Potomac
LAW GROUP
Potomac Law Group PLLC
1300 Pennsylvania Avenue N.W., Suite 700 | Washington, D.C. 20004
T 202.204.3005 | F 202.318.7707 | www.potomaclaw.com

October 7, 2024

Ms. Lisa Felice
Executive Secretary
Michigan Public Service Commission
7109 W. Saginaw Highway
P.O. Box 30221
Lansing, MI 48909

Re: **MPSC Case No. U-21482**

Dear Ms. Felice:

Attached for electronic filing in the above-referenced matter, please find the Rebuttal Testimony and Exhibits of Dr. Laura S. Sherman on behalf of the Michigan Energy Innovation Business Council, the Institute for Energy Innovation and Advanced Energy United, together with the Proof of Service. Thank you for your assistance in this matter.

Very truly yours,

Justin K. Ooms Digitally signed by Justin K. Ooms
Date: 2024.10.07 16:41:54 -04'00'

Justin K. Ooms

JKO/srd
Enclosure
c. All parties of record.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

****

In the matter of the Application of **DTE ELECTRIC COMPANY** for approval of Interconnection Procedures and Waivers from Interconnection and Distributed Generation Standards R 460.901a et. seq.	))))))	**Case No. U-21482**

REBUTTAL TESTIMONY OF DR. LAURA S. SHERMAN

ON BEHALF OF

THE MICHIGAN ENERGY INNOVATION BUSINESS COUNCIL,

INSTITUTE FOR ENERGY INNOVATION,

AND

ADVANCED ENERGY UNITED

Table of Contents

I. INTRODUCTION AND QUALIFICATIONS

Q. State your name, business name and address.

A. My name is Dr. Laura S. Sherman, and I am the President of the Michigan Energy Innovation Business Council ("Michigan EIBC") and the Institute for Energy Innovation ("IEI"), located at 115 West Allegan, Suite 710, Lansing, Michigan 48933.

Q. On whose behalf are you appearing in this case?

A. I am appearing here as an expert witness on behalf of Michigan EIBC, IEI, and Advanced Energy United ("United"), collectively referred to as "MEIU."

Q. Are you the same Dr. Laura S. Sherman who provided direct testimony in this proceeding?

A. Yes, I am.

Q. Are you sponsoring any exhibits with your rebuttal testimony?

A. Yes, I am sponsoring the following exhibits:

- Exhibit MEIU-6 (LSS-6): Affidavit of Mark Dorogi, Chief Operating Officer with Homeland Solar.
- Exhibit MEIU-7 (LSS-7): Affidavit of John Jevahirian, Vice President of Operations with Michigan Solar Solutions.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to certain aspects in the testimony of Michigan Public Service Commission ("MPSC" or the "Commission") Staff witness Julie K. Baldwin related to material modification issues and Commission Staff witness Cody S. Matthews related to limited-export provisions, import/export from battery storage systems, distributed generation ("DG") program eligibility, system size determinations, expected generation determinations, and fee waivers.

II. REBUTTAL OF STAFF WITNESS BALDWIN

Q. What does DTE Electric Company ("DTE" or the "Company") propose regarding material modifications?

A. In its draft Interconnection Procedures, the Company proposes that:

> In the event of a change to the Project design any time after receiving notification by DTE of a complete interconnection application, the Applicant will be required to submit a new interconnection application, including the associated fee, detailing the proposed changes to DTE for review. The Application Review section above details the process by which DTE will review this application. At such a time when the revised interconnection is deemed complete by DTE, DTE will determine whether the proposed changes constitute a Material Modification and, if so, whether any further restudy is required.[1]

In other words, the Company proposes that if a customer wants to make a change after acceptance of a complete interconnection application, that customer must first submit a new application and pay another fee. Once that new application is deemed complete, the Company will then conduct a review to determine if the change is a material modification.

[1] Direct Testimony of Richard J. Mueller on behalf of DTE Electric Company ("Mueller Direct"), Case No. U-21482, Exhibit A-1, p. 18.

Q. What does witness Baldwin state regarding the Company's proposed material modification process?

A. In Exhibit S-1 (JKB-1), witness Baldwin first indicates that the Company's proposed procedures related to material modifications do not align with the Michigan Interconnection and Distributed Generation Standards ("MIXDG rules"), "which provides for the utility to review the proposed change to first determine whether it is a material modification prior to making the determination that a new application must be filed."[2]

However, witness Baldwin goes on to request that the Company clarify whether filing a new application is, in fact, the Company's process for determining whether or not a change is a material modification. Witness Baldwin asks, "For example, if a like-for-like inverter is proposed, would DTE require a new application?"[3]

Q. What issues do you see are raised by witness Baldwin's inquiry regarding the Company's implementation of the MIXDG rules?

A. Importantly, it is clear (as witness Baldwin initially states), that the Company's proposed procedures to determine material modifications are in violation of the MIXDG rules. According to the rules in R 460.982,

> (1) At any point after an interconnection application is considered accepted but before the signing of an interconnection agreement, the applicant, the electric utility, or the affected system owner may propose modifications to the interconnection application that may improve the costs and benefits of

[2] Direct Testimony of Julie K. Baldwin on behalf of Michigan Public Service Commission Staff ("Baldwin Direct"), Case No. U-21482, Exhibit S-1 (JKB-1).

[3] *Ibid.*

> the interconnection, or that improve the ability of the electric utility to accommodate the interconnection. The applicant shall submit to the electric utility, in writing, all proposed modifications to any information provided in the interconnection application and *the electric utility shall perform an evaluation to determine whether the proposed modification is a material modification* and provide the results to the applicant within 10 business days.[4]

In addition to the fact, therefore, that a utility must first determine if a modification is material *before* requiring a new application, according to the MIXDG rules, a like-for-like inverter change is explicitly *not* a material modification. According to the MIXDG rules,

> (n) "Material modification" means a modification to the DER nameplate rating, DER export capacity, electrical size of components, bill of materials, machine data, equipment configuration, or the interconnection site of the DER at any time after receiving notification by the electric utility of a complete interconnection application. *Replacing a component with another component that has near-identical characteristics does not constitute a material modification when agreed to by the electric utility.* For the proposed modification to be considered material, it shall have been reviewed and been determined to have or anticipated to have a material impact on 1 or more of the following:
>
> (i) The cost, timing, or design of any equipment located between the point of common coupling and the DER.
>
> (ii) The cost, timing, or design of any other application.
>
> (iii) The electric utility's distribution system or an affected system.
>
> (iv) The safety or reliability of the distribution system.[5]

While I therefore agree with witness Baldwin's initial statement (as quoted above), I disagree with the subsequent ambiguity witness Baldwin appears to suggest exists. There is no opportunity allowed by the MIXDG rules for the Company to require a new application prior to determining if a change is a material modification.

[4] MIXDG rules, R 460.982, "Modification of the interconnection application" (emphasis added).

[5] MIXDG rules, R460.901b, "Definitions; J-Z" (emphasis added).

Q. What do you recommend with respect to the Company's proposed material modification procedures?

A. The Company must be required to change its proposed material modification process to comply with the MIXDG rules. It is clear from the rules that the Company must review a proposed modification first and determine that it is material *before* requiring an applicant to submit a new application.

III. REBUTTAL OF WITNESS MATTHEWS

Q. What does witness Matthews indicate regarding the Company's concerns related to limited-export systems?

A. Witness Matthews simply describes the Company's concerns with export limitation using power control systems ("PCS"), including its concerns that a customer or installer might "tamper" with the settings on an inverter in violation of an Interconnection Agreement.[6] Witness Matthews does not question or rebut these arguments from the Company.

Q. What does witness Matthews recommend regarding limited-export systems?

A. Witness Matthews states that:

> Given DTE's concerns with the use of PCS and inverter-based control, Staff recommends DTE continue to investigate export limiting using the PCS controls in new inverters. Several of the areas DTE described as a concern could be explored by DTE through piloting some of the use cases to enable DTE to gain experience using the functions of the inverters. Additionally, DTE points out that California Rule 21 includes a 2 second cut off for inadvertent export. California has made a public list of inverters capable of ceasing export in under 2 seconds. Staff recommends DTE investigate allowing inverters capable of ceasing operations in under 2 seconds to be

[6] Direct Testimony of Cody S. Matthews on behalf of Michigan Public Service Commission Staff ("Matthews Direct"), Case No. U-21482, pp. 7–8.

> allowed for use in export limiting operations. Staff understands DTE's apprehension to allowing inverters without doing its own testing, and for that reason Staff recommends DTE continue to investigate inverters and inverter technologies and develop an approved list that meets DTE's testing standards, and that DTE has become comfortable using. This would benefit the Company in that it would be given the time to perform tests and become comfortable with the technology and would give customers and developers a list of inverters that can easily be used for the purposes of export limiting.[7]

Q. Do you agree with this proposal?

A. No, I disagree with this proposal for several reasons. First, for the reasons outlined in my direct testimony,[8] I believe that the Company's stated concerns with respect to limited-export systems are inaccurate, overstated, and illogical. In addition, as described in detail by witness Lee Shaver on behalf of the Clean Energy Organizations, witness Mueller's concerns regarding inverter standards and testing are misguided.[9] Broadly, inverter technology is not new. Utilities around the country commonly interconnect distributed energy resources ("DERs") using the inverters the Company claims to be "apprehensive" about. The Company has offered no reason to believe that its facilities are somehow unique or more fragile than the facilities of other utilities. It is clear from both my direct testimony and that of witness Shaver, that witness Matthews' acceptance of the Company's concerns about the use of PCS and inverter-controls is misplaced.

Second, as explained in detail by witness Shaver, there are strong national testing standards that certified inverters must adhere to under the MIXDG rules.[10] There is no reason to

[7] Matthews Direct, pp. 8–9.

[8] Direct Testimony of Dr. Laura S. Sherman on behalf of MEIU ("Sherman Direct"), Case No. U-21482, pp. 16–22.

[9] Direct Testimony of Lee Shaver on behalf of the Clean Energy Organizations, Case No. U-21482, pp. 40–49.

[10] *Ibid.*

stymie the growth of DERs simply because the Company claims to be "apprehensive" about accepting proven inverter testing standards. In addition to the fact that the Company's claims are inaccurate and overstated, the MIXDG rules rely on these national standards, as do other Michigan utilities (in compliance with the rules), and there is no reason that the Company should not be required by the Commission to do the same.

Third, I am not certain that the Company has the internal expertise to act as a certified testing institution for inverters. This seems that it would be a complicated process best left to the experts who create national standards and certification processes. In addition, it may be an expensive process that would result in unnecessary additional costs for ratepayers or interconnection applicants.

Finally, this proposal could allow the Company to delay or deny countless interconnection applications for years under the pretense that it is conducting tests to determine which inverters to allow. This is neither warranted nor reasonable and is not in the public interest.

Q. What does witness Matthews state about a customer's ability to import and export electricity from a customer-sited battery?

A. Witness Matthews argues that a customer may want to be able to import power from the grid to store in a battery in the case of impending bad weather (and expectation of an outage) while still being able to export power to the grid.[11] He goes on to acknowledge that the Company is concerned that a customer could take advantage of the Company's time-

[11] Matthews Direct, pp. 10–11.

of-use rates to gain financially from the ability to import and export grid power to and from a battery.[12] Given this, witness Matthews concludes that customers should be allowed to import energy from the grid to a battery and export from the battery to the grid, but "only if customers are on rates that would not result in a net monetary benefit to the customer through charging and discharging."[13]

Q. What is missing from these arguments?

A. Witness Matthews misses a key point that I describe in my direct testimony. There are two basic ways that a solar plus storage system could be configured – (1) the solar and storage systems could each have their own inverter and, therefore, each be able to independently send power to the grid; or (2) the solar and storage systems could each provide power through one hybrid inverter which then sends power back to the grid. As detailed in my direct testimony, the Company's "Acceptable Storage Device Modes" only allow a storage system to import power from the grid or not exchange power with the grid at all.[14] It does not appear to me, from the plain reading of the Company's proposed interconnection standards, that the Company provides an option for customers to discharge *any* power back to the grid from a storage device if the customer is enrolled in the DG or legacy net metering programs. It seems that this assumes that all solar plus storage systems are configured according to the first option described above, whereby a customer could still export on-site generated renewable power through the solar inverter and adhere to the Company's

[12] *Ibid.*

[13] *Ibid.*, p. 11.

[14] Sherman Direct, p. 29.

proposed "Acceptable Storage Device Modes." However, as outlined in my direct testimony,[15] under the Company's proposed interconnection procedures, a customer with a single hybrid inverter would be unable to export renewable power to the grid through their inverter because that would also mean exporting power from the battery.

Q. Witness Matthews argues that a customer might want to import electricity from the grid to prepare for a potential outage. Do you agree?

A. I agree that this is one reason a customer may want to import electricity from the grid. However, it is important, as detailed in my direct testimony,[16] to recognize the value to the grid that customer-sited batteries provide. Through future utility programs or Regional Transmission Organization ("RTO") programs implemented under Federal Energy Regulatory Commission ("FERC") Order 2222, customers may be compensated for the provision of power to the grid from behind-the-meter batteries when it is needed and beneficial.

Q. Do you agree with witness Matthews that customers should only be able to import energy from the grid to a battery and export from the battery to the grid if the customer is on a rate that does not result in a net monetary benefit to the customer through charging and discharging?

A. No. First, most (if not all) of the Company's residential customers are now on time-of-use rates. Although Staff does not detail which of these rates could be utilized to result in a net

[15] *Id.*, pp. 28–31.

[16] *Id.*, pp. 30–31.

monetary benefit, I would be concerned that the limitation proposed by witness Matthews might mean that a limited number of residential customers could participate. In addition, time-of-use rates are designed to more accurately equate the cost of electricity with the cost of producing that electricity on an hourly basis. Given this, to the extent that allowing customers with battery storage to engage in this rate arbitrage incentivizes the installation of behind-the-meter storage, this will benefit the grid by creating a source of low-cost capacity at times when it is most needed.

Second, given that the RTOs will be implementing FERC Order 2222 in the coming years, and that efforts are underway in Michigan to enable aggregation of customer-sited battery storage systems to benefit the grid,[17] it would be short-sighted and ultimately harmful to only allow import and export if customers can gain no net monetary benefit. If customers invest in battery storage systems which can then be used to benefit the grid, decreasing the need for other costly utility investments, those customers should be able to participate in future programs and be credited for the benefits they provide to the grid and the utility.

Q. What does witness Matthews argue about eligibility for the DG program?

A. Witness Matthews states that

> Currently, if the customer does not ensure proper export limiting or configure the system in a way to ensure no export to the grid, the Company will combine the total generation of renewable system (most likely solar) with the total capacity of a storage system to study the interconnection application and to calculate the kWh output used to determine whether the project exceeds 110% of the customer's previous 12 months usage. While Staff understands the Company's concern with the safety of a system as far as the kWhs that could potentially outflow, Staff does not believe this

[17] *See* Michigan House Bill 4839 and Senate Bill 773.

calculation is necessary when determining the approved customer size limits for participating in the DG program.[18]

Q. Do you agree?

A. Yes and no. I agree with witness Matthews that there is absolutely no basis for the Company to aggregate solar and storage capacity to determine eligibility for the DG program. As witness Matthews correctly points out, according to statute, a customer is allowed to participate in the DG program with a "*generation capacity* designed to meet up to 110% of the customer's electricity consumption for the previous 12 months."[19] Because battery storage is not capable of generating electricity, only the capacity of the customer's DG system (which is typically solar) should be included in the determination of the size limit for DG program eligibility. As detailed in the affidavit from Mark Dorogi of Homeland Solar (Exhibit MEIU-6 (LSS-6)), the Company is misinterpreting statute and aggregating solar and storage system capacity to determine DG program eligibility. The Company must correct this misinterpretation.

However, as detailed below, I do not generally agree with witness Matthews that it is otherwise always generally acceptable for the Company to aggregate solar and storage capacity, and I am concerned with the manner in which the Company is doing this calculation in some cases.

[18] Matthews Direct, pp. 11–12.

[19] Section 173(2) of Public Act 235 of 2023; MCL 460.1173(2) (emphasis added).

Q. Please explain your concerns in more detail.

A. As I mentioned above, there are two basic ways that a solar plus storage system could be configured – (1) the solar and storage systems could each have their own inverter with each able to independently send power to the grid; or (2) the solar and storage systems could each provide power through one hybrid inverter back to the grid. In the first case, for the purposes of determining the size of the project (i.e., the level) and for study purposes (but not, as described above, for DG program eligibility), it would likely be acceptable for the Company to aggregate the export capacity from both inverters, taking into account any export limits. As described in my direct testimony,[20] it is critical that the Company accept reasonable methods to limit export through these inverters and, as required by the MIXDG rules, determine project size as the export limited capacity.

However, in the second case, where the solar and storage systems both send power to the grid through a single inverter, the export to the grid is limited by that inverter and, in this case, it is not reasonable to aggregate the capacity of the solar and storage systems together for the purposes of determining the size of the project or for study purposes. Instead, the capacity should be determined by the inverter, including consideration of any reasonable export limiting methods as required by the MIXDG rules.

As detailed in an affidavit from John Jevahirian, Vice President of Operations for Michigan Solar Solutions (Exhibit MEIU-7 (LSS-7)), in at least some cases, the Company is aggregating solar and storage capacity to determine project size when both the solar and

[20] Sherman Direct, pp. 16–23.

storage system operate through a single hybrid inverter. This is concerning for a number of reasons. At the most basic level, at least in the case described by Mr. Jevahirian, the Company appears to be adding together solar capacity in kW and storage capacity in kWh directly without appropriate unit conversions. More importantly, because this system is limited by a single hybrid inverter, there is no reason to aggregate the solar and storage systems together. As described by Mr. Jevahirian, the implications of this inaccurate and incorrect methodology are multiple and significant. In the example he describes, requiring a project to move from level 2 to level 3 introduces a number of new and more onerous requirements including those related to long-term insurance, data gathering, and site control.

Q. What do you recommend with respect to the aggregation of solar and storage system capacities?

A. First, unless a customer has two inverters (i.e., one for the solar system and one for the storage system), the Company should not aggregate the capacity of the solar and storage system together for any purpose. Second, in no case should the capacity of a storage system be aggregated with solar capacity to determine eligibility for the DG program, which is based on generation alone. Third, if a customer does have two inverters, the Company can aggregate the limited-export solar and storage system capacities using an appropriate calculation (i.e., the limited-export capacity added with the same units), but not for the purposes of determining DG program eligibility.

Q. What does witness Matthews recommend with respect to the Company's proposed formula for determining expected generation?

A. Witness Matthews recommends that the Company consider panel orientation and shading by permanent structures in its calculation of expected generation from a DG system.[21]

Q. Do you agree?

A. Yes and no. I agree that the Company should consider panel orientation when determining expected generation. It is well-documented that the orientation of solar panels on a sloped roof has a significant impact on electricity generation, with a south-facing slope producing the greatest amount of electricity in the northern hemisphere. For example, according to a report by the National Renewable Energy Laboratory, orienting solar panels to the north, west, or east will result in an approximately 16% to 23% decrease in electricity production relative to a south-facing system.[22] Given this, to generate the same amount of electricity, if a customer is unable to place a system on a south-facing slope, the customer will need to (and should be allowed to) install a larger system.

I also agree with witness Matthews that the Company should consider shading when calculating expected generation. However, I disagree that the Company should only consider shading by permanent structures. In my personal experience, in many suburban neighborhoods in Michigan, many rooftops are shaded not by other buildings (which might be considered to be "permanent"), but by large trees. These trees are often hundreds of

[21] Matthews Direct, pp. 13–14.

[22] Watson, A., et al., *Solar Ready: An Overview of Implementation Practices*, National Renewable Energy Laboratory, January 2012, available at https://www.nrel.gov/docs/fy12osti/51296.pdf.

years old and may be just as "permanent" as a nearby building. As such, I would argue that the Company should consider shading generally, and not just from permanent structures, in determining expected generation.

Q. What changes does the Company propose with respect to fees?

A. The Company proposes a number of changes with respect to fees, alleging it needs to do so to cover its expected actual costs. These changes include:

- The first change is a higher supplemental study fee from $1,000 to $2,500 for certified projects and $5,000 for non-certified projects.
- The second change is to reduce the study fee maximum for level 3 and 4 projects to $5000 from $10,000 and to not require both a system impact study and facilities study fee. This request effectively reduces the study fee maximum by over $15,000 for projects that are between 150kW and 1 MW.
- The third change is increasing the base study track fee for a level 5 project to $15,000 from $10,000.
- The final change is to include a list of additional Studies that are only applied when needed.[23]

Q. What does witness Matthews recommend regarding the Company's requested study fee waiver?

A. Witness Matthews states that

> Staff supports a 2-year temporary waiver. In the interim, Staff would like to have the option to review the actual costs for each of these items should these costs arise. Staff supports the option for DTE to re-request this waiver upon expiration of the 2-year temporary waiver based on this review.[24]

[23] Mueller Direct, pp. 54–55.

[24] Matthews Direct, p. 15.

Q. Do you agree with this recommendation?

A. No. I am concerned that the Company does not believe it can conduct interconnection studies, especially for larger projects, within the limits set in the MIXDG rules for the initial fee caps. Specifically, for level 5 projects, the Company proposes to increase the base fee from $10,000 to $15,000 and then adds a list of additional studies and associated fees that the Company may require. These range from $100 for a "reinspection fee" up to $40,000 for a "transmission congestion and losses study."[25] These are significant proposed fees and would be up to the Company's discretion without any limits under witness Matthews' proposal. Moreover, if the Company's proposed fee waivers are approved, Staff's proposed "option" to review the actual costs, does not provide Staff with any leverage or process to require the Company to make changes to reduce costs in the case that Staff determines those costs to be unreasonable.

Q. Do you have other concerns with the proposed fee waivers?

A. Yes. I am also concerned by the paucity of support the Company offers for increasing fees above the initial fee caps set forth in the MIXDG rules (R 460.926).[26] It is broadly true, as described by witness Mueller, that absent cost allocation reform such as that proposed in my direct testimony,[27] an interconnection customer is expected to pay the "actual cost of the interconnection facilities and distribution upgrades."[28] However, the Commission

[25] Mueller Direct, Exhibit A-2, Appendix B, p. 51.

[26] MIXDG rules, R 460.926, "Fees."

[27] Sherman Direct, pp. 47–59.

[28] MIXDG rules, R 460.964, "Interconnection agreement."

established initial fee caps for study track projects[29] based on a careful review and with significant stakeholder input. Given this, the Company must provide strong evidence to justify an increase in its costs above these initial fee caps. However, to justify the amounts proposed in DTE's interconnection procedures, Mr. Mueller relies on citations to the distributed generation statute (MCL 460.1175) and MIXDG rules,[30] prior requests for waivers,[31] and a Request for Proposals conducted in 2019 and updated in 2021 and 2022, which "informed the costs to perform base studies and more advanced studies."[32] None of Mr. Mueller's discussion includes any data and in no way demonstrates that the fee caps the Company proposes are reasonable and justified. The Company would simply have the Commission and parties accept that its proposed fees and caps are reasonable without offering any actual evidence.

Unfortunately, there is no reason for the Company to limit or contain study costs given that these are simply pass through costs paid by interconnection applicants to outside vendors. If these costs render a project non-economical or cause harm to an interconnection applicant, there are no consequences for the Company. Instead, the Commission must keep the interconnection customer's best interests in mind and not allow the Company to require additional studies at unreasonable costs.

[29] MIXDG rules, R 460.926, "Fees."

[30] Mueller Direct, p. 55.

[31] *Ibid*., p. 58.

[32] *Ibid*.

Q. What do you recommend the Commission decide regarding the Company's proposed fee waivers?

A. I recommend that the Commission approve the Company's proposal to reduce costs for level 3 and level 4 applicants by reducing the maximum study fee to $5,000 and not requiring both a system impact study and facilities study fee.

However, with respect to the other proposed fee waivers (which amount to an increase in the proposed fees and fee caps), instead of adopting witness Matthews' proposal to accept the Company's fee waivers with optional review by Commission Staff, I recommend that the Commission reject the Company's proposed fee waivers and instead maintain the initial fee caps set forth in R 460.926. Maintaining the amounts set forth in R 460.926 will also incentivize the Company to reduce or contain costs for interconnection customers. If the Company reasonably expects to incur greater costs in the evaluation of a specific application, it can file for a waiver (see R 460.926(5)). Any such waiver request must be accompanied by evidence of actual costs.

To track future costs and assess any future proposed fee cap waiver, I recommend that the Company be required to report to the Commission in its annual interconnection reports the detailed, actual costs for each study undertaken as part of an interconnection application. The Commission Staff needs consistent, detailed information to enable the Commission to make informed future decisions about study fees and proposed fee waivers.

Q. Does this conclude your rebuttal testimony?

A. Yes.

4856-8328-5740, v. 4

STATE OF MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION

*****

In the matter of the Application of **DTE ELECTRIC COMPANY** for approval of Interconnection Procedures and Waivers from Interconnection and Distributed Generation Standards R 460.901a et. seq.	))))))	**Case No. U-21482**

REBUTTAL EXHIBITS OF DR. LAURA S. SHERMAN

ON BEHALF OF

THE MICHIGAN ENERGY INNOVATION BUSINESS COUNCIL,

INSTITUTE FOR ENERGY INNOVATION,

AND

ADVANCED ENERGY UNITED

STATE OF MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION

*****

In the matter of the Application of **DTE ELECTRIC COMPANY** for approval of Interconnection Procedures and Waivers from Interconnection and Distributed Generation Standards R 460.901a et. seq.	)	**Case No. U-21482**

AFFIDAVIT OF MARK DOROGI

State of Michigan)
) SS
County of Washtenaw)

I, Mark Dorogi, first being duly sworn, do hereby depose and state that if called as a witness to testify, I have personal knowledge of and am able to testify to the following:

1. I am co-owner and Chief Operating Officer for Homeland Solar.
2. Homeland Solar is a Michigan-based small business which designs, installs, and services solar electric systems and energy storage systems for residential, commercial, faith-based, and municipal customers throughout Southeast Michigan.
3. In my role at Homeland Solar, I oversee all operations, including engineering, interconnection, field installation, and accounting, and I ensure that our customers are satisfied.
4. I earned a Professional Master of Engineering degree in Applied and Engineering Physics from Cornell University. I worked for 18 years at Philips Electronics where I began as an engineer and rose to group leader overseeing a department tasked with design of advanced displays. After leaving Philips, I taught as an adjunct Professor of

Physics at Kettering University. In 2007 I started working in the R&D department of a thin-film solar manufacturer where I was responsible for improving solar cell and module efficiency as well as for implementing changes on the production line. Following that I founded Homeland Solar along with my partner Dave Friedrichs and have been instrumental in growing Homeland Solar to the successful company that it is today.

5. In my role at Homeland Solar, I have overseen hundreds of interconnection applications, including Category 1, 2, and, more recently, Category 3 projects. My technical training in the field helps me to understand the fine points of how decisions are made in the interconnection process and how the rules and regulations need to be applied in order to meet the customers' needs and the law.

6. Recently, for single-inverter DC-coupled solar systems with storage, DTE Electric Company ("DTE" or the "Company") has begun considering the storage as a generating asset and adds together storage power capacity in kW DC along with solar system rated power in kW DC to arrive at a meaningless total system power capacity. This total amount is then used to limit a customer's system size eligibility for the distributed generation program, due to the battery capacity supplementing solar capacity. In addition, for many of these solar plus storage systems, DTE also limits the inverter size, which results in customers' being forced to install smaller inverters than they otherwise would be able to. Future system upgrades as customers electrify then result in additional expense as the undersized inverters must be replaced.

7. Specifically, our application for a specific customer in Ann Arbor, Michigan, has been repeatedly denied by DTE. This customer has a very low load of 3,262 kWh annually

and would normally be eligible for a solar system sized according to the customer's preference (eight 400 W panels for a total nameplate capacity of 3.2 kW DC). This solar system could be paired with an inverter rated to 7.6 kW AC, allowing for future upgradability, since the inverter will never output more than the solar array's DC capacity. However, the customer would like to install two batteries (capable of an aggregate 10 kW power output) for resilience during outages. According to my correspondence with DTE, the Company is adding these 10 kW batteries to the 3.2 kW solar array and stating that the customer is not eligible for the distributed generation program without an inverter rated to 3.3 kW AC. There are no inverters available at that rating.

8. DTE's methods limit the amount of solar and storage that a customer is eligible for under Michigan statute; namely, that a customer is allowed to generate 110% of their recent 12-month load.[1] The case is most apparent for customers with low load, as simply adding storage results in the system being rejected, depriving the customer of their rights under PA 235.

Further Affiant sayeth not.

[*signature page follows*]

[1] MCL 460.1173(2).

Mark Dorogi

Name: Mark Dorogi

Title: Chief Operating Officer

Company: Homeland Solar

Subscribed and sworn to before me this 4th day of October, 2024.

Jakob Parker Edson

Jakob Parker Edson, Notary Public
Washtenaw County, State of Michigan
My Commission Expires: July 23rd 2030

STATE OF MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION

*****

In the matter of the Application of **DTE ELECTRIC COMPANY** for approval of Interconnection Procedures and Waivers from Interconnection and Distributed Generation Standards R 460.901a et. seq.	))))))	**Case No. U-21482**

AFFIDAVIT OF JOHN JEVAHIRIAN

State of Michigan)
) SS
County of Oakland)

I, John Jevahirian, first being duly sworn, do hereby depose and state that if called as a witness to testify, I have personal knowledge of and am able to testify to the following:

1. I am the Vice President of Operations for Michigan Solar Solutions ("MSS").
2. MSS is a Michigan-based small business which designs, sells, services and installs solar electric systems, energy storage systems, and electric vehicle chargers for residential and commercial customers.
3. In my role at MSS, I oversee all operations staff and processes that prepare us to fulfill on our contractual obligations. Specifically, I oversee marketing, sales, processing, engineering, interconnection, permitting, purchasing, warehouse and service staff. I have facilitated over 400 interconnections over the duration of my employment at MSS, while our company has facilitated nearly 2,000 since we opened in 2007. In my role, I am also responsible to interpret new market opportunities and advocate for our business's needs and challenges.

4. I have been working at MSS since 2018 shortly after my graduation from Xavier University with a degree in Sustainability, Economics and Management from the Williams College of Business. Shortly after joining MSS, I sought my North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic Associate (PVA) certification. One year later, I tested for the more prestigious NABCEP Installer Professional (PVIP) certification and have been accredited through NABCEP since 2021.

5. Starting in 2018, I began personally submitting interconnection applications to DTE Electric Company ("DTE"), Consumers Energy, and other state utilities. From 2018-2020, I personally facilitated over 100 residential (Level 1 <20kW AC) interconnections as the primary point of contact and representative of the customers' bests interests. Since 2020, I have overseen over 300 commercial and residential interconnections, many of which include battery storage. I have worked on Level 1, 2 and 3 interconnections, and I have been the catalyst for multiple meetings with the utility facilitated by Michigan Public Service Commission ("Commission") Staff to sort through issues and disagreements arising out of specific interconnection applications.

6. I am currently in the process of trying to advance an interconnection application with DTE for a customer with a 130 kW solar system and a 200 kWh battery energy storage system. This solar plus storage system is configured to export electricity to the grid through two 60 kW rated inverters, for an aggregate export rating of 120 kW.

7. In the course of my correspondence with DTE, the Company has stated that the system will be required to apply for an interconnection application at Level 3 (150kW to 550kW) despite the fact that the system is export-limited by a 120kW AC rated inverter.

It is my understanding that the Company is incorrectly adding 130 kW (of solar capacity) to 200 *kWh* (of storage capacity) and determining that the project is >150kW in capacity.

8. Specifically, on 9/16/24, DTE denied the Level 2 application stating:

> In the application due to your aggregate System Inverter Nameplate Rating being over 150 kW. Your system becomes a level 3 project and should reflect that in the application.

I sent the denial to Commission Staff and described my concern. MSS did not resubmit the application at that time.

9. In this instance, the inverter, a 60kW 480v three phase SolArk hybrid inverter, has UL 1741 CRD-PCS certification. However, this certification is not critical for export limiting purposes because the configuration of the solar and storage project natively limits export to the maximum output of the inverter's nameplate rating.

10. If this project were to be treated as a Level 3 interconnection, additional time and resources would burden the project's trajectory. The most glaring of these would be the requirement of the project to maintain project insurance for the duration of the asset's life, which could be 30 years or greater. In addition, the applicant would be required to gather local utility owned equipment ratings and impedance values and provide proposed system harmonics data.

11. Luckily for this customer, it appears that my advocacy with Commission Staff resulted in DTE changing their position. Without any changes from me, the customer, or MSS, on 9/26/24 the application was approved as a Level 2 project by DTE. This does not mean that this issue does not remain a broad problem – instead it highlights the need to address this issue across the board to ensure that other projects do not face these same unreasonable issues.

Further Affiant sayeth not.

Name: John Jevahirian

Title: Vice President of Operations

Company: Michigan Solar Solutions

Subscribed and sworn to before me this 04 day of October, 2024.

_____, Notary Public
Oakland County, State of Michigan
My Commission Expires: 01 Aug 2029

ANDREA PAULE
Notary Public, State of Michigan
County of Oakland
Commission Expires Aug. 1, 2029
Acting in the County of Oakland

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

*****

In the matter of the Application of	)	
DTE ELECTRIC COMPANY	)	
for approval of Interconnection Procedures	)	**Case No. U-21482**
and Waivers from Interconnection and	)	
Distributed Generation Standards R 460.901a et. seq.	)	

PROOF OF SERVICE

STATE OF SOUTH CAROLINA)
) ss.
COUNTY OF BERKELEY)

Summer R. Dukes, the undersigned, being first duly sworn, deposes and says that she is a Paralegal at Potomac Law Group PLLC and that on the 7th day of October, 2024 she served a copy of the Rebuttal Testimony and Exhibits of Dr. Laura S. Sherman on behalf of the Michigan Energy Innovation Business Council, the Institute for Energy Innovation and Advanced Energy United's, upon those individuals listed on the attached Service List via email.

Summer Dukes Digitally signed by Summer Dukes
Date: 2024.10.07 16:42:23 -04'00'

Summer R. Dukes

Administrative Law Judge Honorable Katherine Talbot talbotk@michigan.gov **DTE Electric Company** John P. Christinidis Jon.christinidis@dteenergy.com **Environmental Law & Policy Center** **The Ecology Center** **Union of Concerned Scientists** **Vote Solar** Nicholas Wallace nwallace@elpc.org mpscdocket@elpc.org	**MPSC Staff** Anna B. Stirling Lori Mayabb Stirlinga1@michigan.gov mayabbl@michigan.gov **Michigan Energy Innovation Business Council** **Institute for Energy Innovation** **Advanced Energy United** **Energy Michigan, Inc.** Laura A. Chappelle Timothy J. Lundgren Justin K. Ooms lchappelle@potomaclaw.com tlundgren@potomaclaw.com jooms@potomaclaw.com