with, and qualified to business in, the State of Michigan and (b) evidence satisfactory to Buyer that the Operator is creditworthy or has otherwise provided adequate credit support in respect of its obligations, as determined by Buyer in its reasonable discretion.

5.11 Generating Facility Contracts.

5.11.1 Within 30 days after the MPSC Approval Date, Supplier shall deliver to Buyer a written certification executed by a Responsible Officer of Supplier certifying that the following major contracts governing the design and construction of the Generating Facility and the ability of Supplier to deliver Energy to Buyer at the Delivery Point have been entered into and are in full force and effect: contracts for the manufacture, procurement or supply, delivery, engineering, construction and installation of generating (including inverters and tracking systems), step-up transformation equipment, and transmission equipment (including the MSA and EPC Contracts); real property contracts covering the entire Site, including easement, crossing, and other agreements necessary for the interconnection of the Facility; and applicable electric transmission service and/or interconnection agreements (collectively, the “Major Contracts”). In addition, subject to Section 5.11.2, Supplier shall, concurrently with such certification, provide Buyer with copies of each Major Contract.

5.11.2 If required by the applicable counterparty, sensitive pricing information may be redacted from the documents provided to Buyer pursuant to this Section 5.11.

5.11.3 Prior to the execution of any Material Contract, Supplier shall provide Buyer with sufficient information for Buyer to be reasonably assured that Supplier has selected financially responsible vendors and contractors as part of the Generating Facility construction process.

- 5.11.4 Upon demand made by Buyer at any time, Supplier shall provide Buyer with documentation reasonably acceptable to Buyer evidencing that Supplier has the financial capability to construct and operate the Generating Facility in accordance with the requirements of this Agreement and the Material Contracts.

6. **REVENUE METERING REQUIREMENTS**

- 6.1 **Meters.** Buyer will provide, install, own, operate and maintain all Meters, or if otherwise required by the Interconnection Agreement, Buyer will have the right to install, own, operate, and maintain such additional Meters as may be permitted pursuant to the terms of the Interconnection Agreement. The Meters will be used for quantity measurements under this Agreement and must meet all applicable requirements of MISO and the Transmission Provider or Distribution Provider, as applicable. Where applicable, separate metering of Station Service may be required to accurately meter the Generating Facility load. Such separate metering must be bi-directional and must be capable of measuring and reading instantaneous, hourly real and reactive energy and capacity. Buyer may install a dedicated dial-up voice-grade circuit for Buyer to access the billing meter. In addition to the foregoing, Buyer has the right to install such additional metering equipment, and to make such changes to any metering equipment and any metering requirements, at the Generating Facility, in each case as it may determine is necessary or appropriate in connection with this Agreement, including equipment for measuring insolation at the Site for purposes of calculating the Deemed Delivered Amount.
- 6.2 **Location.** Meters will be installed in equipment provided by Buyer, or as otherwise reasonably determined by Buyer to effectuate this Agreement. If the Meters are located on the low voltage side of the transformer(s), metered values may be reduced to account for actual transformer losses in accordance with the manufacturer's specifications if such losses are not metered. In addition, if Meters are not located at the Delivery Point, then for purposes of calculating the Delivered Amount, metered values will be adjusted to account for losses, as calculated by Buyer, between the location of the Meters and the Delivery Point.
- 6.3 **Non-Interference.** Neither Party shall undertake any action that may interfere with the operation of the Meters. A Party shall be liable for all costs, expenses, and liabilities associated with any such interference with the Meters by such Party.
- 6.4 **Metering Costs.** Supplier is responsible for all costs and expenses associated with the installation, testing, maintenance, and operation of the Meters and other equipment installed by Buyer at the Generating Facility, and Buyer may periodically invoice Supplier for such costs and expenses incurred by Buyer.
- 6.5 **Meter Testing and Metering Accuracy.** Buyer is responsible for testing of the Meters. If the Meters are registering but their accuracy is outside the limits established in ANSI C12.1, Buyer will repair and recalibrate or replace the Meters, and will adjust payments to Supplier for the Delivered Amount for the lesser of the period in which the inaccuracy existed and 90 days. If the period in which the inaccuracy existed cannot be determined,

adjusted payments shall be made for a period equal to one-half of the elapsed time since the latest prior test and calibration of the Meters; except that the adjustment period may not exceed 90 days. If adjusted payments are required, payments will be based upon the Parties' best estimate of the Delivered Amount and agreed upon within 30 days after the date on which the inaccuracy was rectified. In such event, the Parties' adjusted payments will be in full satisfaction of payments due hereunder. If the Parties cannot agree on a best estimate of the Delivered Amount the dispute shall be resolved in accordance with Article 17.

- 6.6 Failed Meters. If the Meters fail to register, payments due to Supplier for Energy will be based upon Buyer's estimate of the Delivered Amount for the lesser of the period in which the inaccuracy existed and 90 days. If the period in which the inaccuracy existed cannot be determined, adjusted payments will be made for a period equal to one-half of the elapsed time since the latest prior test, except that the adjustment period may not exceed 90 days. In such event, the Parties' estimated payments will be in full satisfaction of payments due hereunder.
- 6.7 Site Access. In addition to, but without limiting, any rights of access to the Generating Facility and the Site granted under any site access or other agreement between Supplier and DTE Electric Company, whether in its capacity as Buyer, Distribution Provider, or otherwise, Buyer has the right to access the Site and the Generating Facility at any time for the purpose of reading, inspecting, testing, and otherwise maintaining Buyer's Meters and other equipment and to perform such other inspections of the Site and the Generating Facility as Buyer may determine are appropriate in connection with the performance of this Agreement. In furtherance of the foregoing, Supplier shall at its own expense take such actions as are necessary to maintain continuous safe access to the Site and the Generating Facility, including by providing Buyer with keys, passcodes, and other information necessary to exercise such right of access; performing snow removal; providing off-road parking facilities; performing applicable maintenance necessary to maintain safe access roads, gates, and parking facilities; and taking such other actions as are necessary for Buyer and its representatives to have safe access to the site. Buyer shall cause its representatives to observe while at the Site, such reasonable environmental, health, and safety precautions and policies as Supplier may require and that have been communicated to Buyer and the applicable representatives.

7. EMERGENCY AND CURTAILMENT

- 7.1 Generation Requirements. Supplier shall promptly comply with any applicable requirements or instructions of any Governmental Authority, NERC, MISO, or the Transmission Provider or Distribution Provider, as applicable, regarding the reduced or increased generation of the Generating Facility, whether in response to an Emergency or otherwise. If Buyer is assessed Penalties due to Supplier's failure to comply with reduced or increased generation order, Supplier shall reimburse Buyer for any and all costs (including interest and other transaction costs) associated with such Penalties.

- 7.2 Notification. Supplier shall provide prompt oral and written notification of any Emergency to the Operating Representative of Buyer. If requested by Buyer, Supplier shall provide a description in reasonable detail of the Emergency and any steps employed to cure it.
- 7.3 Action. In the event of an Emergency, either Party may take reasonable and necessary action to prevent, avoid or mitigate injury, danger, damage or loss to its own equipment and facilities, or to expedite restoration of service. The Party taking such action shall give the other Party prior notice, if practicable, before taking any action.
- 7.4 Outage Coordination. In the event of an Emergency, if and when Buyer requests Supplier not to institute a Planned Outage of the Generating Facility, Supplier agrees to take all commercially reasonable steps to avoid instituting the Planned Outage until such time as the condition of the Emergency has passed.
- 7.5 Curtailments. Buyer may immediately suspend purchases from the Supplier and curtail or disconnect (or direct Supplier to curtail or disconnect, as applicable) the Generating Facility: (i) if Supplier has failed to comply with any material term of this Agreement, including Sections 5.8.2, 5.9.1, 5.9.2, or 5.9.4 of this Agreement, or an Event of Default has occurred with respect to Supplier, and in each case the failure or Event of Default is continuing; (ii) during an Emergency, including abnormal circuit configurations or isolated operation of the Supplier's generation; (iii) if hazardous conditions develop with or otherwise exist at the Generating Facility, including failure or improper operation of the protective relaying and communications equipment; (iv) if the Transmission Provider or Distribution Provider is required to facilitate system maintenance, system construction, or other activities related to the prudent or safe operation of the Transmission System or Distribution System, as applicable; (v) if there is a breach of physical or cyber security with respect to the Generating Facility; or (vi) if Buyer's available and dispatched generating units are operating at minimum load ("light-load conditions") either (x) when Buyer's system load, less generation regulating margin, is lower than the sum of the minimum operating levels of all of the Buyer's base load units (non-cycling) that are available and operating, or are expected to be operating, during the next on-peak period expected to occur during the next 24-hour period or (y) as declared by MISO or the Transmission Provider, if applicable. With respect to any curtailment under this Agreement, Supplier shall curtail deliveries of Energy, in whole or in part and in any quantity and duration specified by Buyer, immediately upon notice through Buyer's SCADA system or by any other reasonable means selected by Buyer. During any such period of curtailment, Supplier shall not produce Energy (to the extent curtailed by Buyer) or sell Product to any Person.

8. **PLANNED AND FORCED OUTAGES**

- 8.1 Planned Outages. Starting at least 30 days prior to the Commercial Operation Date, Supplier shall provide to Buyer a written schedule of Planned Outages (including maintenance outages) for the next 24 months, and shall thereafter on a monthly basis provide Buyer with an updated schedule for the upcoming 24 month period. The schedule provided by Supplier must be in the format requested by Buyer and must include a

reasonable description of each proposed Planned Outage, including its anticipated duration, the portion of the Generating Facility affected, the purpose of such Planned Outage, and such other information as Buyer may reasonably request. Supplier shall provide Buyer with reasonable advance notice of any change in the Planned Outage schedule or a change in the start date or the end date of any Planned Outage. Buyer has the right to direct that Supplier modify to the dates or duration (or both) of any Planned Outage with respect to the Generating Facility, and Supplier shall use commercially reasonable efforts to accommodate any such modification. Supplier shall input Planned Outages to Buyer's electronic scheduling system or by such other system as Buyer may direct. Supplier shall not modify the Planned Outage schedule without Buyer's prior approval. Supplier shall not start any Planned Outage at the Generating Facility without providing notice to Buyer's Operating Representative five Business Days prior to the start of such Planned Outage.

- 8.2 Mitigation. Supplier shall use commercially reasonable efforts to minimize the impact of any Planned Outage, including by scheduling any such Planned Outage during non-Daylight Hours (if practicable) and by minimizing the portion of the installed of the Generating Facility subject to a Planned Outage at any time, and unless required in order to comply with any warranty applicable to the Generating Facility, Supplier shall not schedule a Planned Outage during the months of June through September.
- 8.3 Forced Outage. Supplier shall promptly, and in any event within 30 minutes following the occurrence thereof, provide Buyer with notice of any Forced Outage, including the amount of the Capacity of the Generating Facility that is not available because of such Forced Outage and the expected return date and time of such Capacity. Initial notice of a Forced Outage must be provided to Buyer's Operating Representative. Supplier shall update such report as necessary to advise Buyer of changed circumstances, and with respect to any continuing or anticipated Forced Outages, by no later than 5:00 am EPT through Buyer's scheduling system (or such other system as Buyer may direct) for the next seven days. Supplier shall in writing confirm any oral notice of a Forced Outage as soon as practicable following such notice.
- 8.4 Day-Ahead Schedule. By no later than 5:00 am EPT on each day, Supplier shall provide Buyer with Day-Ahead Schedules for the next seven Operating Days in accordance with the procedures established by Buyer for the submission thereof, as may be modified from Buyer from time to time.

9. DATA COMMUNICATION AND TECHNOLOGY REQUIREMENTS

- 9.1 Equipment. At least 30 days prior to the Synchronization Date, Supplier shall, at its expense, install (and shall thereafter maintain) all necessary equipment to allow the Generating Facility to receive and respond, in compliance with DNP3 Application Note AN2013-001 (DNP3 Profile for Advanced PV Generation and Storage), to control signals sent by Buyer's SCADA system by the Commercial Operation Date. Supplier shall make all necessary repairs or replacements within two days after receipt of notice from Buyer of any (i) inoperable telecommunications path; (ii) inoperable software; or (iii) faulty instrumentation. In the event that Supplier reasonably determines that such repair is

expected to take longer than two days to complete, Supplier shall provide Buyer with notice of such delay, including the reason for the delay and an estimated completion time. Buyer has the right to disconnect or direct Supplier to curtail the output of the Generating Facility during any period with respect to which the Generating Facility is unable to either or both receive or respond to controls consistent with DNP3 standards sent by Buyer's SCADA system. If applicable, Buyer will reconnect the Generating Facility as soon as is reasonably practical after Supplier demonstrates to Buyer's satisfaction that the Generating Facility is again capable of reliably receiving and responding, in accordance with DNP3 standards, to signals sent by Buyer's SCADA system.

- 9.2 External Communications Interface. The External Communications Interface, and the data provided at the External Communications Interface provided for data exchange between the Generating Facility and Buyer, will accommodate and conform to the protocol of EPRI/DNP3.org's AN2013-001 standard, or its successor, for process, statistical, historical, control, and descriptive information. Supplier shall make all data categorized as mandatory within AN2013-001 standard, or its successor, available to Buyer at the External Communications Interface.

10. **REPORTS AND OTHER COMMUNICATIONS**

- 10.1 Generator Availability Data System (GADS) Performance Data. Supplier shall collect performance and event data associated with the Generating Facility and shall report such data to Buyer upon Buyer's request.
- 10.2 Operations Log. Without duplication of the requirements of Section 5.9.6.2, Supplier shall maintain an operations log, which must include the Delivered Amount for each hour, unplanned maintenance outages and Planned Outages, circuit breaker trip operations, partial deratings of equipment, and any other significant event or information related to the operation of the Generating Facility. The operations log must be available for inspection by Buyer at the Generating Facility upon reasonable advance request, and Supplier shall make the data that supports the log available on a real time basis by remote access to Buyer, if Buyer acquires the necessary equipment and software license to process the data by remote access.
- 10.3 Operations and Maintenance Plan. At least 30 days prior to the Commercial Operation Date and thereafter at least 30 days prior to the start of each Contract Year, provide Buyer with a copy of the Operations and Maintenance Plan and associated budget for the Generating Facility for the upcoming Contract Year (including, for the first Contract Year, the period following the Commercial Operation Date) evidencing Supplier's ability to meet its obligations under this Agreement, its Financing, and under each Material Contract, in each case as they may arise.
- 10.4 Financial Information.
- 10.4.1 Quarterly and Annual Delivery. During the Term:

- 10.4.1.1 As soon as available and in any event within 60 days after the end of each of the first three quarterly fiscal periods of each fiscal year of Supplier, Supplier shall provide Buyer with unaudited statements of income, members' equity and cash flows of Supplier for the period from the beginning of the respective fiscal year to the end of such period, and the related balance sheet as at the end of such period, setting forth in each case in comparative form the corresponding figures for the period from the beginning of the respective fiscal year to the end of such period in the preceding fiscal year, prepared in accordance with generally accepted accounting principles in the United States of America consistently applied.
- 10.4.1.2 As soon as available and in any event within 120 days after the end of each fiscal year of Supplier, Supplier shall provide to Buyer audited statements of income, members' equity and cash flows of Supplier for such year and the related balance sheet as at the end of such year, setting forth in each case in comparative form the corresponding figures for the preceding fiscal year, and accompanied by an opinion of an independent certified public accountant of recognized national standing reasonably acceptable to Buyer, which opinion shall state that such financial statements fairly present in all material respects the financial condition and results of operations of Supplier as at the end of, and for, such fiscal year in accordance with generally accepted accounting principles in the United States of America consistently applied (subject to normal year-end audit adjustments).
- 10.4.2 Access to Additional Financial Information. The Parties agree that generally accepted accounting principles and SEC rules require Buyer to evaluate if Buyer must consolidate Supplier's financial information with its own. Buyer will require access to Supplier's financial records and personnel to determine if consolidated financial reporting is required. If Buyer determines that consolidation is required, then, notwithstanding anything to the contrary set forth in Section 10.4.1, Supplier shall provide the following reasonably promptly after the end of each calendar quarter for the Term:
- 10.4.2.1 Complete unaudited financial statements and notes to financial statements (drafts of such financial statements and notes to be provided within 15 days, and final copies within 30 days); and
- 10.4.2.2 Financial schedules underlying the financial statements (drafts of such schedules to be provided within 15 days, and final copies within 30 days).

If Supplier is obligated to comply with the foregoing, then such compliance will satisfy its requirements under Section 10.4.1. Any information provided to Buyer pursuant to this Section 10.4.2 will be considered confidential in

accordance with the terms of this Agreement and may only be disclosed on an aggregate basis with other similar entities for which Buyer has power purchase agreements.

11. **COMPLIANCE**

- 11.1 **Compliance with Laws.** Each Party shall comply with all relevant Laws and shall, at its sole cost and expense, maintain in full force and effect all relevant permits, authorizations, licenses and other authorizations material to the maintenance of its facilities and the performance of obligations under this Agreement. Each Party and its representative shall comply with all relevant requirements of MISO, the Transmission Provider, the Distribution Provider, NERC and each Governmental Authority to ensure the safety of its employees and the public.
- 11.2 **Good Utility Practice.** Buyer and Supplier shall perform, or cause to be performed, their obligations under this Agreement in all material respects in accordance with Good Utility Practice.
- 11.3 **Copies of Communications.** Supplier shall promptly provide Buyer with copies of any orders, decrees, letters or other written communications to or from any Governmental Authority asserting or indicating that Supplier or its Generating Facility is in violation of Laws that relate to Supplier or the operation or maintenance of the Generating Facility and could have an adverse effect on Buyer. Supplier shall keep Buyer apprised of the status of any such matters.
- 11.4 **Notification of QF Status.** No later than 30 days prior to the Synchronization Date, Supplier shall deliver to Buyer a written certification executed by a Responsible Officer of Supplier certifying that the Generating Facility is a QF and is in compliance with all applicable regulatory requirements for generating, selling and delivering Product to Buyer, including applicable provisions of the Federal Power Act, NERC standards, FERC regulations, and the MISO Tariff, together with such supporting documentation as is necessary to enable Buyer to verify the certifications set forth in such certificate. Supplier shall notify Buyer, as soon as practicable, of any changes in the status of the Generating Facility as set forth in such certificate.
- 11.5 **Supplier's Debt to Capital Ratio.** Supplier shall at all times during the Term maintain a ratio of Total Funded Debt to Capitalization of not more than 0.65 to 1. Concurrently with the delivery of each set of financial statements to Buyer under Section 10.4.1, Supplier shall deliver to Buyer a written certification executed by a Responsible Officer of Supplier certifying that Supplier's ratio of Total Funded debt to Capitalization is not more than 0.65 to 1.

12. APPROVALS

12.1 Condition Precedent. Unless Buyer waives its right to terminate this Agreement pursuant to Section 12.3, each Party's performance of its respective obligations under this Agreement is subject to Buyer obtaining the MPSC approval as described in Section 12.2.

12.2 MPSC Approval. Within 60 days following the Effective Date, Buyer shall submit this Agreement to the MPSC for approval consistent with MCL Sections 460.6j, 460.6v and any other applicable statutory requirements.

12.3 Failure to Obtain Approval; Conditional or Denial of Approval and Future Disallowance.

12.3.1 If (a) the MPSC fails to take action granting its approval or acceptance of this Agreement pursuant to Section 12.2 in an order that is effective, final, and no longer subject to appeal on or prior to [_____] [____], 20[____]⁶ or (b) issues an order denying Buyer's application for approval of this Agreement and Buyer's requested cost recovery mechanism as set forth in such application in its entirety, then this Agreement shall terminate and cease to be of any force or effect as of such date, in the case of subclause (a) or as of the date of such order, in the case of subclause (b).

12.3.2 If the MPSC grants the approval or acceptance of this Agreement subject to any conditions and Buyer, in its sole and absolute discretion, determines that such conditions are not acceptable, then Buyer may terminate this Agreement at any time during the 90-day period that follows such MPSC approval or acceptance, by providing written notice of such termination to Supplier.

12.3.3 If recovery of payments to Supplier under this Agreement from Buyer's customers is disallowed in whole or in part by the MPSC, the FERC, or any other Governmental Authority, or if Buyer is otherwise prevented from recovering these payments from its customers, then Supplier shall refund to Buyer any payments that are in excess of the amount allowed by the MPSC or other such body, with interest at the rate and terms Buyer is required to use when refunding or crediting overpayments to its customers; but not more than the maximum legal rate, from the date the overpayment was made to Supplier to the date the refund is made to Buyer. Subsequent payments to Supplier will continue to be made in accordance with this Agreement (subject to refunding) unless the MPSC's or any other Governmental Authority's order prospectively establishes a different payment amount.

12.3.4 If Buyer is ordered by the MPSC, the FERC, or any other Governmental Authority to refund to its customers any payments made to the Supplier, Supplier shall immediately pay Buyer the amount of such refund, including any interest ordered thereon.

⁶ *Note to Draft:* Date to be specified prior to execution.

- 12.3.5 Notwithstanding the foregoing, but without limiting Section 12.3.2, if the MPSC or other Governmental Authority at any time issues an order disallowing any costs under this Agreement, then Buyer may at any time during the 60-day period that follows the final resolution of any appeal of or collateral challenge to such order, terminate this Agreement without further liability by giving Supplier at least 30 days' prior written notice of such termination.
- 12.3.6 Buyer will not be liable to Supplier for damages or any other amount in connection with the termination of this Agreement pursuant to Section 12.3.1, 12.3.2, **Error! Reference source not found.** or Section 12.3.5.
- 12.3.7 The provisions of this Section 12.3 control over any conflicting provisions of this Agreement.
- 12.4 Cooperation. Each Party agrees to notify the other Party of any significant developments in obtaining any approval in connection with achieving Commercial Operation, including MPSC approval. Each Party shall use reasonable efforts to obtain such required approvals and shall exercise due diligence and shall act in good faith to cooperate with and assist the other Party in acquiring each approval necessary to effectuate this Agreement.
- 12.5 Intervention. At the request of Buyer, Supplier shall at its sole cost and expense (a) timely file a petition for leave to intervene in the MPSC proceeding related to the approval of this Agreement, (b) retain counsel to represent Supplier in such proceeding, and (c) actively support the regulatory approval process.
- 12.6 Policy Change. If due to any change in Law occurring after the Effective Date, including the repeal of or any relevant amendment to the Public Utility Regulatory Policies Act or any modification of any applicable MPSC requirement, Buyer is no longer required to purchase power from generating facilities comparable to the Generating Facility, then Buyer will have the right to terminate this Agreement at any time following the effectiveness of such change in Law upon no less than 30 days' prior written notice to Supplier and without liability to Supplier (other than for obligations that accrued prior to such termination).

13. CREDITWORTHINESS AND SECURITY

13.1 Development Security.

- 13.1.1 Supplier shall provide to Buyer as security for the performance of Supplier's obligations hereunder, Credit Support in an amount equal to \$45,000 per MW_{AC} of the Contract Capacity (the "Development Security"), which Credit Support will support Supplier's obligations under this Agreement prior to the achievement of the Commercial Operation Date.
- 13.1.2 Supplier shall post the Development Security within three Business Days after the Effective Date and shall thereafter maintain the Development Security in effect until the applicable date determined by reference to Section 13.1.3.

Supplier shall replenish the amount of Development Security applied by Buyer to Supplier's obligations under this Agreement within three Business Days following such application.

- 13.1.3 Any portion of the Development Security not applied to the obligations of Supplier under this Agreement will be released to Supplier within 15 Business Days following the earlier of (a) the date on which no obligations of Supplier remain outstanding following termination of this Agreement in accordance with its terms; and (b) the date on which Supplier has posted the Operating Security to Buyer. With the prior written consent of Buyer, Supplier may apply and maintain the Development Security as a portion of Operating Security required to be provided by Supplier pursuant to Section 13.2.

13.2 Operating Security.

- 13.2.1 Supplier shall provide to Buyer as security for the performance of Supplier's obligations hereunder, Credit Support in an amount equal to \$225,000 per MW_{AC} of the Contract Capacity (the "Operating Security"), which Credit Support will support Supplier's obligations under this Agreement from and after the achievement of the Commercial Operation Date.
- 13.2.2 Supplier shall post the Operating Security no later than three Business Days prior to the day on which the Generating Facility achieves Commercial Operation and shall thereafter maintain the Operating Security in effect until the applicable date determined by reference to Section 13.2.3. Supplier shall replenish the any amount of Operating Security applied by Buyer to Supplier's obligations under this Agreement within three Business Days following such application.
- 13.2.3 Any portion of the Operating Security not applied to the obligations of Supplier under this Agreement will be released to Supplier within 15 Business Days following the date on which no obligations of Supplier remain outstanding following termination of this Agreement in accordance with its terms.

- 13.3 Draw and Application. If at any time an Event of Default with respect to the Supplier has occurred and is continuing, or if an early termination date in respect of this Agreement has occurred or been designated by Buyer as a result of an Event of Default with respect to Supplier, then, and in addition to the other rights and remedies set forth in the Agreement, Buyer will have the right exercise one or more of the following rights and remedies: (i) all rights and remedies available to a secured party under applicable law with respect to Credit Support in the form of Cash held by Buyer; (ii) any rights and remedies available to Buyer under the terms of any Letter of Credit provided for its benefit, if any; and (iii) the right to setoff any present or future amounts payable by Supplier under this Agreement against any Credit Support held by Buyer (or any obligation of Buyer to transfer that Credit Support to Supplier).

13.4 Credit Support in the Form of a Letter of Credit.

- 13.4.1 With respect to any Letter of Credit posted by Supplier as Development Security or Operating Security, Supplier shall replace the Letter of Credit with alternative Credit Support in an amount equal to the amount available to be drawn under such Letter of Credit (x) on or before the date that is 30 Business Days prior to the expiration date of such Letter of Credit and (y) within one Business Day following the occurrence of a Letter of Credit Default with respect to such Letter of Credit.
- 13.4.2 Each Letter of Credit must specify that Buyer has the right to draw the full amount available under such Letter of Credit, at Buyer's sole discretion (1) if an Event of Default has occurred and is continuing with respect to Supplier or this Agreement has terminated in connection with the occurrence of an Event of Default with respect to Supplier and (2) if a Letter of Credit Default has occurred with respect to the Letter of Credit or 30 or fewer Business Days remain until the expiration date of the Letter of Credit and Supplier has failed to replace the Letter of Credit with alternative Credit Support as required by this Agreement.
- 13.4.3 All costs and expenses associated with establishing, maintaining, renewing, amending, or terminating a Letter of Credit are the responsibility of Supplier, and Supplier shall within five Business Days following receipt of Buyer's invoice reimburse Buyer for any such costs and expenses (including, without limitation, fees and expenses of Buyer's external legal counsel) incurred by Buyer in connection with same.

13.5 Credit Support in the Form of Cash.

- 13.5.1 Supplier pledges to Buyer, as security for its obligations under this Agreement, and grants to Buyer a first priority continuing security interest in, lien on and right of set-off against all Credit Support in the form of cash transferred to or received by Buyer under this Agreement. Upon the transfer by Buyer to Secured Party of cash held by Buyer as Credit Support, the security interest and lien granted hereunder on that Cash will be released immediately, and to the extent possible, without any further action by either Party.
- 13.5.2 Notwithstanding Section 9-207 of the Uniform Commercial Code as enacted by any relevant jurisdiction, Buyer has the right to pledge, invest, use, commingle or otherwise use in its business any Credit Support in the form of cash that it holds, free from any claim or right of any nature whatsoever of Supplier. Supplier will not earn or be entitled to any interest on any Credit Support in the form of cash held by Buyer, all of which (if any) may be retained by Buyer.
- 13.6 No Buyer Security. Buyer does not have, and will not have, any obligation to post margin, provide letters of credit, pay deposits, make any other prepayments, or provide any other financial assurances, in any form whatsoever, and Supplier will not have reasonable

grounds for insecurity with respect to Buyer and hereby waives any and all rights it may have, including rights at Law or otherwise (including Section 2-609 of the Uniform Commercial Code or case law applying similar doctrines), to require Buyer to provide any financial assurances in respect of its obligations under this Agreement.

14. **INDEMNIFICATION**

14.1 **Indemnification for Losses.** Each Party to this Agreement (the “**Indemnifying Party**”) shall indemnify, defend and hold harmless, on an After Tax Basis, the other Party, its Affiliates, and each of its and their officers, directors, employees, attorneys, agents and successors and assigns (each, an “**Indemnified Party**”) from and against any and all Losses arising out of, relating to, or resulting from (i) any claim or cause of action brought by a Person other than a Party or any Affiliate of a Party, for personal injury or death to persons and damage to physical property or facilities of such any other Person and (ii) with respect to Supplier as the Indemnifying Party, damage to physical property or facilities of Buyer or any of its Affiliates, in each case to the extent arising out of, resulting from, or caused by (x) with respect to Supplier as the Indemnifying Party, the negligent or intentional and wrongful acts, errors, and omissions of the Indemnifying Party or its representatives, and with respect to clause (i), the negligent acts, errors, and omissions of Buyer or its representatives and (y) with respect to Buyer as the Indemnifying Party, the grossly negligent or intentional and wrongful acts, errors, or omissions of the Indemnifying Party or its representatives; except that no Indemnified Party may be indemnified hereunder for any Loss to the extent resulting from its own negligence (other than as provided above in clause (x)), fraud or willful misconduct.

14.1.1 In furtherance of the foregoing indemnification and not by way of limitation thereof, the Indemnifying Party hereby waives any defense it otherwise might have against the Indemnified Party under applicable workers’ compensation laws.

14.1.2 In claims against any Indemnified Party by an agent of the Indemnifying Party, or anyone directly or indirectly employed by them or anyone for whose acts the Indemnifying Party may be liable, the indemnification obligation under this Article 14 is not limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Indemnifying Party or a subcontractor under workers’ or workmen’s compensation acts, disability benefit acts or other employee benefit acts.

14.2 **No Negation of Existing Indemnities; Survival.** Each Party’s indemnity obligations under this Agreement will not be construed to negate, abridge or reduce other rights or obligations, which would otherwise exist at Law or in equity. The obligations contained herein survive any termination of this Agreement for the applicable statute of limitations period.

14.3 Indemnification Procedures.

- 14.3.1 Any Indemnified Party seeking indemnification under this Agreement for any Loss must give the Indemnifying Party notice of such Loss promptly but in any event on or before 30 days after the Indemnified Party's actual knowledge of such claim or action. Such notice must describe the Loss in reasonable detail, and indicate the amount (estimated if necessary) of the Loss that has been, or may be sustained by, the Indemnified Party. To the extent that the Indemnifying Party will or has been actually and materially prejudiced as a result of the failure to provide such notice, the Indemnified Party shall bear all responsibility for any additional costs or expenses incurred by the Indemnifying Party to the extent resulting from such failure to provide notice.
- 14.3.2 In any action or proceeding brought against an Indemnified Party by reason of any claim indemnifiable hereunder, the Indemnifying Party may, at its sole option, elect to assume the defense at the Indemnifying Party's expense, and will have the right to control the defense thereof and to determine the settlement or compromise of any such action or proceeding (subject to the condition that the settlement or compromise is solely for the payment of money satisfied by the Indemnifying Party and does not include any admission of guilt or liability by the Indemnified Party). Notwithstanding the foregoing, an Indemnified Party will in all cases be entitled to control its own defense in any action if it:
- 14.3.2.1 May result in injunctions or other equitable remedies with respect to the Indemnified Party that could have a Material Adverse Effect on its business or operations;
- 14.3.2.2 May result in material liabilities which may not be fully indemnified hereunder; or
- 14.3.2.3 May have a Material Adverse Effect on the business or the financial condition of the Indemnified Party (including a Material Adverse Effect on the tax liabilities, earnings, ongoing business relationships or regulation of the Indemnified Party) even if the Indemnifying Party pays all indemnification amounts in full.
- 14.3.3 Subject to Section 14.3.2, neither Party may settle or compromise any claim for which indemnification is sought under this Agreement without the prior written consent of the other Party; which consent may not be unreasonably withheld, conditioned or delayed.

15. **LIMITATION OF LIABILITY**

- 15.1 Responsibility for Damages. Notwithstanding anything under Section 14.1 to the contrary and except where caused by Buyer's sole gross negligence, as between the Parties, Supplier is solely responsible for all physical damage to or destruction of the property, equipment

and/or facilities owned by it (including the Generating Facility), and Supplier hereby releases Buyer from any reimbursement for such damage or destruction.

15.2 Limitation on Damages.

- 15.2.1 THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES IS THE SOLE AND EXCLUSIVE REMEDY, THE OBLIGOR'S LIABILITY IS LIMITED AS SET FORTH IN SUCH PROVISION AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED.
- 15.2.2 WITH RESPECT TO THE BREACH OF ANY PROVISION OF THIS AGREEMENT FOR WHICH NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED, THE OBLIGOR'S LIABILITY IS LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES ARE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. SUBJECT TO THE FOREGOING, TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT WILL A PARTY BE LIABLE TO THE OTHER PARTY, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, FOR SPECIAL, INDIRECT, INCIDENTAL, MULTIPLE, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES RELATED TO, ARISING OUT OF, OR RESULTING FROM PERFORMANCE OR NONPERFORMANCE OF THIS AGREEMENT.
- 15.2.3 FOR PURPOSES OF CLARIFICATION, DELAY DAMAGES, PAYMENTS MADE BY EITHER PARTY TO SATISFY PENALTIES, AND PAYMENTS OWING UNDER SECTIONS 3.10, 4.4, 5.7, OR 24.6 ARE NOT CONSIDERED SPECIAL, INDIRECT, INCIDENTAL, MULTIPLE, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES UNDER THIS SECTION 15.2. IN ADDITION, THIS LIMITATION ON DAMAGES DOES NOT APPLY WITH RESPECT TO (A) CLAIMS WITH RESPECT TO WHICH THE APPLICABLE PARTY HAS AN INDEMNIFICATION OBLIGATION UNDER SECTION 14.1, (B) LIABILITY ARISING FROM THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE PARTY OR (C) DAMAGES FOR RISKS FOR WHICH THE APPLICABLE PARTY IS REQUIRED TO BE INSURED PURSUANT TO THIS AGREEMENT.
- 15.2.4 TO THE EXTENT ANY DAMAGES A PARTY IS REQUIRED TO PAY HEREUNDER ARE LIQUIDATED, INCLUDING ANY DAMAGES UNDER SECTION 3.10 OR SECTION 5.7, THE PARTIES

ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

15.3 Survival. The provisions of this Article 15 survive any termination of this Agreement.

16. **FORCE MAJEURE**

16.1 Excuse. Subject to Section 16.4, neither Party shall be considered in default under this Agreement for any failure in the performance of its obligations, and will be excused in the performance of its obligations under this Agreement (including any obligation to deliver or accept Product), if the performance of such obligations is prevented due to an event of Force Majeure.

16.2 Force Majeure. “Force Majeure” means, subject to Section 16.3, any of the following enumerated events that occurs subsequent to the Effective Date and before the termination or expiration of the Term of this Agreement, but only to the extent that (a) such event of Force Majeure is not attributable to fault or negligence on the part of that Party, (b) such event is caused by factors beyond that Party’s reasonable control, (c) despite taking all reasonable technical and commercial precautions and measures to prevent, avoid, mitigate or overcome such event and the consequences thereof, the Party affected has been unable to prevent, avoid, mitigate or overcome such event or consequences and (d) such Party has satisfied the requirements of Section 16.4:

16.2.1 Acts of God such as hurricanes, floods, tornados, earthquakes and storms that are abnormally severe and not reasonably foreseeable for the period of time when, and the area where, such storms occur, based on, in the case of the Site, the most recent 10-year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) for the vicinity of the Generating Facility;

16.2.2 Sabotage, destruction, or vandalism of, or other damage to, facilities, equipment, or systems relating to the performance by the affected Party of its obligations under this Agreement;

16.2.3 War, riot, acts of a public enemy or other civil disturbance; or

16.2.4 Subject to Section 16.3, strike, walkout, lockout or other significant labor dispute.

- 16.3 Exclusions. Force Majeure does not include, and may not be based on, any of the following:
- 16.3.1 Economic hardship of either Party, including Supplier's failure to obtain Financing for any reason;
 - 16.3.2 The non-availability of the renewable resource to generate electricity from the Generating Facility, including as a result of climactic and weather conditions of any type or magnitude, the development of structures, or other changes in environmental conditions in the area of the Generating Facility;
 - 16.3.3 A Party's failure to obtain any permit, license, consent, agreement or other approval from a Governmental Authority, except to the extent it is caused by an event that qualifies under Sections 16.2.3 or 16.2.4;
 - 16.3.4 Supplier's failure to satisfy a Project Milestone, except to the extent it is caused by an event that qualifies as Force Majeure under Section 16.2;
 - 16.3.5 With respect to any strike, walkout, lockout or other labor disputes and labor matters: (i) any labor shortage affecting Supplier or any of its subcontractors, unless caused by a Force Majeure, (ii) any labor disturbances, disputes, boycotts or strikes (whether primary or secondary in nature) involving Supplier or any of its subcontractors taking place at a facility of Supplier or any of its subcontractors; except that, the exception provided in the preceding clause (ii) will not apply when any such labor disturbance, dispute, boycott or strike (x) is a national action or (y) extends beyond the geographic regional area of the State of Michigan (for labor disputes, disturbances, boycotts or strikes taking place at the Generating Facility) or extends beyond the geographic regional area of a facility of Supplier or any of its subcontractors (for labor disputes, disturbances, boycotts or strikes taking place at a facility of Supplier or any of its subcontractors);
 - 16.3.6 Mechanical or equipment failure, unless caused by an event that qualifies as Force Majeure;
 - 16.3.7 Climatic and weather conditions, other than those particular climatic or weather conditions specifically identified in Section 16.2.1 above;
 - 16.3.8 Supplier's inability to obtain, any delay in Supplier's ability to obtain, and any change in market conditions that causes a change in price of, any labor or material or equipment required to develop, construct, commission, test, own, operate, or maintain the Generating Facility or generate or deliver the Products therefrom, including as a result of the imposition of any tariffs, quotas, or other trade restrictions with respect thereto;
 - 16.3.9 Any restrictions on transportation attributable to seasonal weight restrictions on the road system throughout the State of Michigan (which vary by county), are in effect for the county(ies) where the Generating Facility is located;

- 16.3.10 Supplier's ability to sell Products to a third party at a price greater than the Product Price or Buyer's ability to purchase Products from a third party at a price less than the Product Price;
 - 16.3.11 The use of the Site by any third party;
 - 16.3.12 A failure of performance of any third party, including any Person providing electric interconnection or transmission service, except to the extent that such failure was caused by an event that would otherwise be Force Majeure (and for purposes of the definition of Force Majeure, as if such third party were a Party); or
 - 16.3.13 Any action or inaction of a Governmental Authority, including the enactment of any changes to the Internal Revenue Code.
- 16.4 Conditions. A Party may rely on a claim of Force Majeure to excuse its performance only to the extent that, and for so long as, such Party:
- 16.4.1 Provides prompt notice of such Force Majeure event to the other Party, giving an estimate of its expected duration and the probable impact on the performance of its obligations under this Agreement;
 - 16.4.2 Exercises all reasonable efforts to continue to perform its obligations under this Agreement;
 - 16.4.3 Expeditiously takes action to correct or cure the event or condition excusing performance so that the suspension of performance is no greater in scope and no longer in duration than is dictated by the event or condition being corrected or cured using commercially reasonable efforts; except that settlement of strikes or other labor disputes will be completely within the sole discretion of the Party affected by such strike or labor dispute;
 - 16.4.4 Exercises all commercially reasonable efforts to mitigate or limit damages to the other Party; and
 - 16.4.5 Provides prompt notice to the other Party of the cessation of the event or condition giving rise to its excuse from performance.
- 16.5 Termination for Force Majeure. Subject to Section 21.2.4, in the event that a Party is prevented for performing its material obligations under this Agreement due to Force Majeure for a period of at least 180 consecutive days, the other Party may by written notice to the affected Party terminate this agreement without liability to the affected Party (other than for obligations that accrued prior to such termination).

17. **DISPUTE RESOLUTION**

17.1 **Disputes.**

17.1.1 Except as otherwise provided in this Agreement, in the event a dispute arises between the Parties regarding the application or interpretation of any provision of this Agreement (a “Dispute”), the Party alleging the dispute shall promptly notify the other Party the dispute in writing. If the Parties shall have failed to resolve the dispute within 10 days after delivery of such written notice, each Party shall, within five days after receipt of a written demand from the other Party to do so, direct a representative who has authority to settle the Dispute and who is at a higher level of management than such Party’s Contract Representative to confer in good faith within five days with a similar representative from the other Party to resolve the dispute. Should the Parties be unable to resolve the dispute to their mutual satisfaction within 15 days (collectively, the “Settlement Period”), each Party will have the right to take such actions and pursue such rights and remedies as may be available to it under applicable Law in order to pursue the resolution of such dispute.

17.1.2 Unless stated otherwise herein, all disputes shall be resolved in accordance with the dispute resolution procedures set forth in this Article 17. Notwithstanding the foregoing, (a) the Parties may at any time seek injunctive relief from a court of competent jurisdiction, if in its sole judgment such action is necessary to avoid irreparable damage or to preserve the status quo and (b) nothing herein shall prevent a Party from defending or pursuing any claim in a court or other proceeding against a third party that has been initiated by such third party. Despite such actions, the Parties shall continue to participate in good faith in the procedures specified in this Article 17.

17.2 **Right of Termination.** The requirements of this Article 17 will not be deemed a waiver of any right of termination relating to the Agreement.

18. **NATURE OF OBLIGATIONS**

18.1 **Relationship of the Parties.** The provisions of this Agreement will not be construed to create an association, trust, partnership, or joint venture; or impose a trust or partnership duty, obligation, or liability or agency relationship between the Parties.

18.2 **No Public Dedication.** By this Agreement, neither Party dedicates any part of its facilities nor the service provided under this Agreement to the public.

19. **RIGHT OF FIRST OFFER**

19.1 **Right of First Offer.** Supplier (or any direct or indirect parent of Supplier) shall not during the Term, or if this Agreement is terminated due to Supplier’s Event of Default or failure to achieve Commercial Operation by the Guaranteed Commercial Operation Date, for a

period of two years following such termination, (a) sell or transfer the Generating Facility (or any material portion thereof), including as part of a sale-leaseback financing, to a Person other than an Affiliate (other than pursuant to a Financing in which Supplier retains operational control of the Generating Facility and remains obligated under this Agreement) or (b) effect or permit a Change in Control, in each case, unless prior to such sale, transfer or Change in Control, Supplier provides written notice of such sale, transfer or Change in Control to Buyer and provides Buyer with the right to negotiate in good faith with Supplier and any applicable Affiliate for a period of not less than 90 days, unless otherwise agreed to by Buyer, the terms of the sale or transfer of the Generating Facility, or membership interests with respect to such Change in Control, to Buyer or its designee on an exclusive basis. If Buyer desires to enter into such negotiation, Buyer must notify Supplier of such decision within 30 days after Buyer's receipt of Supplier's notice. Supplier will provide in a timely manner, all information regarding the Generating Facility that is customary or reasonably requested, and allow Buyer and its representatives with access to the Generating Facility, to allow Buyer to perform due diligence and to negotiate in good faith for the purchase of the Generating Facility or membership interests, as applicable.

19.2 Subsequent Limitations. Unless Buyer and Supplier or its relevant Affiliate reach agreement on the terms of sale or transfer to Buyer following Buyer's election to negotiate with Supplier and its relevant Affiliate, Supplier must comply with Article 20 in any assignment or delegation of Supplier's rights, interests or obligations herein to a purchaser of the Generating Facility or membership interests, as applicable.

19.3 Renewal of Right of First Offer. In the event that Supplier does not execute an agreement, subject to receipt of appropriate regulatory approvals, to sell or transfer the Generating Facility or membership interests, as applicable, to any Person in accordance with this Article 19 within 270 days of the date that Supplier provided Buyer with written notice pursuant to Section 19.1, Supplier (or any direct or indirect parent of Supplier) shall then only sell or transfer the Generating Facility or membership interests, as applicable, after providing Buyer with written notice and the opportunity to negotiate again in accordance with Section 19.1.

20. ASSIGNMENT

20.1 Buyer Assignment. Buyer may assign this Agreement without Supplier's consent, if such assignment is made: (a) to any successor to Buyer that is a public utility regulated as to rates and service by the MPSC pursuant to applicable Law; (b) to a legally authorized governmental or quasi-governmental agency charged with providing retail electric service in Michigan; (c) as otherwise required by Law or by operation of Law; or (d) to an Affiliate of Buyer that is reasonably expected to be capable of performing Buyer's obligations under this Agreement. With respect to any assignment of this Agreement by Buyer, if such assignee has a Credit Rating of at least BBB- from S&P or Baa3 from Moody's and agrees in writing to assume the obligations of Buyer under this Agreement, then upon such assignment and assumption by the assignee, Buyer will be released from its obligations under this Agreement.

- 20.2 Supplier Assignment. Supplier may, without relieving itself from liability hereunder, but subject to Section 20.7, transfer, pledge, encumber or assign this Agreement or the account, revenues or proceeds hereof, or any part of its ownership interest in the Generating Facility, in connection with any Financing of the Generating Facility.
- 20.3 Mutual Prohibition. Except as stated above, neither this Agreement nor any of the rights, interests and obligations hereunder shall be assigned by either Party, including with respect to Supplier, by operation of Law, without the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed. Any assignment of this Agreement in violation of the foregoing shall be null and void *ab initio*.
- 20.4 Transfers of Ownership. Subject to Article 19 and Section 20.2, during the Term, Supplier shall not sell, transfer, assign or otherwise dispose of its ownership interest in the Generating Facility (or any part of the Generating Facility) to any Person unless (a) Supplier has received Buyer's consent to a transfer of this Agreement and the consent of each counterparty to a Major Contract (if required) to the transfer of such Major Contract to such third-party and (b) Supplier and such third party have entered into an assignment and assumption agreement, in form and substance satisfactory to Buyer, Supplier and such third-party, pursuant to which such third-party assumes all of Supplier's obligations hereunder and otherwise agrees to be bound by the terms of this Agreement, and the Major Contracts, and (c) concurrently with the effectiveness of such Assignment, has satisfied the obligations then applicable to Supplier under Article 13.
- 20.5 Assignee Obligations. Supplier shall procure and deliver to Buyer an undertaking, enforceable by Buyer, from each Person that possesses a security interest in the Generating Facility to the effect that, if such party forecloses on its security interest, (a) it will assume Supplier's obligations under and otherwise be bound by the terms of this Agreement and the Major Contracts (except as provided in Section 20.7.1), and (b) it will not sell, transfer or otherwise dispose of its interest in the Generating Facility to any Person absent an agreement from such Person to assume Supplier's obligations under and otherwise be bound by the terms of this Agreement.
- 20.6 Successors and Assigns. This Agreement and all of the provisions hereof are binding upon, and inure to the benefit of, the Parties and their respective successors and permitted assigns.
- 20.7 Collateral Assignment by Supplier. If Supplier intends to transfer, pledge, encumber or collaterally assign this Agreement to Supplier's Lenders in accordance with Section 20.2, Supplier must provide at least 30 days' prior written notice to Buyer of such potential transfer, pledge, encumbrance or assignment, including the address of Supplier's potential Lenders. In connection with any Financing of the Generating Facility mentioned in the preceding sentence, Buyer will make reasonable efforts to provide such consents to assignments, certifications, representations, and information as may be reasonably requested by Supplier or Supplier's Lenders in connection with the Financing, except that in responding to any such request, Buyer will have no obligation to provide any consent, or enter into any agreement, that Buyer determines may adversely affect any of its rights, benefits, risks or obligations under this Agreement. Supplier shall reimburse Buyer for the costs and expenses (including, without limitation, the fees and expenses of counsel)

incurred by Buyer in the preparation, negotiation, execution or delivery of any documents requested by Supplier or Supplier's Lenders, in each case within five Business Days following Supplier's receipt of Buyer's invoice. Without limiting the foregoing limitation of Buyer's obligations, any such consent and agreement must provide that:

- 20.7.1 If Supplier's Lenders (or their designee identified in writing to Buyer) take possession of, or title to, the Generating Facility (including possession by a receiver or title by foreclosure or deed in lieu of foreclosure), then Supplier's Lenders (or such designee) will assume all of Supplier's obligations under this Agreement other than monetary obligations of Supplier under this Agreement that are due and owing to Buyer as of the assumption date; except that if prior to such assumption, Buyer advises Supplier's Lenders that Buyer will require that Supplier's Lenders (or their designee) cure (or cause to be cured) any Supplier Event of Default hereunder existing as of the possession date (irrespective of when such Event of Default occurred) in order to avoid the exercise by Buyer (in its sole discretion) of Buyer's right to terminate this Agreement in respect of such Event of Default, then Supplier's Lenders (or their designee) at their option, and in their sole discretion, may elect to either: (a) cause such Event of Default to be cured, or (b) not assume this Agreement; and
- 20.7.2 If (a) Supplier's Lenders elect to sell or transfer the Generating Facility (after directly or indirectly taking possession of, or title to, the Generating Facility) and this Agreement is assumed pursuant to Section 20.7.1 in connection therewith or (b) subject to Section 20.5(b), the sale of the Generating Facility otherwise occurs through the actions of Supplier's Lenders (excluding a foreclosure or similar sale where the purchaser is a third-party), then, as a condition of such sale or transfer, (i) Supplier's Lenders must cause the buyer or transferee of the Generating Facility to assume all of Supplier's obligations arising under this Agreement (including the assumption of any monetary obligations of Supplier outstanding on the date of such sale or transfer), (ii) all Events of Default must be cured, (iii) such assignment and assumption of this Agreement by the buyer or transferee of the Generating Facility must comply with the requirements of Section 20.4, and (iv) the buyer or transferee of the Generating Facility (A) have creditworthiness that is equal to or superior to the creditworthiness of Supplier as of the Effective Date, as determined by Buyer in its reasonable discretion, (B) have, or contract with an operator who has, experience in operating renewable energy generating facilities that is equivalent or superior to that of the current operator of the Generating Facility, as determined by Buyer in its reasonable discretion, and (C) must be otherwise acceptable to Buyer in its reasonable discretion.
- 20.8 Change in Control. Any Change in Control of Supplier (whether voluntary or by operation of law) requires the prior written consent of Buyer, which may be subject to such terms and conditions as Buyer may deem, in its sole and absolute discretion, are necessary to ensure that Buyer will not be adversely affected due to the occurrence of such Change in Control. Supplier shall not undergo a Change in Control without Buyer's prior written consent.

21. **DEFAULT AND REMEDIES; TERMINATION**

21.1 Events of Default. Except to the extent excused due to an event of Force Majeure in accordance with Article 16, an event of default (“Event of Default”) will be deemed to have occurred with respect to a Party (the “Defaulting Party”) upon the occurrence of one or more of the following events:

21.1.1 The failure by the Party to comply with any material obligations imposed upon it under this Agreement (other than any obligation separately identified as an Event of Default) unless such failure has been resolved to the satisfaction of the other Party within 30 days following the failing Party’s receipt of written notice of such failure;

21.1.2 The failure by the Party to make any payment under this Agreement when due if such payment is not made within 10 Business Days following the failing Party’s receipt of written notice of such failure;

21.1.3 Any representation or warranty made by the Party in connection with this Agreement proves to have been incorrect or misleading in any material respect when made or repeated;

21.1.4 The Party (a) becomes insolvent or bankrupt, (b) makes an assignment for the benefit of creditors, (c) is unable to pay its debts as they become due or admits in writing its inability to pay its debts (d) commences insolvency, receivership, reorganization or bankruptcy proceedings, or (e) has insolvency, receivership, reorganization or bankruptcy proceedings commenced against it, and such proceedings are not terminated, stayed or dismissed within 15 days after the commencement thereof; or

21.1.5 The Party assigns this Agreement other than in accordance with the provisions of Article 20.

21.2 Supplier Events of Default. Except to the extent excused due to an event of Force Majeure in accordance with Article 16, an Event of Default shall be deemed to have occurred with respect to Supplier upon the occurrence of one or more of the following events:

21.2.1 The Generating Facility (i) at any time prior to qualification as a QF does not satisfy the requirements for qualification as a QF, or (ii) at any time after receiving qualification as a QF, fails to qualify as a QF;

21.2.2 The Capacity of the Generating Facility is at any time greater than 20 MW_{AC};

21.2.3 Based on information provided by Supplier or otherwise available to Buyer, Buyer determines that the Generating Facility is unlikely to achieve Commercial Operation prior to the expiration of any applicable distribution or transmission feasibility study conducted in connection with the proposed interconnection of the Generating Facility;

- 21.2.4 An event of default (however defined or described) has occurred with respect to Supplier under the Interconnection Agreement [or the Construction Agreement] or any other event or condition has occurred with respect to Supplier that would, with the passage of time, the giving of notice, or both, permit a party other than Supplier to terminate the Interconnection Agreement [or the Construction Agreement];⁷
 - 21.2.5 An Abandonment Event occurs with respect to the Generating Facility or any portion of the Site;
 - 21.2.6 Supplier fails to design, construct, install, operate, maintain or repair the Generating Facility in accordance with Good Utility Practice or fails to maintain or comply with any permit, approval, consent, or other authorization necessary for the construction, operation, or maintenance of the Generating Facility;
 - 21.2.7 An event of default (however defined or described) has occurred with respect to Supplier under any Material Contract or any other event or condition has occurred with respect to Supplier that would, with the passage of time, the giving of notice, or both, permit Supplier's counterparty thereto to terminate such Material Contract;
 - 21.2.8 Supplier fails to maintain a ratio of Total Funded Debt to Capitalization of not more than 0.65 to 1 and such failure has not been resolved to Buyer's satisfaction within 60 days following Supplier's discovery of such failure;
 - 21.2.9 Supplier fails to comply with its obligations under Article 13;
 - 21.2.10 A Change in Control occurs with respect to Supplier other than in accordance with the requirements of Article 20 or unless Buyer's has provided its consent to such Change in Control, any direct or indirect owner of Supplier enters into any agreement that upon the closing of the transaction(s) contemplated therein would result in a Change in Control; or
 - 21.2.11 Supplier fails to comply with the provisions of Article 24.
 - 21.2.12 Seller fails to achieve an average Capacity Factor greater than 40% for the Generating Facility in any two consecutive MISO Planning Years.
- 21.3 Remedies. If an Event of Default with respect to a Defaulting Party has occurred and is continuing, the Non-Defaulting Party may, subject to Article 15, (i) suspend performance of its obligations under this Agreement; (ii) withhold to the extent of its damages under this Agreement the payment of any amounts due to the Defaulting Party; (iii) by delivery of written notice to the Defaulting Party designating a date not earlier than the effective date of such notice as the early termination date in respect of this Agreement; (iv) exercise any other remedies as may be available to the Non-Defaulting Party under this Agreement

⁷ **Note to Draft:** Include if applicable in connection with the interconnection of the Generating Facility.

or Law; or (v) exercise any combination of the foregoing. In addition to the foregoing, Buyer may suspend performance of its obligations under this Agreement during the continuance of any event or condition affecting Supplier that, after the lapse of any required notice or cure period, would be an Event of Default with respect to Supplier.

21.4 Effect of Termination; Survival of Obligations. The termination of this Agreement for any reason will not release either Party from any applicable provisions of this Agreement with respect to:

21.4.1 The payment of any amounts owed to the other Party arising prior to or resulting from termination of, or on account of breach of, this Agreement;

21.4.2 Credit support obligations under Article 13, which survive until all obligations of the applicable Party are fully performed;

21.4.3 Indemnity obligations contained in Article 14, which survive to the full extent of the statute of limitations period applicable to the relevant claim;

21.4.4 Limitation of liability provisions contained in Article 15;

21.4.5 For a period of one year after the termination date, the right to submit a payment dispute pursuant to Article 17;

21.4.6 The resolution of any dispute submitted pursuant to Article 17 prior to, or resulting from, termination;

21.4.7 The provisions of Article 19, which survive for the periods specified therein;

21.4.8 For a period of one year after the termination date, the confidentiality provisions contained in Article 25; and

21.4.9 Provisions addressing governing law; and

21.4.10 Any other provision of this Agreement that contemplates performance by a Party following termination.

22. **REPRESENTATIONS AND WARRANTIES OF SUPPLIER**

Supplier represents and warrants the following to Buyer as of the Effective Date, the date of achievement for each Project Milestone and the beginning of each Contract Year, as applicable:

22.1 Organization. Supplier is a [*indicate type of business entity*] duly organized, validly existing and in good standing under the laws of the [*indicate the state of formation*] and has all requisite power and authority to own, lease and/or operate its properties and to carry on its business as is now being conducted. Supplier is duly qualified or licensed to do business as a [*indicate type of business entity*] and is in good standing in Michigan and in each other jurisdiction in which the property owned, leased or operated by it or the nature

of the business conducted by it makes such qualification necessary, except where the failure to be so duly qualified or licensed and in good standing would not have a Material Adverse Effect.

- 22.2 Authority Relative to this Agreement. Supplier has full authority to execute, deliver and perform this Agreement and to consummate the transactions contemplated herein and has taken all necessary [*indicate type of business entity*] actions necessary to authorize the execution, delivery and performance of this Agreement. No other proceedings or approvals on the part of Supplier are necessary to authorize this Agreement. This Agreement constitutes a legal, valid and binding obligation of Supplier enforceable in accordance with its terms, except as the enforcement thereof may be limited by applicable bankruptcy, insolvency or similar laws affecting the enforcement of rights generally.
- 22.3 Consents and Approvals; No Violation. The execution, delivery and performance of this Agreement by Supplier does not (a) conflict with or result in any breach of any provision of the articles of organization (or other similar governing documents) of Supplier; (b) require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Authority that has not previously been made or obtained, except where the failure to obtain such consent, approval, authorization or permit, or to make such filing or notification, could not reasonably be expected to have a Material Adverse Effect or (c) result in a default (or give rise to any right of termination, cancellation or acceleration) under any of the terms, conditions or provisions of any note, bond, mortgage, indenture, agreement, lease or other instrument or obligation to which Supplier or any of its subsidiaries is a party or by which any of their respective assets may be bound, except for such defaults (or rights of termination, cancellation or acceleration) as to which requisite waivers or consents have been obtained.
- 22.4 Regulation as a Utility. Supplier is not subject to regulation as a public utility or public service company (or similar designation) by any Governmental Authority.
- 22.5 Availability of Funds. Supplier has sufficient funds available to it to perform all obligations under this Agreement and to consummate the obligations contemplated pursuant thereto, including as are necessary to develop, construct, operate, and maintain the Generating Facility.
- 22.6 Permits, Authorizations, Licenses, Grants, etc. Supplier, or an Affiliate thereof, has applied or will apply for or, if then required has received, the consents, permits, approvals, authorizations, licenses and grants listed in Exhibit 22.6, and no other consents, permits, approvals, authorizations, licenses or grants, etc. are required by Supplier to construct and operate the Generating Facility and fulfill Supplier's obligations under this Agreement.
- 22.7 Related Agreements. Supplier has entered into or will enter into all necessary and material agreements as listed in Exhibit 22.7 related to Supplier's obligations under this Agreement, and no other material agreements are required for Supplier to perform its obligations under this Agreement.

- 22.8 Certification. The Generating Facility qualifies (or when made prior to Commercial Operation, will qualify on or prior to the Commercial Operation Date) as a Qualifying Facility and Supplier has been and is in compliance with all requirements of Law applicable thereto.
- 22.9 Title. Supplier owns all Product attributable to the Generating Facility and has the right to sell such Product to Buyer. Supplier will convey good title to the Product to Buyer free and clear of any liens or other encumbrances or title defects, including any which would affect Buyer's ownership of any portion of such Product or prevent the subsequent transfer of any portion of such Product by Buyer to a third-party.
- 22.10 Generating Facility Site. Supplier either (a) owns the real property on which the Generating Facility is located or (b) has obtained the necessary rights to construct, own and operate the Generating Facility on such real property, throughout the Term.
- 22.11 Supply Amount. The sum of the Supply Amount set forth in Exhibit 3.1A with respect to a Contract Year is at least equal to the amount designated as the annual P90 exceedance probability value for the Generating Facility, as specified in the most recent solar resource report for the Generating Facility prepared by AWS Truepower, DNV GL, or other leading solar resource consultant reasonably acceptable to Buyer.

23. **REPRESENTATIONS AND WARRANTIES OF BUYER**

Buyer represents and warrants the following to Supplier as of the Effective Date, the date of achievement for each Project Milestone and the beginning of each Contract Year, as applicable:

- 23.1 Organization; Qualification. Buyer is a corporation duly organized, validly existing and in good standing under the laws of the State of Michigan and has all requisite corporate power and authority to own, lease, and operate its properties and to carry on its business as is now being conducted. Buyer is duly qualified or licensed to do business as a corporation and is in good standing in Michigan and in each other jurisdiction in which the property owned, leased or operated by it or the nature of the business conducted by it makes such qualification necessary, except where the failure to be so duly qualified or licensed and in good standing would not have a Material Adverse Effect.
- 23.2 Authority Relative to this Agreement. Buyer has full corporate authority to execute and deliver this Agreement to which it is a Party and to consummate the transactions contemplated herein. The execution and delivery of this Agreement has been duly and validly authorized by Buyer and no other corporate proceedings on the part of Buyer are necessary to authorize this Agreement. This Agreement constitutes a legal, valid and binding obligation of Buyer enforceable in accordance with its terms, except as the enforcement thereof may be limited by applicable bankruptcy, insolvency or similar laws affecting the enforcement of rights generally.
- 23.3 Consents and Approvals; No Violation. Other than obtaining Buyer's Required Regulatory Approvals as set out in Exhibit 23.3, the execution, delivery and performance of this Agreement by Buyer does not (a) conflict with or result in any breach of any provision of

the articles of organization (or other similar governing documents) of Buyer; (b) require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Authority, except (i) where the failure to obtain such consent, approval, authorization or permit, or to make such filing or notification, could not reasonably be expected to have a Material Adverse Effect or (ii) for those consents, authorizations, approvals, permits, filings and notices which become applicable to Buyer as a result of specific regulatory status of Buyer (or any of its Affiliates) or as a result of any other facts that specifically relate to the business or activities in which Buyer (or any of its Affiliates) is or proposes to be engaged, which consents, approvals, authorizations, permits, filings and notices have been obtained or made by Buyer; or (c) result in a default (or give rise to any right of termination, cancellation or acceleration) under any of the terms, conditions or provisions of any note, bond, mortgage, indenture, agreement, lease or other instrument or obligation to which Buyer or any of its subsidiaries is a party or by which any of their respective assets may be bound, except for such defaults (or rights of termination, cancellation or acceleration) as to which requisite waivers or consents have been obtained.

24. **INSURANCE**

24.1 **General Requirements.** Supplier shall maintain at all times during the Term, at its own expense, general/commercial liability, worker's compensation, and other forms of insurance relating to its property, operations and facilities in the manner and amounts set forth herein from the Effective Date of this Agreement. Supplier shall maintain coverage on all policies written on a "claims made" or "occurrence" basis. If converted to an occurrence form policy, the new policy shall be endorsed to provide coverage back to a retroactive date acceptable to Buyer. If written on a "claims made" basis, Supplier shall maintain the general/commercial liability policy in full force and effect for a period of no less than three years from the date of termination of this Agreement. Upon Supplier's receipt of any notice of cancellation or expiration, Supplier shall immediately provide notice thereof to Buyer.

24.2 **Qualified Insurers.** Every contract of insurance providing the coverage required herein shall be with (i) an insurer or eligible surplus lines insurer qualified to do business in the State of Michigan with, on a continuous basis, a financial strength rating of "A-" or better and from A.M. Best and that satisfies the requirements of A.M. Best financial size category "[IX]" or larger, and (ii) shall include provisions or endorsements:

24.2.1 Stating that such insurance is primary insurance with respect to the interest of Buyer and that any insurance maintained by Buyer is excess and not contributory insurance required hereunder;

24.2.2 Stating that no cancellation or expiration of the policy shall be effective until 30 days have passed from the date notice thereof is actually received by Buyer; and

- 24.2.3 Naming Buyer as an additional insured on the commercial general liability insurance policies of Supplier using additional insured endorsement satisfactory to Buyer; and
- 24.2.4 Waving insurer's rights of subrogation against Buyer.
- 24.3 Certificates of Insurance. Within 30 days after the Effective Date, but in any event not later than 30 days prior to the Synchronization Date, Supplier shall provide to Buyer, and shall continue to provide to Buyer within 30 days after each anniversary of the Effective Date until the expiration of this Agreement, upon any change in coverage, or at the request of Buyer at any time, properly executed and current certificates of insurance with respect to all insurance policies required to be maintained by Supplier under this Agreement. Certificates of insurance must provide the following information:
 - 24.3.1 The name of insurance company, policy number and expiration date;
 - 24.3.2 The coverage required and the limits on each, including the amount of deductibles, which must be for the account of Supplier maintaining such policy; and
 - 24.3.3 A statement indicating that Buyer must receive at least 30 days' prior notice of cancellation or expiration of a policy or of a reduction of liability limits with respect to a policy.
- 24.4 Inspection of Insurance Policies. Buyer has the right to inspect the original policies of insurance applicable to this Agreement at Supplier's place of business during regular business hours.
- 24.5 Supplier's Minimum Insurance Requirements.
 - 24.5.1 Worker's Compensation. Worker's compensation insurance in accordance with statutory requirements including employer's liability insurance with limits of not less than \$1,000,000 per occurrence and endorsement providing insurance for obligations under the U.S. Longshoremen's and Harbor Worker's Compensation Act and the Jones Act where applicable.
 - 24.5.2 Commercial General Liability. Commercial General liability insurance including bodily injury, property damage, products/completed operations, contractual and personal injury liability with a combined single limit of at least \$5,000,000 per occurrence and at least \$5,000,000 annual aggregate.
 - 24.5.3 Business Automobile Liability. Business Automobile liability insurance including owned, non-owned and hired automobiles with combined bodily injury and property damage limits of at least \$2,000,000 per occurrence and at least \$2,000,000 aggregate.
 - 24.5.4 Builder's Risk. Builder's Risk insurance shall be of the "all risk" type, shall be written in completed value form, and shall protect Supplier against risks of

damage to buildings, structures, and materials and equipment that constitute part of the Generating Facility, whether on Site or in transit, unless transit is covered under a separate policy, including off-Site storage.

- 24.6 Failure to Comply. If Supplier fails to comply with the provisions of this Article 24, Supplier shall save harmless and indemnify Buyer from any direct and indirect loss and liability, including attorneys' fees and other costs of litigation, resulting from the injury or death of any person or damage to any property if Buyer would have been protected had Supplier complied with the requirements of this Article 24, in accordance with the indemnification provisions of Article 14.
- 24.7 Deductibles Provisions. Any deductible provisions of insurance required under this Article 24 shall be for the sole account of Supplier, and the amounts of such deductibles must be acceptable to Buyer in its discretion.

25. **CONFIDENTIALITY**

- 25.1 Confidential Information. "Confidential Information" means information provided by one Party (the "Disclosing Party") to the other (the "Receiving Party") in connection with the negotiation or performance of this Agreement that is clearly labeled or designated by the Disclosing Party as "confidential" or "proprietary" or with words of like meaning or, if disclosed orally, clearly identified as confidential with that status confirmed promptly thereafter in writing, excluding, however, information described in Section 25.3.
- 25.2 Treatment of Confidential Information. The Receiving Party shall treat any Confidential Information with at least the same degree of care regarding its secrecy and confidentiality as the Receiving Party's similar information is treated within the Receiving Party's organization. The Receiving Party shall keep confidential and not disclose the Confidential Information of the Disclosing Party to third parties (except as stated hereinafter) nor use it for any purpose other than the performance under this Agreement, without the express prior written consent of the Disclosing Party. The Receiving Party further agrees that it shall restrict disclosure of Confidential Information as follows:
- 25.2.1 The Receiving Party may disclose Confidential Information solely to (a) its agents, contractors and representatives as may be necessary to comply with and enforce the terms of this Agreement, (b) its Affiliates, shareholders, directors, officers, employees, third parties performing work related to this Agreement for such Receiving Party, advisors, consultants, actual and potential equity (including tax equity) investors and lenders (and their respective advisors, consultants and agents) and representatives as necessary, (c) any Governmental Authority in connection with seeking any required regulatory approval, (d) to the extent required by applicable Law, (e) in the case of Buyer only, potential transferees of Energy or Capacity and (f) potential assignees of this Agreement (together with their agents, advisors and representatives), as may be necessary in connection with any such assignment (which assignment or transfer must be

in compliance with Article 20) in each case after advising those agents of their obligations under this Article 25.

25.2.2 In the event that the Receiving Party is required by applicable Law to disclose any Confidential Information, the Receiving Party shall if permitted and practicable under the circumstances, provide the Disclosing Party with prompt notice of such request or requirement in order to enable Disclosing Party to seek an appropriate protective order or other remedy and to consult with Disclosing Party with respect to Disclosing Party taking steps to resist or narrow the scope of such request or legal process. The Receiving Party agrees not to oppose any action by the Disclosing Party to obtain a protective order or other appropriate remedy. Notwithstanding the foregoing, if Receiving Party is advised by its counsel that it is required to disclose the Confidential Information, the Receiving Party will:

25.2.2.1 Have the right to furnish that portion of the Confidential Information that the Receiving Party is advised by counsel is legally required; and

25.2.2.2 Shall use commercially reasonable efforts, at the expense of the Disclosing Party, to cause the Confidential Information so disclosed to be accorded confidential treatment.

Section 25.2.2 only applies to information disclosed as contemplated by Section 25.2.1. A Receiving Party will not be deemed to have violated this Section 25.2 if its officers and employees have discussions or other interactions with, or disclose information to, staff members of the MPSC, FERC or other regulatory bodies in which information about the Generating Facility and this Agreement is disclosed. The Receiving Party will endeavor to cause any such person to advise such staff members that information about the Generating Facility and this Agreement is confidential, but the Receiving Party will not be in breach of this Agreement if such staff members subsequently disclose such information.

25.3 Excluded Information. Confidential Information does not include the following:

25.3.1 Information that is or becomes generally available to the public other than as a result of a disclosure by the Receiving Party in breach of this Article 25;

25.3.2 Information that was available to the Receiving Party on a non-confidential basis prior to its disclosure by the Disclosing Party; and

25.3.3 Information that becomes available to the Receiving Party on a non-confidential basis from a Person other than the Disclosing Party or its representative who is not otherwise bound by a confidentiality agreement with Disclosing Party or its agent or is otherwise not under any obligation to Disclosing Party or its agent not to disclose such information to the Receiving Party and the Receiving Party, exercising reasonable due diligence, should have known of such obligation.

25.4 Injunctive Relief Due to Breach. The Parties agree that remedies at Law may be inadequate to protect each other in the event of a breach of this Article 25, and the Receiving Party hereby in advance agrees that the Disclosing Party will be entitled to seek, without proof of actual damages, temporary, preliminary and permanent injunctive relief from any Governmental Authority restraining the Receiving Party from committing or continuing any breach of this Article 25.

25.5 Public Statements. The Parties shall consult with each other prior to issuing any public announcement, statement or other disclosure with respect to this Agreement or the transactions contemplated hereby, and a Party shall not issue any such public announcement, statement or other disclosure without having first received the written consent of the other Party, which consent may not be unreasonably withheld, conditioned or delayed, except as may be required by Law. Supplier shall reasonably cooperate with Buyer regarding its educational, promotional, marketing, and other informational activities with respect to the Generating Facility, including by providing Buyer with reasonable access to the Generating Facility for such activities. Notwithstanding the first sentence of this section, Buyer has the right to use information about the Generating Facility, including its location, capacity, and other factual data and images of the Generating Facility in connection with Buyer's educational, promotional, marketing, and other informational activities. It shall not be deemed a violation of this Article 25 to file this Agreement with the MPSC or FERC for approval as required by applicable Law.

26. MISCELLANEOUS

26.1 Notices and Other Information.

26.1.1 All notices and other communications hereunder must, unless expressly specified otherwise, be in writing and addressed, except as otherwise stated herein, to the Parties' Contract Representatives as set forth in Exhibit 26.1. A Party may update its information included in Exhibit 26.1, including its Contract Representative and Operating Representative, by providing written notice other Party in accordance with this Section 26.1. Any changes to Exhibit 26.1 do not constitute an amendment to this Agreement.

26.1.2 All notices or submittals required by this Agreement must be sent either by hand-delivery, regular first class U.S. mail, registered or certified U.S. mail postage paid return receipt requested, overnight courier delivery, electronic mail or facsimile transmission. Such notices or submittals will be effective upon receipt by the addressee, except that notices or submittals transmitted by electronic mail or facsimile transmission shall be deemed to have been validly and effectively given on the day (if a Business Day and, if not, on the next following Business Day) on which it is transmitted if transmitted before 2:00 pm EPT, and if transmitted after that time, on the following Business Day; except that if any notice or submittal is tendered to an addressee and the delivery thereof is refused by such addressee, such notice is effective upon such tender.

- 26.1.3 All oral notifications required under this Agreement must be made to the receiving Party's Operating Representative and must promptly be followed by notice as provided in the other provisions of this Section 26.1.
- 26.2 Integration. This Agreement contains the entire agreement and understanding between the Parties with respect to all of the subject matter contained herein, thereby merging and superseding all prior agreements and representations, whether written or oral, by the Parties with respect to such subject matter.
- 26.3 Counterparts. This Agreement may be executed in one or more duplicate counterparts, each of which will be deemed an original and when taken together will constitute one and the same instrument. Delivery of an executed counterpart of a signature page of this Agreement by facsimile or in secured electronic format will be effective as delivery of a manually executed counterpart of this Agreement.
- 26.4 Interpretation. In the event an ambiguity or question of intent or interpretation arises, this Agreement is to be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of authorship of any of the provisions of this Agreement. Any reference to any federal, state, local, or foreign Law is deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise, and any such reference also means a reference to such Law as the same may be amended, modified, supplemented or restated and be in effect from time to time. The words "include," "includes" and "including" in this Agreement are not limiting, and are deemed in all instances to be followed by the phrase "without limitation". References to Articles and Sections herein are cross-references to Articles and Sections, respectively, in this Agreement, unless otherwise stated and where the context requires, words, including capitalized terms, importing the singular includes the plural and vice versa. The words "herein," "hereof" and "hereunder" refer to this Agreement as a whole and not to any particular section or subsection of this Agreement. Whenever an event is to be performed by a particular date, or a period ends on a particular date, and the date in question falls on a weekend, or on a day which is not a Business Day, the event must be performed, or the period will end, on the next succeeding Business Day. All accounting terms not specifically defined herein are to be construed in accordance with generally accepted accounting principles in the United States of America, consistently applied. All references to a particular Person include such Person's successors and permitted assigns, or in the case of a Governmental Authority, the successor to such Governmental Authority's functions. All references herein to any contract (including this Agreement) or other agreement are to such contract or other agreement as amended and supplemented or modified.
- 26.5 Headings. The headings or section titles contained in this Agreement are inserted solely for convenience and do not constitute a part of this Agreement between the Parties, nor may they be used to aid in any manner in the construction of this Agreement.
- 26.6 Discontinued or Modified Index. If any index utilized herein is discontinued or substantially modified, then such index will be modified to the most appropriate available

index, with appropriate basis changes to take into account any changes in the location of measurement.

- 26.7 Right to Review. Buyer and Supplier each have the right to review during normal business hours copies of the relevant books and records of the other Party at such Party's home office to confirm the accuracy of such as they pertain to transactions under this Agreement, including but not limited to verification of information contained in invoices. The review must be consistent with standard business practices and must be preceded by reasonable notice to the other Party. Reasonable notice for a review of the previous month's records is a minimum of five Business Days. If a review is requested of other than the previous month's records, then notice of that request must be provided with a minimum of 14 Business Days' notice by the requesting Party. The notice must specify the period to be covered by the review. The Party providing records may exercise its rights under Article 25 to protect the confidentiality of the records. Each Party will be responsible for its own costs and expenses in connection with any such review unless such review reveals that the reviewing Party made an overpayment to or received an underpayment from the other Party, in which case the costs and expenses of such review will be the responsibility of the non-reviewing Party, and the non-reviewing Party shall pay such costs and expenses within five Business Days following receipt of the other Party's invoice.
- 26.8 Severability. If any essential provision of this Agreement is declared illegal, invalid, or otherwise unenforceable in whole or in part in a final, non-appealable order by a court or other tribunal of competent jurisdiction, then the Party adversely affected by such invalidation will have the right to terminate this Agreement by giving the other Party 30 days' prior written notice of such termination. If any non-essential provision in this Agreement is held to be illegal, invalid, or otherwise unenforceable, it shall be ineffective only to the extent of the illegality, invalidity, or unenforceability; such provision will be automatically replaced by a provision that is as similar as possible to the affected provision and is legal, valid, and enforceable; and if such replacement is not possible, then this Agreement will be construed and enforced accordingly without affecting or impairing the legality, validity, and enforceability of the remainder of the provision or provisions of this Agreement and without giving rise to any right to termination.
- 26.9 Waivers; Remedies Cumulative. No failure or delay on the part of a Party in exercising any of its rights under this Agreement or in insisting upon strict performance of provisions of this Agreement, no partial exercise by either Party of any of its rights under this Agreement, and no course of dealing or course of performance between the Parties constitutes a waiver of the rights of either Party under this Agreement. Any waiver will be effective only by a written instrument signed by the Party granting such waiver, and such does not operate as a waiver of, or estoppel with respect to, any subsequent failure to comply therewith. Except as otherwise provided in this Agreement, the remedies provided in this Agreement are cumulative and not exclusive of any remedies provided by law.
- 26.10 Amendments. All amendments to this Agreement must be mutually agreed upon by the Parties, produced in writing, and executed by an authorized representative of each Party in order to be effective. Buyer may submit an amendment to the MPSC, FERC, or other Governmental Authority as applicable, for filing, acceptance or approval, and, if such

approval is required, any such amendment will not become effective unless and until such approval is received. If Buyer submits an amendment to the MPSC, FERC, or other Governmental Authority for approval or acceptance and such approval or acceptance is granted subject to any conditions or qualifications that Buyer, in its sole and absolute discretion, determines are not acceptable, then Buyer may without liability (other than for obligations incurred prior to terminations) terminate this Agreement at any time during the 90-day period that follows such the issuance of such approval or acceptance, by providing written notice of such termination to Supplier.

- 26.11 Time is of the Essence. Time is of the essence to this Agreement and in the performance of all of the covenants, obligations and conditions hereof.
- 26.12 Choice of Law. The terms and provisions of this Agreement are to be interpreted in accordance with the laws of the State of Michigan applicable to contracts made and to be performed within the State of Michigan and without reference to the choice of law principles of the State of Michigan or any other state. The Parties mutually consent to the jurisdiction of the courts of the State of Michigan and of the Federal Courts in the Eastern District of Michigan, and hereby irrevocably agree that all claims in respect of such action or proceeding may be heard in such Michigan state or federal court. Each Party irrevocably consents to the service of any and all process in any such action or proceeding by the mailing of copies of such process to such Party at its address specified in or pursuant to the provisions of Section 26.1. Each Party agrees that a final judgment in any such action or proceeding is conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law. Nothing in this Section 26.12 affects the right of a Party to serve legal process in any other manner permitted by law or affect the right of such Party to bring any action or proceeding against the other Party or its property in the courts of any other jurisdiction.
- 26.13 Further Assurances. The Parties shall execute and deliver promptly, at the expense of the Party requesting such action, any and all other and further instruments, documents and information which a Party, may request and which are reasonably necessary or appropriate to give full force and effect to the terms and intent of this Agreement.
- 26.14 Forward Contract. The Parties acknowledge and agree that (a) this Agreement constitutes a “forward contract” within the meaning of the Bankruptcy Code or a “swap agreement” within the meaning of the Bankruptcy Code; (b) each Party hereto is a “forward contract merchant” or a “swap participant” within the meaning of the Bankruptcy Code; (c) all payments made or to be made by one Party to the other Party pursuant to this Agreement constitute “settlement payments” within the meaning of the Bankruptcy Code; (d) all transfers of eligible credit support or other performance assurance by one Party to the other Party under this Agreement constitute “margin payments” within the meaning of the Bankruptcy Code; and (f) this Agreement constitutes a “master netting agreement” within the meaning of the Bankruptcy Code.
- 26.15 No Third-Party Beneficiaries. Except with respect to the rights of the Indemnified Parties in Section 14.1, (a) nothing in this Agreement nor any action taken hereunder may be construed to create any duty, liability or standard of care to any third-party, (b) no third-

party has any rights or interest, direct or indirect, in this Agreement or the services to be provided hereunder, and (c) this Agreement is intended solely for the benefit of the Parties, and the Parties expressly disclaim any intent to create any rights in any third-party as a third-party beneficiary to this Agreement or the services to be provided hereunder.

[SIGNATURES APPEAR ON THE FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives on the date first stated above.

BUYER:

DTE ELECTRIC COMPANY

By: _____

Name:

Title:

SUPPLIER:

[_____]

By: _____

Name:

Title

EXHIBIT 3.1A

SUPPLY AMOUNT

The Supply Amount with respect to each Contract Year is equal to the sum of the Energy amounts specified in the table below.

Month	MWh
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	
Supply Amount:	

EXHIBIT 3.1B
ONE-LINE DIAGRAM OF GENERATING FACILITY
AND
INTERCONNECTION FACILITIES

One-line diagram:

See attached one-line diagram of the Generating Facility, which indicates the Interconnection Facilities, the Delivery Point, ownership and the location of Meters, which location must be reasonably satisfactory to Buyer. In accordance with Exhibit 5.4A, Supplier must deliver a final (as-built) version of this Exhibit 3.1B prior to or concurrently with the achievement of Commercial Operation.

Voltage and power factor requirements:

[As specified in the Interconnection Agreement][The Generating Facility must satisfy the following parallel operating requirements:

- [_____]]⁸

⁸ *Note to Draft:* To be completed prior to execution as applicable.

EXHIBIT 3.1C

DESCRIPTION OF GENERATING FACILITY

1. Generating Facility: [_____]
2. Location: [_____] County, Michigan
2. Owner: [_____]
3. Proposed Operator: [_____]
4. Contract Capacity: [_____] MW_{AC}
5. Narrative Describing Major Equipment:
[_____]
6. Point of Interconnection / Delivery Point:

The [“Point of Interconnection”][“Point of Delivery”]⁹ as such term is defined in the Interconnection Agreement
7. Map of Site showing anticipated locations of major equipment, Meters, and Delivery Point:

See attached
8. As built site drawing signed by a professional engineer licensed by the State of Michigan that shows the locations of major equipment, Meters, and Delivery Point

To be attached prior to or concurrently with the achievement of Commercial Operation

⁹ **Note to Draft:** Include as applicable based on the interconnection of the Generating Facility.

EXHIBIT 3.3

CAPACITY VALUE CALCULATION

The Capacity Value in any month is equal to the Contract Capacity multiplied by the Capacity Multiplier defined in the table below.

$$\text{Capacity Value} = \text{Contract Capacity} \times \text{Capacity Multiplier}$$

For purposes of the following table:

0 = Capacity Multiplier is equal to 0

A = If the Commercial Operation Date occurs by the Capacity Notification Date, the Capacity Multiplier is equal to .5, and if the Commercial Operation Date does not occur by the Capacity Notification Date, the Capacity Multiplier is equal to 0

P = Capacity Multiplier is equal to (i) the historical average Energy output for hours ending 1500, 1600, and 1700 EST on each day during June, July, and August for the most recently ended three year period, or if three years of data is not available, for a minimum of 30 consecutive days during June, July, and August divided by (ii) the Contract Capacity.

Capacity Multiplier		1st Contract Year												2nd Contract Year												3rd Contract Year												
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
COD																																						
1st Contract Year	J	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	F	0	0	0	0	0	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	M	0	0	0	0	0	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	A	0	0	0	0	0	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	M	0	0	0	0	0	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	0.5 ^A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

EXHIBIT 3.10.3

DEEMED DELIVERED AMOUNT CALCULATION

Buyer shall calculate the Deemed Delivered Amount in accordance with the following:

$$DDA_i = PSO_i - DA_i$$

Where:

DDA_i = Deemed Delivered Amount with respect to the interval i ;

PSO_i = Possible Site Output with respect to the interval i ; and

DA_i = Delivered Amount with respect to the interval i .

For purposes of the foregoing equation:

$$PSO_i = SIrr_i \times Area \times Eff_{Array} \times Loss_{Inv} \times Eff_{Inv} \times Loss_{DP}$$

Where:

$SIrr_i$ = The measured solar irradiation for the interval i , expressed as MWh/m²;

$Area$ = The available solar panel area as specified in the as-built site drawing in Exhibit 3.1C, expressed in m²;

Eff_{Array} = The conversion efficiency of the solar panels used in the Generating Facility, as provided by the manufacturer, expressed as a percentage;

$Loss_{Inv}$ = The adjustment factor necessary to account for electrical losses to the inverters, the calculation of which will be determined by Buyer based on the as-built site drawing in Exhibit 3.1C and such other information as Buyer deems relevant, expressed as a percentage;

Eff_{Inv} = The inverter efficiency provided by the manufacturer of the inverter, adjusted to account for Supplier inverter settings, expressed as a percentage; and

$Loss_{DP}$ = The adjustment factor necessary to account for electrical losses to the Delivery Point, the calculation of which will be determined by Buyer based on the as-built site drawing in Exhibit 3.1C and such other information as Buyer deems relevant, expressed as a percentage.

Except that if the calculation of the Possible Site Output for an interval results in a value exceeding the Contract Capacity, the Possible Site Output for that interval will be equal to the Contract Capacity.

EXHIBIT 5.2

PROJECT MILESTONE SCHEDULE

Requirement	Required Completion Date:	Required Documentation and Supporting Evidence	Date Completed
Synchronization Date			
[Distribution Provider has completed its distribution interconnection study and has provided the study results and unexecuted Interconnection Agreement to Supplier [and the Construction Agreement has been executed and is in full force and effect]] [The Interconnection Agreement has been executed and is in full force and effect] ¹⁰	Effective Date	True, correct, and complete copy of the [Construction Agreement][distribution interconnection study results] ¹¹ and of the Interconnection Agreement	
Supplier has transferred the Development Security required by <u>Section 13.1</u>	5 Business Days after Effective Date	The Development Security	
All Major Contract are executed and in full force and effect	30 days after MPSC Approval Date	Written certificate as required pursuant to <u>Section 5.11.1</u> , together with a true, correct, and complete (subject to permitted redactions) copy of each such Major Contract	
Supplier has provided full notice to proceed EPC Contracts for the Generating Facility and construction of the Generating Facility has commenced	[_____] [___], 20[___] ¹²	Written certification, together with a copy of the executed “Notice to Proceed” acknowledged by the construction contractor and documentation from qualified professionals indicating that physical work has begun on-site regarding the construction of the Generating Facility.	
Supplier has delivered to Buyer the certificates of insurance required by <u>Section 24.3</u>	30 days after Effective Date but no later than 30 days prior to the Synchronization Date	Certificates of insurance required by <u>Section 24.3</u>	

¹⁰ **Note to Draft:** Include as applicable based on interconnection of the Generating Facility.

¹¹ **Note to Draft:** Include as applicable based on interconnection of the Generating Facility.

¹² **Note to Draft:** Parties to specify required date prior to execution.

Supplier has installed all data communication and technology equipment required pursuant to <u>Section 9.1</u>	30 days prior to Synchronization Date	Written certification, together with documentation evidencing that all necessary equipment has been delivered to and installed at the Generating Facility and that the Generating Facility will be able to receive and respond to DNP3 control signals sent by Buyer's SCADA system	
Generating Facility is qualified as a QF	30 days prior to Synchronization Date	Written certification that Supplier has filed for and obtained QF status under applicable Law as required by <u>Section 11.4</u>	
Supplier has received FERC market-based rate authority	30 days prior to Synchronization Date	Written certification that Supplier has filed for and obtained authority to make wholesale sales of capacity, energy and ancillary services at market-based rates Law as required by <u>Section 11.4</u>	
Installation and testing of the Meters is complete	[_____] [____], 20[____] ¹³	Not applicable	
Supplier has provided Buyer with written notice of the expected Synchronization Date as required by <u>Section 5.6</u>	15 days but not more than 20 days prior to the Synchronization Date	Written notice from Supplier as required by <u>Section 5.6</u> [together with a true, correct, and complete copy of the Interconnection Agreement] ¹⁴	
Supplier has provided Buyer with written notice of, and coordinated with Buyer for the delivery of, Test Energy as required under <u>Section 3.2</u>	15 days prior to the first delivery of Test Energy	Written notice from Supplier as required by <u>Section 3.2</u>	
Synchronization Date	Planned Synchronization Date	Buyer's Meters record Energy being delivered from the Generating Facility to Buyer, and Supplier certifies to Buyer in writing that the Generating Facility has satisfied the definition of Synchronization Date	

Commercial Operation Date			
Supplier has obtained all permits, licenses, easements and approvals to construct and operate the Generating Facility	[_____] [____], 20[____] ¹⁵	Written documentation and decisions from the appropriate agencies indicating hearings during which such approvals were granted, together with final written decisions from those agencies in which the approval was provided	

¹³ **Note to Draft:** Parties to specify required date prior to execution.

¹⁴ **Note to Draft:** Include if applicable in connection with the interconnection of the Generating Facility.

¹⁵ **Note to Draft:** Parties to specify required date prior to execution.

Supplier has delivered the initial Planned Outage schedule required by <u>Section 8.1</u>	30 days prior to Commercial Operation Date	The initial Planned Outage schedule	
Supplier has delivered a complete copy of the operations and maintenance agreement as required under <u>Section 5.10</u>	30 days prior to Commercial Operation Date	A true, correct, and complete copy of the operations and maintenance agreement for the Generating Facility	
Supplier has delivered a copy of the initial Operations and Maintenance Plan and budget as required under <u>Section 10.3</u>	30 days prior to Commercial Operation Date	A true, correct, and complete copy of the initial Operations and Maintenance Plan and budget	
Supplier has provided notice to Buyer of commencement of commissioning tests as required by <u>Section 5.4</u>	10 days prior to commencement of commissioning tests	Written notice from Supplier as required by <u>Section 5.4</u>	
Seller has delivered the Operating Security required under <u>Section 13.2</u>	3 Business Days prior to the Commercial Operation Date	The Operating Security	

EXHIBIT 5.4A

CONDITIONS TO COMMERCIAL OPERATION

The requirements that must be satisfied to achieve Commercial Operation of the Generating Facility are as follows:

1. All of the permits, approvals, authorizations, and consents necessary for the operation and maintenance of the Generating Facility ("Supplier's Required Permits and Approvals") have been obtained and are in full force and effect, all applicable appeals periods regarding such Supplier's Required Permits and Approvals have expired and no appeal of such Supplier's Required Permits is pending, and such Supplier's Required Permits and Approvals are not subject to any unsatisfied conditions that could reasonably be expected to allow for material modification or revocation.

Required Documentation: A list of Supplier's Required Permits and Approvals, including information specifying with respect to each such Supplier's Required Permit and Approval, (i) the date of issuance, (ii) the term, (iii) the issuing or granting authority, (iv) the purpose or nature thereof, and (v) any material conditions or limitations thereunder that may adversely affect the performance by Supplier of its obligations under this Agreement, and if requested by Buyer, a copy of each Supplier's Required Permit and Approval.

2. The Generating Facility has been constructed and tested and is being operated in accordance with the EPC Contracts, the MSA, and the Interconnection Agreement. The Generating Facility is available to commence normal operations in accordance with the Major Contract and all applicable manufacturers' warranties.

Required Documentation: The final (as-built) version of Exhibit 3.1B and site drawing required by Exhibit 3.1C, together with such other documentation and supporting evidence as Buyer may reasonably request.

3. "Substantial Completion" (as such term is defined in the EPC Contracts or the MSA, as applicable) of the panels, inverters, and other significant systems comprising the Generating Facility has occurred, as evidenced by the certifications required to be furnished to us by the EPC Contractor in connection with the Commissioning of such panels and inverters, true and correct copies of each of which are attached hereto.

Required Documentation: A copy of each certification furnished by the EPC Contractors in connection with the foregoing.

4. All facilities necessary for the interconnection of the Generating Facility to the Distribution System have been commissioned have been interconnected and synchronized with the facilities of the interconnecting utility in accordance with such utility's interconnection requirements. The Interconnection Agreement is in full force and effect, all requirements for parallel operation thereunder have been satisfied, and Supplier is not in breach of any of its obligations under such Interconnection Agreement.

Required Documentation: A copy of any certificate or other notice provided or received by Supplier in connection with the foregoing, together with such other documentation and supporting evidence as Buyer may reasonably request.

5. Supplier has received an independent engineer's written certification stating that the Generating Facility has been completed in all material respects (except punch list items that do not materially and adversely affect the safe and reliable operation, performance, or maintenance of the Generating Facility).

Required Documentation: A copy of the certification provided by the independent engineer.

6. Supplier is in compliance with the Power Purchase Agreement in all material respects.

Required Documentation: Such documentation and other supporting evidence as Buyer may reasonably request.

7. Supplier has demonstrated the reliability of the Generating Facility's communications systems and External Communications Interface, and the Generating Facility is capable of receiving and reacting to signals from Buyer's SCADA system in accordance with DNP3.

Required Documentation: Such documentation and other supporting evidence as Buyer may reasonably request.

8. Supplier has satisfied each Project Milestone set forth in Exhibit 5.2.

Required Documentation: All documentation that Supplier is required to provide to Buyer in connection with the satisfaction of the Project Milestones.

EXHIBIT 5.4B

FORM OF COD CERTIFICATION

[SUPPLIER'S LETTERHEAD]

DTE Electric Company
[Address for notices]
Attention: [_____]

[_____, 201[]]

This Certificate is being delivered by the undersigned, [a][the] [officer title] of [*insert Supplier name*] ("Supplier"), pursuant to Section 5.4 of the Power Purchase Agreement, dated [_____] [], 201[] (the "PPA"), between Supplier and DTE Electric Company ("Buyer"). Capitalized terms used herein have the meanings set forth in the PPA.

The undersigned hereby certifies to Buyer as of the date hereof (the "Commercial Operation Date"), that:

1. The undersigned is the duly [elected][appointed] and authorized [officer title]¹⁶ of Supplier and is authorized and empowered to deliver this certificate to Buyer.

2. All of the permits, approvals, authorizations, and consents necessary for the operation and maintenance of the Generating Facility ("Supplier's Required Permits and Approvals") have been obtained and are in full force and effect, all applicable appeals periods regarding such Supplier's Required Permits and Approvals have expired and no appeal of such Supplier's Required Permits is pending, and such Supplier's Required Permits and Approvals are not subject to any unsatisfied conditions that could reasonably be expected to allow for material modification or revocation. A list of Supplier's Required Permits and Approvals, including information specifying with respect to each such Supplier's Required Permit and Approval, (i) the date of issuance, (ii) the term, (iii) the issuing or granting authority, (iv) the purpose or nature thereof, and (v) any material conditions or limitations thereunder that may adversely affect the performance by Supplier of its obligations under the PPA, and a copy of each Supplier's Required Permit and Approval requested by Buyer is attached as Annex A to this certificate.

3. The Generating Facility has been constructed and tested and is being operated in accordance with the EPC Contracts, the MSA, and the Interconnection Agreement. The Generating Facility is available to commence normal operations in accordance with the Major Contract and all applicable manufacturers' warranties. A final (as-built) version of Exhibit 3.1B to the Agreement and site drawing required by Exhibit 3.1C, together with the other documentation and supporting evidence requested by Buyer in connection with the foregoing requirement, are attached as Annex B to this certificate.

¹⁶ *Note to Draft:* Complete as appropriate based on organizational structure of Supplier.

4. “Substantial Completion” (as such term is defined in the EPC Contracts or the MSA, as applicable) of the panels, inverters, and other significant systems comprising the Generating Facility has occurred, as evidenced by the certifications required to be furnished to us by the EPC Contractor in connection with the Commissioning of such panels and inverters, true and correct copies of each of which are attached hereto. True, correct, and complete copies of each certification furnished by the EPC Contractors in connection with the foregoing requirement are attached as Annex C to this certificate.

5. All facilities necessary for the interconnection of the Generating Facility to the Distribution System have been commissioned have been interconnected and synchronized with the facilities of the interconnecting utility in accordance with such utility’s interconnection requirements. The Interconnection Agreement for the Generating Facility is in full force and effect and Supplier is not in breach of any of its obligations under such Interconnection Agreement. A copy of each certificate and other notice provided or received by Supplier in connection with the foregoing, together with such other documentation and supporting evidence requested by Buyer in connection with the foregoing requirement, is attached as Annex D to this certificate.

6. Supplier has received an independent engineer’s written certification stating that the Generating Facility has been completed in all material respects (except punch list items that do not materially and adversely affect the safe and reliable operation, performance, or maintenance of the Generating Facility). A true correct and complete copy of such certification is attached as Annex E to this certificate.

7. Supplier is in compliance with the PPA in all material respects. The documentation and other supporting evidence requested by Buyer in connection with the foregoing requirement is attached as Annex F to this certificate.

8. Supplier has demonstrated the reliability of the Generating Facility’s communications systems and External Communications Interface, and the Generating Facility is capable of receiving and reacting to signals from Buyer’s SCADA system. The documentation and other supporting evidence requested by Buyer in connection with the foregoing requirement is attached as Annex G to this certificate.

9. Supplier has satisfied each Project Milestone set forth in Exhibit 5.2 and has provided Buyer with all documentation required in connection with the satisfaction of such Project Milestones.

[SUPPLIER]

By: _____
Name:
Title:

By its execution of this certificate, Buyer acknowledges that Supplier has satisfied all requirements for the achievement of Commercial Operation as of the date specified below:

Commercial Operation Date: _____

DTE ELECTRIC COMPANY

By: _____

Name:

Title:

EXHIBIT 13.1A

IRREVOCABLE STAND-BY LETTER OF CREDIT

Letter of Credit, form of
(Specimen--SBLC)

NAME/ADDRESS OF (USA) CONFIRMING BANK [IF ISSUER IS FOREIGN]:

BENEFICIARY:

DTE Electric Company

[Address 1]

[Address 2]

[City, State, Zip]

Contact: [] Tel: []

REF: IRREVOCABLE STANDBY LETTER OF CREDIT NO. (REF. NO.)

We (the “**Issuing Bank**”) hereby establish our Irrevocable Non-Transferable Standby Letter of Credit (“**Credit**”) in your favor for the account of _____ (“**Applicant**”), for the aggregate amount not exceeding _____ United States Dollars (\$_____) (“**Available Amount**”), available to you (“**Beneficiary**”) at sight upon demand at our counters at [*specify location*] on or before the expiration hereof against presentation to us of the Beneficiary’s Sight Draft drawn on us, along with a signed and dated statement, with all blanks and necessary details filled in, referencing our Letter of Credit No. _____, stating the following:

“Applicant has failed to make a payment to us when due in the amount of USD _____ under the Power Purchase Agreement between Beneficiary and [] dated as of [], 201[], and [Applicant’s Name] (“**Applicant**”), which amount remains due and owing as of the date of this certificate. Accordingly, we hereby demand payment of USD _____ under the Credit.”

–OR–

“The Credit will expire on [*expiration date*], which date is thirty (30) days or less from the date of this drawing request, and we have not received from the Applicant replacement Credit Support in the amount and within the time period specified in the in the Power Purchase Agreement between Beneficiary and [] (the “**Applicant**”) dated as of [], 201[]. Accordingly, we hereby demand payment of the full amount available to be drawn under this Letter of Credit.”

–OR–

“A Letter of Credit Default, as defined in the Power Purchase Agreement between Beneficiary and [] (the “**Applicant**”) dated as of [], 201[] (the “**Agreement**”), has occurred with respect to the Credit and we did not receive from the Applicant replacement Credit

Support in the amount and within the time period specified in the Agreement. Accordingly, we hereby demand payment of the full amount available to be drawn under this Letter of Credit.”

This Credit shall expire on [insert date that is one year from the date of issuance], but shall automatically extend without amendment for additional one year periods from such original or any subsequent expiration dates, unless we send our written notice to Beneficiary at least ninety (90) days prior to any such expiration date via courier, notice of our intention not to automatically extend this Credit beyond the then current expiration date.

We hereby agree with you that documents drawn under and in compliance with the terms and conditions of this Credit shall be duly honored upon presentation as specified. Drawings may be presented by facsimile (“**FAX**”) to FAX number: _____ under the telephone pre-advice to _____; provided that such FAX presentations are received on or before the expiry date on this Credit in accordance with the terms and conditions of this Credit, it being understood that any such FAX presentation shall be considered the sole operative instrument of drawing, not contingent upon presentation of the original letter of credit or original documents with respect thereto.

The Available Amount will be automatically reduced by the amount of each drawing hereunder.

The Issuing Bank shall have a reasonable amount of time for examination, not to exceed three (3) days banking days following presentation.

Except as otherwise expressly stated herein, this Credit is subject to the International Standby Practices (1998) I.C.C. Publication No. 590 (“**ISP98**”). As to matters not covered by ISP98, this Credit shall be subject to and governed by the laws of the State of New York without regard to its conflicts of law provisions that would apply the laws of another jurisdiction.

Yours faithfully,

(Name of Issuing Bank)

EXHIBIT 23.3

BUYER'S REQUIRED REGULATORY APPROVALS

MPSC approval of this Agreement on the terms specified in Section 12.3, in one or more orders or decisions that are final and no longer subject to appeal.

EXHIBIT 26.1

NOTICES, BILLING AND PAYMENT INSTRUCTIONS

Supplier:

[_____]

Contact	Mailing Address	Phone	E-mail
---------	-----------------	-------	--------

Contract Representative:
Name and/or Title

Operating Representative:
Name and/or Title [Mailing & Physical Address
if different]

Operating Notifications:
Prescheduling
Real-Time
Monthly Checkout

Invoices:
Name and/or Title [Mailing & Physical Address
if different]

**PAYMENT
INSTRUCTIONS**

Bank Name
Bank Address
Bank City, ST & Zip
Account Name
ABA
Account Number

Buyer:

[DTE Electric Company]

CONTRACT REPRESENTATIVES

Contact	Mailing Address	Phone	E-mail
---------	-----------------	-------	--------

General:

Generation Optimization –

Scheduling/Generation

Dispatch/Emergencies (24x7):

Generation Optimization –

Invoices:

Generation Optimization –

Settlements

Legal Notices:

General Counsel

DTE Electric Company

ACH PAYMENT

INSTRUCTIONS

Bank Name	J.P. Morgan Chase
ABA:	072000326
Account Number:	1102823

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commissions own motion,)	
establishing the method and avoided cost calculation)	
for DTE ELECTRIC COMPANY to fully comply)	Case No. U-18091
with the Public Utilities Regulatory Policy)	
Act of 1978, 16 USC 2601 et seq.)	
_____)	

PROOF OF SERVICE

STATE OF MICHIGAN)
) ss.
COUNTY OF WAYNE)

ESTELLA R. BRANSON, being duly sworn, deposes and says that on the 12th day of March, 2019, she served a copy of DTE Electric Company's Direct Testimony and Exhibits on Remand of Witnesses Timothy A. Bloch, Frank Niscoromni, Angela P. Wojtowicz, and David Swiech, as well as Direct Testimony on Remand of Witnesses, Don M. Stanczak, and Stephanie A. Buway, upon the persons on the attached service list via e-mail.

ESTELLA R. BRANSON

Subscribed and sworn to before
me this 12th day of March, 2019.

Lorri A. Hanner, Notary Public
Wayne County, MI
My Commission Expires: 4-20-2020
Acting in Wayne County

ADMINISTRATIVE LAW JUDGE

Honorable Martin D. Snider
7109 West Saginaw Hwy, 3rd Floor
Lansing, MI 48917
sniderm@michigan.gov

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**MICHIGAN ENVIRONMENTAL
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COMPANY, LLC**

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