Indiana Michigan Power Company
State of Michigan
Distributed Energy Resources Interconnection Procedures

Supersedes: Rev. 1

Description: Michigan Compliant AEP DER Interconnection Procedures

Document Control

Revision History

Revision Number	Description of Change(s)	Effective Date	Reviewed By	Approved By
Rev. 0	Original Document			
Rev. 1	Updates for Refiling made in U-21647	March 22, 2024		
Rev 2	Significant revisions to create customized MI document including incorporated Staff feedback, incorporated Staff Comments and consultation feedback.	Upon approval/consent to proceed		

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1.0 Purpose

The purpose of this Procedures document is to describe the steps necessary for the interconnection of Distributed Energy Resources (DER) to the Indiana Michigan Power Company (I&M or Company) Distribution System "I&M System" in the state of Michigan. These procedures provide specific information about how the Company reviews Interconnection Service Requests ("application" within this document) during the interconnection process. I&M is an American Electric Power (AEP) operating company. As such, AEP's central team and I&M partner with applicants and customers to mitigate issues and ensure that state of Michigan specific rules and AEP Standards and Policies are adhered to.

The purpose of the DER interconnection process is to determine if the proposed DER will be compatible with the I&M grid at the proposed Point of Connection (PoC). If the review determines that the DER interconnection would cause any negative impacts on I&M's grid, those impacts will be identified and described. In most cases effective mitigation involving changes to the DER's operating profile, location of interconnection, or a combination of system upgrades and necessary Interconnection Facilities can be installed to ensure the safe and reliable operation of the DER. Upon mutual agreement between the Customer and I&M regarding the mitigation, and execution of a DER interconnection agreement, the interconnection can proceed. This document describes the steps subsequent to executing the interconnection agreement which are needed to construct, verify, commission, and put into service authorized DER Facilities with the appropriate metering.

The specific rules for the interconnection of DERs in the state of Michigan are on record at the Department of Licensing and Regulatory Affairs, Public Service Commission Interconnection and Distributed Generation Standards, filed with the secretary of State on April 25th, 2023. ARS Public - RFR Transaction. Per Michigan Administrative Code, Rule 460.920(5)(r) I&M's designated holidays are: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day after Thanksgiving, Christmas Eve and Christmas Day.

These procedures for the interconnection of DERs to I&M's grid in the state of Michigan are available at https://www.indianamichiganpower.com/business/builders/createGreen-MI. Links to other referenced items can be found in Section 3.0 of this document.

2.0 Scope

This procedures document details the way to request interconnection of DER to the I&M Distribution Grid in the state of Michigan. It provides a description of the Company's interconnection process, referencing other pertinent AEP standards and policies as well as the DER Interconnection rules as approved by the Michigan Public Service Commission (MPSC). This document describes the responsibilities of Applicants, Customers, and the Company as they relate to the submission, review, and approval of an Interconnection Service Request (Customer's application), the execution of an interconnection agreement, and the process by which DER Facilities and Interconnection Equipment are constructed, commissioned and put into service. This document

also describes the process by which customers may request modifications to pending Interconnection Service Requests or existing DER Facilities, and how a Customer's application may be evaluated based upon DER Facility type, operation, capability, size, customer segment, and/or service connection.

To simplify the reading of this document it does not restate the MI rules in each subsection. You can find the governing duration limits organized by step in Section 6, Appendix B. This document does not address the fees for the interconnection process. The current approved fees will be detailed in the latest MI Fee Schedule and Cost Allocation posted at the Company's website. Lastly, Material Modifications are addressed in section 5.12 rather than spread throughout each microstep where such changes could occur to the DER design or Operating Profile.

For further information on utility requirements and available tariffs covering the use of DERs please contact:

Indiana Michigan Power Company
Attn: Interconnection Coordinator
P.O. Box 60
Fort Wayne, IN 46801
Phone: 260-408-3402
Email: dgcoordinator_im@aep.com

2.1 Applicability

This document is applicable to any DER device in Michigan which is capable of operating in parallel to the I&M grid and/or exporting power as defined in the AEP Technical Interconnection and Interoperability Requirements (TIIR). AEP's TIIR can be found at the link below in Section 3.0.

The range of nominal Area EPS voltages present across the I&M system are defined as required by R 460.920(5)(c). For purposes of the state of Michigan's interconnection rules, the low voltage distribution range covers all voltages up to 25 kV, and the high voltage range covers all voltages at or above 25 kV.

I&M reserves the right to review DER equipment and transfer schemes to determine whether all or part of a DER system has Parallel Operation capabilities. Systems deemed capable of Parallel Operation will be subject to these procedures and AEP's TIIR.

This document does not address all other issues a DER applicant/customer will need to consider when planning to install a DER, such as the financial costs or benefits, the terms and conditions relating to any purchase or sale of electric energy, environmental permitting, local ordinances, and fuel supply. Customers need to select the applicable I&M tariff approved by the MPSC. Interconnection with I&M's grid does not provide a customer any rights to utilize the grid for the transmission, distribution or wheeling of electric power, nor does it limit those rights.

This document does not cover self-protection of the DER, protection of Customer property or persons, nor all operating requirements for the DER. I&M's review and authorization for Parallel Operation shall not be

construed as confirming or endorsing the DER design or as warranting the DER Facility's safety, durability or reliability. I&M shall not, by reason of such review or lack of review, be responsible for the strength, adequacy or capacity of such equipment.

The rules defining the state of Michigan interconnection of DERs to the I&M's grid are governed by the Department of Licensing and Regulatory Affairs Public Service Commission, ARS Public - RFR Transaction.

Interconnection and Distributed Generation Standards

Special Note for I&M customers taking high-voltage service on an MPSC-approved tariff:

As a retail customer of the utility, this document applies to any behind-the-meter generating or storage device which may backfeed or export to the Company's grid. Note that the high-voltage lines that serve you are operated by the PJM Regional Transmission Organization and Independent System Operator. As such, your DER interconnection may also be subject to the AEP Transmission Interconnection Requirements (TransIR) and other procedural and technical requirements of PJM. The link to the TransIR is available in Section 3.0 References. It is the Customer's responsibility to meet all applicable rules and requirements when seeking to connect a distributed generation or storage device that can be operated in parallel to I&M's grid.

For customers seeking to participate in a wholesale market via PJM, regardless of the interconnected voltage class, any agreements between the customer and the RTO must be completed in writing and in accordance with PJM interconnection requirements posted on the respective website.

3.0 References

Reference ID	Reference Title
MPSC DER Rules	ARS Public - RFR Transaction
I&M DER Web Page	https://www.indianamichiganpower.com/business/builders/createGreen-MI
TIIR	American Electric Power's Technical Interconnection and Interoperability Requirements for distributed energy resources connecting to the distribution grid can be located at: https://www.aep.com/requiredpostings/aeptransmissionstudies/der-tiir/
Fee Matrix/ Cost Allocation	MI Fee Schedule and Cost Allocation: Michigan CreateGreen
Application System	DER Application Processing System (https://aep.powerclerk.com)
AEP TranIR	AEP Transmission's Technical Connection Requirements (https://www.aep.com/requiredpostings/AEPTransmissionStudies)

4.0 Terms and Definitions

Definitions as used in these procedures for the interconnection of DERs are provided in the AEP TIIR and in accordance with R 460.901a and R 460.901b. If terms share a definition, these procedures will utilize the terminology referenced in the AEP TIIR. Below are terms with shared definitions.

Term	Abbreviation	Definition
Applicant		The entity applying for a new or materially modified DER interconnection on behalf of the electric customer. May also be the Application Agent as referenced in the MI Rules.
Customer		The person or entity, with a service account with I&M and with a DER as approved under the applicable tariff or other special contract, responsible for ensuring a DER is operated and maintained in compliance with all local, state, and federal laws, as well as with all rules, standards, and interconnection procedures and requirements for their DER system.
DER Facility		The Customer-owned DER equipment and all associated or ancillary equipment, including interconnection equipment, on the Customer's side of the Point of Common Coupling.
DER Unit		An individual DER device inside a group of DERs that collectively form a system.
Distributed Energy Resource	**DER**	A source of electric power that is not directly connected to the bulk power system. DER includes both generators and energy storage facilities operating in parallel to the distribution system and capable of exporting active power to an electric power system (aka "grid"). An interconnection system or a supplemental DER device that is necessary for compliance with *IEEE Std 1547™-2018* is part of a DER.
I&M's grid		The structures, equipment, and facilities owned and operated by I&M to deliver electricity to end users.
Interconnection Agreement	**IA**	A contract between I&M and one or more parties that outlines and governs the interconnection requirements of a generation facility. See also R 460.901a(rr).
Interconnection Facilities		The equipment necessary to safely interconnect the DER Facility to the Company's power delivery system. This includes all relaying, interrupting devices, metering, or communication equipment needed to protect the DER Facility and I&M's power delivery system and to control for safe operation of the DER Facility in parallel.
Interconnection Levels		• Level 1 – certified project 20 kWac or less • Level 2 – certified project more than 20 kWac and not more than 150 kWac • Level 3 – not certified projects 150 kWac or less, or a project more than 150 kWac and not more than 550 kWac • Level 4 – project more than 550 kWac and not more than 1 MWac • Level 5 – project more than 1 MWac
Interconnection Service Request	**Application**	An interconnection application, a legacy net metering program application, or a distributed generation program application. Interconnection Service Requests are submitted through the online portal.

Material Modification		A change to the equipment settings, equipment configuration, or interconnection site of the DER Facility that has a material impact on the cost, timing, or design of any customer interconnection facilities or upgrades, or that may adversely impact other interdependent Interconnection Service Requests. Material Modification is further defined in TIIR Section 1.4.
Nameplate Capacity		The sum total of maximum rated power output of all of a DER's constituent generating units and/or energy storage as identified on the manufacturer nameplate, regardless of whether its production/export is going to be limited by any approved means.
Nameplate Rating		The normal maximum operating rating applied to a piece of electrical equipment. This can include kW, kVA, Volts, Amps, or any other specific item specification for the equipment. For DERs: This means the sum total of maximum rated power output of all a DER's constituent generating units and energy storage units as identified on the manufacturer nameplate, regardless of whether it is limited by any approved means.
Operating Profile		The manner in which the distributed energy resource is designed to be operated, based on the generating prime mover, operating schedule, and the managed variation in output power or charging behavior. The Operating Profile includes any limitations set on power imported or exported at the Point of Common Coupling and the resource characteristics, e.g., solar output profile or Energy Storage System operation.
Point of Common Coupling	**PCC**	The point of connection between the Area EPS and the Local EPS, equivalent, in most cases, to "service point" as specified in the National Electric Code® (NEC®) and the National Electric Safety Code® (NESC®) (Reference *TIIR* Appendix B and IEEE Std 1547™-2018 *Figure 2*).
Point of Connection	**PoC**	Also known as point of DER connection, the point where a DER Unit is electrically connected to a Local Electric Power System ("Local EPS"; exists on the customer side of the utility meter) and meets the requirements of *IEEE Std 1547™-2018* exclusive of any load present in the respective part of the Local EPS (Reference TIIR Appendix B and *IEEE Std 1547™-2018*, Figure 2).
Power Control System		Systems or devices that electronically limit or control steady state currents to a programmable limit
Technical Interconnection and Interoperability Requirements	**TIIR**	The DER Technical Interconnection and Interoperability Requirements for the AEP Distribution System, including I&M's grid.

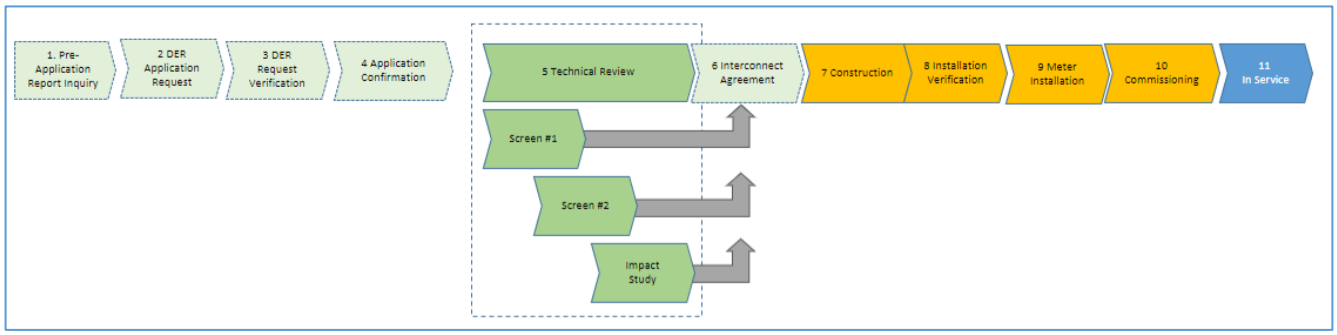
5.0 DER Interconnection Procedures

I&M uses a central online portal for accepting and managing all DER Interconnection Service Requests (application). All Customer applications must be submitted electronically through the AEP DER Application Processing System (Application System) for consideration. A link to the Application System can be found in Section 3.0 – References. Customers with special circumstances impacting their ability to manage their

application electronically must contact I&M's Interconnection Coordinator for consideration. I&M will consider these requests on a case-by-case basis, but special accommodation is not guaranteed.

DER Interconnection Service Requests submitted to I&M follow a process where DER information is collected, verified, corrected as needed to qualify as complete and conforming, and reviewed for certification and technical compatibility with the distribution system at the Point of Common Coupling. Following the technical review the Customer and Company may enter into a DER interconnection agreement, after which DER and Interconnection Facilities are built, proof of installation is provided to I&M, DER facilities are verified as conforming to the request, and finally the DER facility is commissioned and put into service. A simplified view of these steps is shown in Figure 1.

Figure 1: Overview of the Key Process Steps



I&M's process is designed to conform to the duration limits and guidelines detailed in the Michigan Administrative Code Rules.

5.1 Key Process Step #1 – Pre-Application Report Inquiry

A Customer shall submit a completed Pre-Application Report Request form and the required fee for a pre-application report on a proposed Level 4 or Level 5 DER prior to submitting an Interconnection Service Request pursuant to R 460.930. Submitting a Pre-Application Report Inquiry does not enter an applicant into the Interconnection Queue or reserve capacity on the I&M System. Level 1, 2, or 3 DER customers may elect to submit a Pre-Application Report Inquiry Request but are not required.

The Pre-Application Report Request, also known as the "Pre-Application Request", is available in the Application System where customers can also initiate the interconnection application. To initiate the Pre-Application Report you must provide the contact information, details on the proposed interconnection location, and the type and specifications of the DER in the Application System and pay the required fee.

I&M reserves the right to limit the volume of Pre-Application Requests submitted for review by a single Customer, Applicant, or Developer in accordance with R 460.932(2). Pre-Application requests will be individually invoiced, reviewed, and prepared. Multiple Pre-Application Requests are permissible if information about multiple Points of Connection are requested. In the event a facility is to be constructed in phases at a single PoC, the applicant should submit a single request for the gross facility size. Pre-Application Requests are processed sequentially based upon submittal and payment of fee.

Only requests for interconnection locations within the I&M Michigan service territory will be accepted. As work to complete the Pre-Application Request analysis and report is not able to be substantively halted once initiated, the applicable Pre-Application Request fee is non-reimbursable. I&M will notify the Customer and Applicant that the Pre-Application Request has been confirmed and completely received, including payment.

I&M will begin work to analyze the request and gather necessary electric system details that will be needed to prepare the Pre-Application Report consistent with R 460.932. The Pre-Application Report results use only readily available information based upon the nearest point likely to serve the facility location defined in the request.

Once the Pre-Application Report has been prepared, the Customer shall be notified of its completion, including being provided with a copy of the results via the Application System in accordance with R 460.932. Information provided in the Pre-Application Report is correct as of the date prepared. Data provided in the report is subject to change and may not be applicable at the time that a customer's interconnection application is formally submitted. This report does not guarantee the ultimate ability to interconnect a particular DER with I&M facilities. The Pre-Application Report produced by I&M is non-binding and does not confer any rights on the Customer.

Upon receiving the results of the Pre-Application Report, the Customer may elect to designate their Pre-Application Report Request as complete and thus terminated in the Application System. Alternately, the Customer may proceed onwards by using the Application System tool's feature to advance the completed Pre-Application Request into a formal Interconnection Service Request.

5.2 Key Process Step #2 – Submitting the New DER Interconnection Service Request

Consistent with R 460.936, all DER Customer applications shall be submitted via the Application System, via the Interconnection Service Request Form, prior to the Applicant beginning construction on the DER Facility, regardless of expected level, track, Operating Profile, use, or technology type. DER applications seeking any type of non-exporting, power limited, or any combination of functionality will be evaluated for technical applicability prior to any confirmation of application type or establishment of any review track. Information required to be submitted on the application includes: preliminary information related to the electrical equipment being installed, the DER system Operating Profile related to the conditions identified in the AEP TIIR Section 3.2, and specification as to which program of those available from the state, federal, or wholesale market (if approved by a state Commission) the customer wishes to participate in. Customers who wish to install multiple DER Units or technology types behind a single Point of Common Coupling should submit this request as a single application.

Customers who plan to sell electricity produced by their DER Facility at wholesale in interstate commerce, may need to engage with the Independent System Operator and follow additional requirements. See Section 2.1 Applicability for further information.

A Data Privacy Agreement, as set forth in the I&M-Michigan Data Privacy tariff, may need to accompany the DER Customer's application if the Customer is not directly inquiring on their own behalf.

5.2.1 Detailed Process Step #2.1 – DER Customer's application Details

Applicants will be asked to provide up-to-date information any time a DER Interconnection Service Request is submitted for a customer including all existing, new, and modified DER equipment that will be in service at the Customer's Premise. Information provided in the application must be consistent with all other known information about the customer. Lastly, the information provided must conform to all applicable requirements, including standards laid out by state authorities, as well as all Company requirements, which can be found in the AEP TIIR.

The DER Interconnection Service Request is divided into six sections: Application Specifics (general details), Contact & Service Location Information, Generating System, Supplemental Equipment, Supplemental Information, and Supporting Documents. All the information needed to submit the DER Interconnection Service Request can be entered electronically via the 'New Interconnection Service Request' form.

5.2.1.1 Application Specifics

To properly process the DER application the Applicant must provide information that details:

1. The Operating Company (I&M) and State (MI).
2. Whether there is existing I&M electric service at the proposed PoC, and, if so, provide the I&M account information, identify if there is already DER Facilities with this account, and enter the expected in-service date for the DER Facilities. If the Customer does not have an account number at the proposed Point of Common Coupling the GPS Coordinates for the interconnection location must be provided.
3. The primary intended use of the DER will also be prompted, the common selection will be "to offset load at the site (behind the meter)".
4. There must be a compatible tariff to support the DER interconnection. Please visit Indiana Michigan Power for information on DER programs and tariffs available to Michigan customers. **https://www.indianamichiganpower.com/company/about/rates/mi.**

   Note: Existing customers being served under the legacy net metering tariff wishing to modify their existing DER may remain in the net metering tariff for the remaining duration of their grandfather ten year period provided that the Customer is not modifying the Nameplate Rating or estimated kWh output of the existing system. If the applicant is adding an energy storage device that is only able to be charged by the applicants existing generation equipment and not by the utility will not be deemed an increase in the nameplate rating.

5.2.1.2 Contact & Service Location Information

The Applicant will be required to provide contact information related to applicable parties.

Parties to the DER Interconnection Service Request can include, but are not limited to;

1. Service Customer (I&M's electric account holder)
2. Secondary Customer Contact (authorized party to act on the customer account)
3. Point of Common Coupling Property Owner (premise may be owned by party other than occupant service customer)
4. Installer (DER equipment installer)

In addition to contact information for parties engaged in the DER Interconnection Service Request, if the electric service is not provided by I&M, additional service details may be needed.

5.2.1.3 Generating System Details

Applicants must specify all DER equipment which will be in service when the current DER Customer application is completed and supply the equipment manufacturer's published specification reports for that equipment.

The DER interconnection application system will prompt for a variety of equipment details, including the following, which the customer is required to provide:

- Generator type
- Manufacturer and model number
- Other DER equipment types and quantities (e.g. solar panels, inverters, energy storage, Power Control Systems, etc.)
- Generator/equipment ratings

5.2.1.4 Supplemental Equipment

The supplemental equipment section is to be completed for those with customer-owned transformer equipment. The DER Application System prompts for details about transformer type, rating, voltage, impedance, the specifications document(s) and testing document(s).

5.2.1.5 Supplemental Information

As part of the initial DER Interconnection Service Request online application process, an initial selection of the DER Program, Tariff, and or Application type available to Customers is made. Based upon this initial selection, Applicants may be asked to provide unique information that is applicable to only one of these application types. This includes preliminary selection of DER Program options that will be finalized when the DER Interconnection Service Request is confirmed as described in Section 5.4 of these procedures.

Applicants are required to provide an expected annual generation output of the Customer's DER Facilities. I&M utilizes a default formula, augmented by industry resources as needed, to compute an expected annual generation output for purposes of flagging potential DER sizing concerns in

comparison to the historical electricity usage at the premise in accordance with Michigan Public Act No. 235.

I&M's default formula is shown in Figure 2. When a sizing concern is identified, the application processor will review both the Company-calculated and customer-provided generation estimates for determination of appropriateness. Note that the "average daily output" shown in the formula in Figure 2 is a ratio of the nameplate capacity and always less than one. For example, if the Solar PV DER is expected to generate 4 hours daily at 100% of nameplate, this output may be expressed as 0.1667, where if it is 6 hours daily at 100% nameplate the avg daily output would be 0.25.

Figure 2: Expected Annual Generation Calculation

$$Expected\ Annual\ Generation\ (kWh) = \sum (Generation\ Capacity_{UNIT} * avg\ daily\ output * 365)$$

If a DER Interconnection Service Request contains multiple DER Units with applicable generation, the Applicant may be required to provide expected annual generation output for each unit individually. Energy storage assets that are not expected to produce net energy to I&M's grid on an annual basis will not be considered as part of the Expected Annual Generation calculation.

5.2.1.6 Supporting Documentation

See Figure 3 below for a list of the supporting documentation required in accordance with R 460.934 and R 460.936, to constitute a complete application:

Figure 3: Required Supporting Documents for DER ISRs

Level	Required Documents
1	One-line Diagram, Site Diagram, Site Control, Pre-Installation Site Photos
2	One-line Diagram, Site Diagram, Site Control, Pre-Installation Site Photos
3	One-line Diagram, Site Diagram, Site Control, Pre-Installation Site Photos, Proof of Insurance
4	One-line Diagram, Site Diagram, completed Pre-Application Report, Site Control, Pre-Installation Site Photos, Proof of Insurance
5	One-line Diagram, Site Diagram, completed Pre-Application Report, Site Control, Pre-Installation Site Photos, Proof of Insurance

1. Electrical One-Line Diagram
    a. Electrical One-Line Diagrams must meet the specifications noted in R 460.936.

b. Level 2 and 3: One-line diagram must either sealed by a professional engineer licensed in this state or signed by an electrical contractor who is licensed in this state with the electrical contractor's license number noted on the diagram.

c. Level 4 and 5: One-line diagram must be sealed by a professional engineer who is licensed in this state.

d. All One-line diagrams must also comply with requirements listed in the TIIR Appendix C

2. Site Diagram

   a. Applicants are required to submit a two-dimensional "Bird's Eye View" Site Diagram of the customer's Premise where the following information must be clearly labeled or graphically represented

      i. Compass indicating North

      ii. Service Customer Name

      iii. Location identified by either:

         1. Service Address

         2. Proposed PoC GPS Coordinates and nearest USPS Address

      iv. Service Customer Account Number (if the customer has existing service)

      v. Major man-made features, such as buildings, fences, and roads

      vi. Major impassable natural features, such as trees, rivers, and embankments

      vii. Location of the proposed DER equipment, including generators and batteries

      viii. Location of the Service Customer Billing Meter

      ix. Proposed location of the DER Isolation Switch

3. Proof of Site Control

   a. Consistent with R 460.934, if the Interconnection Customer already has electric service at the proposed PoC

      i. Level 1 and 2 DERs

         1. Proof of site control may be demonstrated by the site owner's signature and contact information on the application

      ii. Level 3, 4 and 5 DERs proof of site control is demonstrated by any of the following:

         1. Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing and operating the DER.

2. An enforceable option to purchase or acquire a leasehold site for this purpose.
3. A legally binding agreement transferring a present real property right to specified real property along with the right to construct and operate a DER on the specified real property for a period not less than 5 years.

b. If the Interconnection Customer does not have service at the proposed PoC proof of site control is demonstrated by any of the following:

i. All Levels

1. Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing and operating the DER.
2. An enforceable option to purchase or acquire a leasehold site for this purpose.
3. A legally binding agreement transferring a present real property right to specified real property along with the right to construct and operate a DER on the specified real property for a period not less than 5 years.

4. Pre-Application Report

a. Consistent with R 460.930, Level 4 and 5 applications must submit a Pre-Application Request Form and the fee for the Pre-Application report before submitting the DER Interconnection Service Request.

5. Pre-Installation Site Photographs

a. All Levels

i. Pre-Installation Site Photographs will be required to be submitted with the DER Customer's application. Pre-Installation Site Photographs are required to include clear and visible images of:

1. Stand-Back of the Service Meter – A photo from approximately 10 feet away from the meter, showing at least 3 feet on either side of the meter, and the ground immediately in front of the meter.
2. Close-Up of the Service Meter – A photo from approximately 1-2 feet away from the meter, clearly showing the meter face and meter number as well as the entirety.
3. Equipment Wall – A photo of the wall or surface where the DER control equipment, specifically the Isolation Switch will be installed showing 3 feet on either side of the expected location, and the ground immediately in front of the location.

4. Generation Location – A photo of the location where the primary DER equipment will be installed, showing approximate location as indicated in the Site Diagram.

6. PURPA Qualifying Facility (Form 556) Certification

    a. Evidence of Qualifying Facility certification can be either:

        i. For DER Facilities greater than 1 MW that are certifying as a PURPA Qualifying Facility, Applicants must provide a Receipt of submission of the Form 556 attestation.

        ii. FERC Order certifying the DER Facility as a Qualifying Facility.

7. Insurance

    a. Attestation for level 3, 4, and 5 projects confirming project has general liability insurance.

        i. For a level 3 project, the applicant shall obtain and maintain general liability insurance of a minimum of $1,000,000.

        ii. For a level 4 project, the applicant shall obtain and maintain general liability insurance of a minimum of $2,000,000.

        iii. For a level 5 project, the applicant shall obtain and maintain general liability insurance of a minimum of $3,000,000.

    For Level 3, 4 and 5, evidence of insurance coverage on a certificate of insurance shall be provided to the Utility upon execution of the appropriate IA and thereafter within ten (10) days after expiration of coverage; however, if evidence of insurance is not received by the 11th day, the Utility has the right, but not the duty, to purchase the insurance coverage required under this Section and to charge the annual premium to project developer. The Utility shall receive thirty (30) days advance written notice if the policy is cancelled or substantial changes are made that affect the additional insured. At the Utility's request, project developer shall provide a copy of the policy to the Utility.

    For Level 3, 4 and 5, the Customer shall, at its own expense, maintain in force the general liability insurance without any exclusion for liabilities related to the interconnection undertaken pursuant to this Agreement. Customer's general liability insurance must (1) include the Company as an additional insured for Company's liability arising out of the equipment or operations of Customer; (2) be primary to and non-contributory with any insurance or self-insurance of the Company; (3) provide, to the extent permitted by law, a waiver of the insurance company's rights of subrogation against the Company. The Customer shall obtain additional insurance if necessary as a function of owning and operating a generating facility. Insurance must be obtained from an insurance provider authorized to conduct business in the state in which the DER Facility is located.

8. After entering all information into the application processing system, performing in-system validation of the account or location, and submitted the form, there will be two final actions to fully complete the submittal. The system will prompt the Customer to designate a Financially Responsible Party for all or part of the approved interconnection costs described in the MI Fee Schedule and Cost Allocation and request signatures. A Docusign electronic signature link will be emailed to the Customer to verify all submitted information in the application tool is accurate and they wish to proceed with review. Upon completion of application submittal, the financial responsible party will be invoiced for the application fee. Please note I&M will notify the applicant by the end of the third business day that their DER Interconnection Service Request has been received following completion of application signatures.

Confirmation that the application is received is not the approval. Customers should wait for the Conditional Approval to Construct notice from I&M before proceeding with construction of the DER Facility in order to avoid potentially costly or time-consuming changes to their design that may be necessary to interconnect. Customers are encouraged to review the AEP TIIR for technical requirements and ensure that their system is designed fully compliant with I&M requirements.

5.3 Key Process Step #3 – DER Request Verification

Status of the DER Interconnection Service Request can be found by referencing the assigned Project ID which is created through the Application System portal. Consistent with R 460.936, within 20 business days the Company will send a notification confirming that the DER Interconnection Service Request is either complete and conforming, or not. If it is not yet complete and conforming, the applicant will be notified of what deficiencies exist.

Customers may make corrections to their application and re-submit to I&M for re-verification. If a customer does not provide the necessary corrections, or their application is found to still be non-conforming after 60 days or as otherwise defined by the state of Michigan in the steps below, I&M reserves the right to withdraw the DER Interconnection Service Request, and an applicant may have to submit a brand-new request as a result.

Please note:

- A Customer's application will not move forward in the process until it is complete and conforming, and the fees have been paid.
- At any point before a customer's application has been confirmed by the utility, the applicant may choose to modify (material or otherwise) their application. Doing so may result in deadlines prescribed within R 460.936, being reset and/or loss of position within the application processing sequence as well as changes to fees. See Section 5.12 for more details on Material Modifications.

5.4 Key Process Step #4 – Application Confirmation

DER systems with a capacity up to 110% of a customer's annual load are eligible for the DG Program. Once the Customer's application has been found to be complete and conforming with state and utility requirements, the customer will receive a confirmation that it is Complete and can advance to Key Process Step #5: Technical Review.

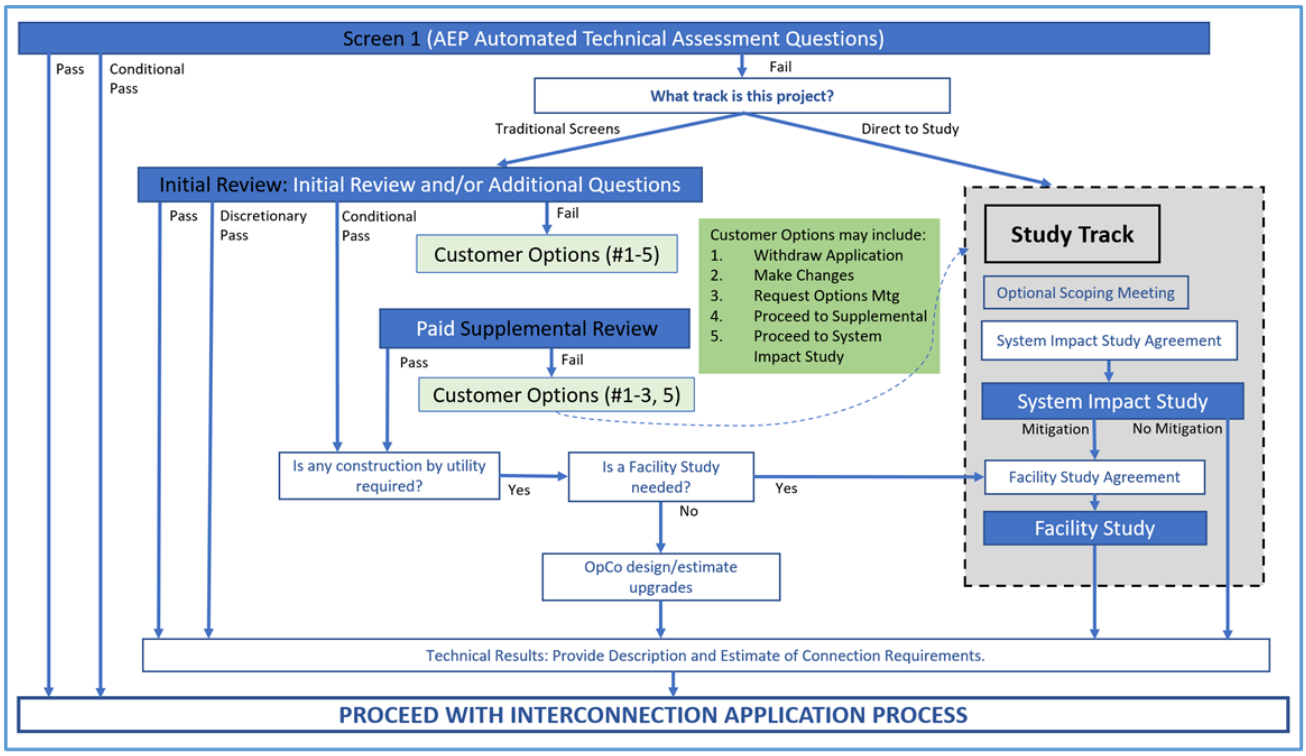
5.5 Key Process Step #5 – Technical Review

5.5.1 Overview of Key Process Step 5

I&M will perform a technical review to identify whether the request as designed will have an impact on the safety and reliability of the distribution or affected systems. In some cases, mitigations will be required to approve and connect the DER. Following the review, the customer will be provided a description and estimate of any mitigations and the connection requirements.

A Customer's application begins review at a pre-determined level based upon the size and type of DER being installed. In the case of applications requesting self-limiting DER output, the technical review will consider the self-limited value in accordance with the Michigan rules. The screens and studies are designed to perform the minimum required analysis so that I&M can efficiently determine what mitigations, if any, are needed to support the interconnection. Screens are designed to assess pertinent technical details and filter DER Interconnection Service Requests into an appropriate review track (Traditional Screens or Direct to Study). Use of AEP's automated technical assessment in Screen 1 minimizes the number of applications that need further study using engineering expertise. System Impact and Facilities studies are used to evaluate larger and more complex DERs that require more advanced modeling and analysis methods. Each application is evaluated per the state regulations governing the interconnection of small electrical generators and storage and is reviewed at the appropriate level.

Figure 4: High Level Technical Review Process Diagram



The above Figure 4 provides a high-level Technical Review Process diagram highlighting the tracks, screens, and studies for various application types. Application details and screens are used to confirm eligibility of the DER Interconnection Service Request to follow the non-export or fast tracks as defined by Michigan, as well as necessity to enter the study track.

5.5.2 Screening

Screens comprise of questions including those outlined in R 460.946 and R 460.950, and the collection of technical details to determine the equipment and operational characteristics of the Customer's application. The screening questions are also shown in Section 6, Appendix A of this procedure document. Based on application type and level, the DER Interconnection Service Request will pass or fail screening questions. The Initial Review questions are the same for the Non-export and Fast track DERs. DERs may need to enter the study track due to failing screens. This likelihood varies depending on the specific size and nature of the DER and the interconnection point of the grid.

5.5.2.1 Screen 1 Automated Assessment

The purpose of the Screen 1 Automated Assessment is to quickly assess a DER Interconnection Service Request for compatibility. The Company will apply standard questions across all DERs to identify applications that can be auto approved and do not need to proceed through a more thorough technical review. Based on the results of the Screen 1 Automated Assessment, DER

Interconnection Service Requests can follow the Traditional Screens track or proceed directly to the Study Track for the most robust engineering analysis.

Applications will be deemed to Fail, Pass, or Conditional Pass the Screen 1 Automated Assessment.

A Fail result is just that – the DER application cannot be auto-approved and will require further analysis through the Traditional Screens or Direct to Study path shown in 5.5.1.

A Pass result will be given to the applications that meet the criteria for auto-approval. This is based on the DER being less than 25kW, inverter based, single phase, connecting to a service transformer sized for the DER, and on a circuit that will not exceed the Company's auto-approve total generation threshold with this additional interconnection added.

A Conditional Pass result for the Screen 1 Automated Assessment means that the request can be auto approved if an easily identified system upgrade will be made and the applicant accepts this condition. Typically, this is given if the service transformer is the constraint, as it can be simply upgraded through standard processes.

5.5.2.2 Initial Review Screening Assessment

Applications which do not pass the Screen 1 Automated Assessment will be processed through the Traditional Screens if the application does not request to go directly to Study Track as permitted. The prescribed Non-export and/or Fast Track Initial Review questions will be applied as disclosed in Section 6, Appendix A. The Company may also apply additional questions to determine if a Conditional Pass or Discretionary Pass result is possible.

A Discretionary Pass is given when the Company considers additional questions and uses engineering judgment to determine that the application is acceptable despite one or more factors being outside of the typical criteria for passing.

DER Interconnection Service Requests that do not pass the Initial Review screening questions will require additional review, and in some cases, additional fees to study. In the case of Fail results in the Initial Review Screening, the Customer will be presented with Customer Options, including a "Customer Options Meeting", and the request will then be handled according to the option(s) elected. (See Figure 4 in Section 5.1 for more details).

DER Interconnection Service Requests that fail screens and need further analysis to determine and/or effectively estimate the required mitigations will follow the Study Track if a customer chooses to continue. Only projects progressing through the Study Track will be presented with study agreements.

Customers choosing to go directly to the Study Track, will first have a System Impact Study. Each type of study requires an agreement and payment of the associated study fee invoice. Those who wish to proceed after reviewing the System Impact Study results, can proceed to a Facilities Study. The Facilities Study will produce a detailed estimate for the identified mitigations taking into account

specific equipment and conditions at the interconnection location. An optional scoping meeting in advance of the System Impact Study can be requested.

5.5.3 Study Track (Impact and Facilities)

Study Track reviews can result from either path – the Traditional Screens or the Direct to Study path (see graphic in 5.5.1). Once the customer has elected to proceed with a DER interconnection study, I&M will present a System Impact Study or Facilities Study agreement to be signed. Appropriate fees and signatures are collected for the System Impact or Facilities Study prior to initiating the applicable portion of the study. The party identified in the DER Interconnection Service Request form as the" Financial Responsible Party" is responsible for all costs associated with performing, preparing, and delivering interconnection studies, except where specified limits are imposed by MPSC-approved fee schedule.

During the interconnection study process, the Distribution System Engineer will develop an electrical model of the impacted distribution system that reflects current installed conditions. Several scenarios are then modeled and studied based on the application, proposed in-service date, the Operating Profile of the DER, and the anticipated interactions with the local distribution system.

Consistent with R 460.960(b)(iv) and R 460.962(b)(iii), the timeline for the completion of the study will be provided to the customer. If an affected system is identified, I&M will work with the affected system owner as well as the Customer to work through any issues that may prevent the completion of the DER interconnection study. In the case that an affected system is found, any initial study deadlines may be paused until it is determined that the study can be completed. Affected system owners may have their own data and study requirements and may have additional fees for their services to which the customer must consent.

5.5.3.1 Scoping Meeting

Upon customer request, a scoping meeting may be held to discuss the proposed DER. This is an opportunity to better understand the DER's Operating Profile, ensure the study scope is accurate, and for dialogue with the customer regarding the operational characteristics of the local distribution system. Scoping meetings between I&M and the customer at the initiation of the study provide an opportunity to confirm study details and improve the accuracy and efficiency of the process.

5.5.3.2 System Impact Study

During a System Impact Study, an engineer analyzes the impact of the proposed DER on the distribution system including the DER's effect on system voltage regulation, system power flows, and system fault conditions. System impacts that commonly occur and require mitigation include increased system voltages, equipment overloads, and protection system miscoordination. If the proposed DER is expected to inject power from the distribution system into the transmission system, the Distribution System Engineer requests Transmission to review the Customer's application for any negative impacts on the transmission system.

The System Impact Study process results in a report that identifies numerous items including the following:

- The results of the individual studies that were conducted as part of the analysis
- Mitigations to any negative impacts resulting from the proposed DER's operation on the distribution system
- Identification of required Interconnection Equipment (metering, site isolation, telemetry, etc.)
- Good faith cost estimates for all mitigation and interconnection facilities work

5.5.3.3 Facilities Study

Facilities studies are conducted to create a more detailed estimate of the equipment, engineering, procurement, and construction work based on the required mitigations to connect the DER.

The Facilities Study process results in a report that identifies the following:

- A site-specific functional design including detailed and itemized cost estimates for necessary upgrades to facilities
- Any required equipment, engineering, procurement, and construction work
- Estimates that include any applicable overhead
- Estimated timeline for construction

5.5.4 Technical Review Results

The customer will receive results of screening, System Impact, and Facilities Studies following the technical review. The customer then needs to select next steps from the available options. Any changes made to the Customer's application that may result in additional studies shall follow the guidance of material modifications as specified in the AEP TIIR and Section 5.12. Note, changes to the application details may necessitate a new study and the loss of position in application processing sequence.

5.6 Key Process Step #6 – DER Interconnection Agreement (DER IA)

For customers who wish to continue the application, I&M will provide a DER Interconnection Service Agreement (DER IA) which will include any of the special terms and conditions as specified in the Technical Review Results, for the I&M account holder to sign. Once the Customer and I&M have fully executed the DER IA and all required deposits or payments for necessary upgrades to the distribution system or other connection requirements are made, I&M will issue an automated *Conditional Permission to Construct* notice to the customer. The digital communication of the *Conditional Permission to Construct* is sent to both the Customer and the applicant (if different). This ensures that the specific

description of the mitigations needed is available to the installer/applicant who is not a signing party to the DER IA.

5.6.1 Detailed Process Step #6.1 – Executing the DER IA

In accordance with R 460.948(1), R 460.960(h), and R 460.962(g), customers may:

- Accept the technical review results and associated project-specific connection requirements and identified mitigations
- Withdraw the application
- Request further clarification of the issues requiring mitigation

For those who ultimately choose to move forward in the interconnection process, the Customer will sign and execute the DER IA. For Level 1, 2, and 3 Certified projects the Company uses the Standard Level 1, 2, and 3 Interconnection Agreement for Projects up to 550 kilowatts with Certified Equipment as approved by the MPSC in Case No. U-21543. For all Level 4 and 5 or uncertified applications, the Company uses an alternate Interconnection Agreement.

If at any point, prior to the execution of the DER IA, changes to ownership of the equipment or PoC occur, this may cause the interconnection application to be placed on hold until the new owner signs all necessary agreements and documents. See Section 5.12 of the Procedures for Material Modifications impacting the original request. If a new owner does not sign all required documents and agreements within 30 business days, the application will be considered withdrawn.

5.6.2 Detailed Process Step #6.2 –Interconnection Facilities Payments

Interconnection Customers shall pay the actual costs for the interconnection facilities and distribution upgrades. The costs for interconnection facilities and distribution upgrades may not exceed 110% of the estimate without an itemized summary and explanation of cost increases being provided to the Customer. If the costs are expected to exceed 125% of the estimate, the Company shall provide further explanation to the applicant prior to the costs being incurred. See R 460.964(8).

Pursuant to MI Rule 460.964(5), for Level 4 and 5 interconnection applications, where construction of interconnection facilities or distribution upgrades is required, the parties will execute a Construction Agreement and append the executed Construction Agreement to the Customer's Interconnection Agreement. The Construction Agreement shall specify timelines, cost estimates, and payment milestones for construction of facilities and distribution upgrades to interconnect a DER into the distribution system, and shall identify design, procurement, installation, and construction requirements associated with installation of the DER.

A party's obligations under the Interconnection Agreement may be extended by mutual agreement. Michigan Rules call out procedures in the case that a party anticipates that it will be unable to meet a milestone for any reason other than an unforeseen event R 460.964(9) *et seq.*

I&M shall provide the applicant with a final accounting report of any difference between costs charged to the applicant and previous payments to the Company for interconnection facilities or distribution upgrades. R 460.964(12) *et seq.*

5.7 Key Process Step #7 - Construction

Following completion of the steps described in 5.6, the Customer has I&M's approval to begin construction for the described, reviewed, and approved DER Facility. If required, and all fees are paid, I&M will begin to design, procure, and construct distribution interconnection facilities to support the customer's DER as detailed in the executed DER IA. Once all customer and utility construction has been completed and all required proof of installation has been provided to I&M through the Application System, the Customer's application will advance forward to Key Process Step #8 for installation verification.

5.8 Key Process Step #8 – Installation Verification

I&M will review the proof of installation and verify the installation is consistent with what was approved to be constructed and conforms to the utility standards. If any deficiencies are identified, the customer will be notified and provided a list of issues that must be resolved. Once the installation has been found to be consistent and conforming to utility requirements the application advances to Key Process Step #9.

During the Installation Verification, the reviewer will:

- Confirm that an electrical inspection was completed and approved by the inspector having jurisdiction, as necessary
- Confirm that the AC disconnect switch and meter labeling has been installed as required by the AEP TIIR
- Inspect the final "As Built" site diagram and final 1 line diagram
- Inspect test reports or configuration documents as specified in the Interconnection Agreement
- Examine photographs of installed system, AC disconnect switch and meter with proper labeling and inverter nameplate for consistency with approved design

Following a passing Installation Verification, the Customer's application can advance to Key Process Step #9, Meter Change and Installation.

5.9 Key Process Step #9 – Meter Change and Installation

After the proof of installation has been verified as described in section 5.8 of these procedures, I&M will issue a request to install metering capable of reading bi-directional flow of power to and from the customer's premise and any DER equipment. This metering update is important so that the energy billing accurately reflects the activity of the DER. This metering change may be accomplished by reprogramming an existing meter or by installing new metering equipment at the site. This will be done according to the details of the executed DER IA and in alignment with the AEP TIIR.

When onsite, I&M's personnel will confirm that the required interconnection and protective equipment is appropriately accessible as well as confirming that the customer's meter sockets are in good condition. If any issues are identified onsite, I&M will not complete the meter update, and the customer will be notified of the specific concerns. The specified corrections must be completed before another request to install the meter will be issued. New proof of the corrections is to be submitted within the Application System and the Installation Verification step will be repeated to ensure the site is ready for the meter update.

Where applicable, the Customer is subject to deadlines on remediation of identified issues as specified in R 460.966(7)(b), R 460.966(8)(b), and R 460.976. I&M reserves the right to withdraw the DER Interconnection Service Request in the event the issues are not remedied within the timeframes prescribed.

Once I&M has completed its meter changes, the meter will be tested for proper performance and then the application will be advanced to Key Process Step #10: Commissioning.

5.10 Key Process Step #10 – Testing, Commissioning & Parallel Operation

Once the correct metering equipment has been installed, the final testing and commissioning tasks will be completed. As described in the Company's TIIR Section 13, the Company has certain mandated tests for DER interconnections and I&M will notify the customer if it wishes to send personnel to witness any portion of the DER testing. If the Company elects to not witness the testing, it will provide the written waiver in accordance with MI rules. In all cases the testing plan must have been approved in advance by I&M and all completed testing results must be furnished to the Company for review and approval. I&M will notify the Customer that it has accepted or rejected the commissioning test report. If the testing results are rejected, corrective action must be taken by the Customer and new testing results must be submitted to the Company for further review. R 460.966.

Michigan's rules permit the following:

1. If the Interconnection Customer does not notify I&M that the DER is installed and ready to test, I&M may, in writing, query the status of the interconnection. If the Interconnection Customer

does not provide a written response within 10 Business Days (as noted in Appendix B) or no progress is evident, the application may be considered withdrawn. See R 460.966(10).

2. Pursuant to R 460.966(1), If the interconnection application requires telecommunications, cybersecurity, data exchange, or remote controls operation, successful testing and certification of these items must be completed prior to or during testing.

5.10.1 Technical requirements of DER telecommunications, cybersecurity, data exchange, and remote-control operation

All DER connected to the Area EPS shall meet the requirements for interoperability as specified in *IEEE Std 1547™-2018* Clause 10 – Interoperability, Information Exchange, Information Models, and Protocols. The DER Customer will work with I&M to implement any required telemetry following I&M's guidance.

The Company requires that SCADA telemetry be implemented at both the Plant Controller and the SCADA controlled disconnect switch (where applicable) for any DER 500 kW or larger for monitoring and control purposes.

The Company requires that SCADA telemetry be implemented at the Plant Controller for any DER 200 kW or larger for monitoring and control purposes. I&M does not require a remotely controlled disconnect switch for DER installations under 500 kW.

All DER installations, including those under 200 kW, must comply with the items defined in *IEEE Std 1547™-2018* Clause 10 – Interoperability, Information Exchange, Information Models, and Protocols in the event that I&M requires any form of telemetry for monitoring and control purposes in the future.

For DER installations that use a Plant Controller to manage multiple inverters, the Plant Controller shall measure and manage the voltage and aggregate power generation at the PCC or an agreed upon location.

It will be the responsibility of the DER Customer to ensure the quality of the data and information received by I&M from the DER is good (98% and above availability) and accurate. The Company reserves the right to request additional testing to confirm the accuracy of measurements and to have the Customer remediate measurement issues.

In accordance with *IEEE Std 1547™-2018* Clause 10.1, a DER shall have provisions for a local DER interface capable of communicating (local DER communication interface) to support the information exchange requirements specified in the standard for all applicable functions that are supported in the DER.

The DER Facility shall use a single local DER communication interface or other I&M-approved communication means to provide all telemetry and control that is required to meet the telemetry requirements identified throughout this document. I&M will specify all necessary communication information sharing requirements for DER interconnection. Specific details of telemetry requirements will be provided during the interconnection process. All DERs connecting to the Area EPS shall have an

open and unlocked communications interface unless I&M specifically instructs the interconnecting Customer to lock the interface.

As the Area EPS Operator, I&M supports serial *IEEE Std 1815 (DNP3)* and serial Modbus protocols for use as a communication interface.

I&M requires MESA-DER (IEEE 1815.2) compliance with BESS installations.

The DER Facility owner should follow the guidance provided in *IEEE Std 1547.3™-2018*, Draft Guide for Cybersecurity of Distributed Energy Resources Interconnected with Electric Power Systems and keep firmware up to date. The Company reserves the right to disconnect a DER from the Area EPS for any cyber related concern until the concern is remediated. Ultimately, the DER Facility owner is responsible for the Cyber Security of the DER Facility.

5.10.2 Testing and certification requirements of DER telecommunications, cybersecurity, data exchange, and remote-control operation

Throughout the life of the DER Facility, starting from the interconnection process through ultimate retirement, the Company may perform remote tests of the DER Facility to review its operational capabilities, configuration, telemetry performance, and adherence to the standards and requirements contained within this document or the interconnection agreement between the DER Customer and I&M. Testing may also be required to help diagnose system issues experienced by other customers on the same feeder or station equipment.

Commissioning of the DER Facility shall be planned by the Customer and carried out according to the approved testing plan after construction is completed and the site is ready to be energized. At a minimum, the scope of commissioning process to be performed shall include commissioning tests specified by IEEE Std 1547™-2018 Clause 11.2.4.3 - DER as-built installation evaluation, Clause 11.2.5 - Commissioning tests and verifications, and Clause 11.3 - Full and partial conformance testing and verification.

The commissioning process shall demonstrate that the DER Facility does not create adverse system impacts to the electric grid and to other customers served by the grid. I&M will require additional testing and analysis for any approved intentional islands that energize Area EPS facilities.

It is the responsibility of the DER Customer to test their protection schemes (which includes DTT) with their own equipment and Qualified Personnel to ensure it is reliable and safe to place in service. During the commissioning phase of the project, the DER Customer will coordinate with the Company's Protection and Control (P&C) crews testing the P&C equipment that interacts amongst both companies (each will be located at their own station/facility).

Before parallel operation with the Area EPS, and after completion of commissioning tests, additional witness testing and inspections may be required by AEP. The Customer is responsible for providing Qualified Personnel who will complete all required tests. Witness testing is generally required for larger

DER. AEP reserves the right to require witness testing in all DER interconnected scenarios. Once witness testing is completed, the Customer shall provide AEP with all test results. Witness tests that must be performed in accordance with requirements described above include, but are not limited to:

- Cease to energize and trip test
- Open-phase Detection
- Anti-islanding
- Reconnection test
- Load Rejection Overvoltage test
- Power Limit functions test
- Radio Frequency Interference test
- Current harmonics test
- Telemetry/SCADA (If applicable)
- Primary Metering
- Direct Transfer Trip (If applicable)
- Reverse power relay (If applicable)
- Intentional Islanding testing (if applicable)

AEP reserves the right to require additional commissioning tests based on DER design evaluation results per IEEE Std 1547™-2018 Clause 11.2.4.2.

Once I&M has accepted the testing results, the Company will provide written authorization to operate in parallel (Permission to Operate). The Customer shall not operate its DER in parallel with I&M's system without this written authorization. The application will be advanced to Key Process Step #11: In Service. R 460.968

5.11 Key Process Step #11 – In Service

Once the Customer has been issued the *Permission to Operate* letter as described in Section 5.10, the Customer's DER application is deemed fully completed and In Service. At this time the DER Facility is operational. The Customer is required to abide by all requirements defined in their executed DER IA with I&M including the DER settings, Operating Profile, and notifying I&M of any changes to their DER system in the future, such as technical or operating changes, planned or completed change of ownership, decommissioning of the DER due to loss or otherwise, whether full or partial. Some of these changes are

simple administrative changes and others may require further review. See section 5.12 for more information about Material Modifications for DERs.

As stated in the TIIR, I&M reserves the right to request the Customer to perform testing at any point in the life of the DER Facility. In such instances, I&M will provide adequate notice and will collaborate with the Customer to minimize the disruption to normal operations

Periodic testing requirements can be found in AEP's TIIR.

5.12 Material Modifications for DER applications and facilities

The Company recognizes that customers may wish to make changes to their in-progress applications (DER ISR) or their existing in-service DER Facility. Any changes after the application has been accepted are considered modifications. The impact of the modification can vary depending on which Key Steps have been completed the nature of the modification (whether the desired change is material or not). The following subsections detail the modification review and the effects related to each interconnection process Step that the DER may be in. The Customer may not begin any modifications to the DER Facility until the Company has reviewed and agreed to the changes.

5.12.1 Material Modification Review

A modification will be material if it is a change to the equipment settings, equipment configuration, or interconnection site of the DER Facility that has a material impact on the cost, timing, or design of any customer interconnection facilities or associated utility system upgrades. Material Modification is further defined in AEP TIIR Section 1.4.

I&M will perform the Material Modification Review after receiving details from the Customer regarding the nature of the changes desired. I&M will perform the review by evaluating the provided details for the modification (including, but not limited to electrical one-line diagram, equipment details and specifications, operating profile updates) for the DER Facility, and comparing them to the originally provided details for the same DER Facility (prior to the modification). Then, based on all of the identified differences, an assessment will be performed to determine the consequence and impact of the changes. Finally, the outcome of the review will be shared with the Customer.

The following is a non-exhaustive list of examples of modifications that are not considered material modifications:

- A change in ownership of a DER. The new owner, however, may be required to execute a new Interconnection Application Form and study agreements for any study that has not been completed, or a new IA, depending on the Key Step achieved prior to the modification request

- Replacing a component with another component that is considered like-kind with near-identical characteristics. Replacing a component with another component that has near-identical characteristics does not constitute a material modification when agreed to by the electric utility
- An increase in the DC/AC ratio that does not increase the maximum AC output capability of the generating facility
- A change in the DC system configuration to include additional equipment that does not impact the maximum generating capacity, daily production profile, or the proposed AC configuration of the DER or energy storage device, including DC optimizers, DC-DC converters, DC charge controllers, powerplant controllers, and energy storage devices such that the output is delivered during the same periods and with the same profile considered during the System Impact Study or other technical review

In all cases the details in the DER Application (and IA if executed) will need to be updated to reflect the actual intended DER Facility, associated equipment, owner, and operating profile. I&M will work to assure that the Customer understands where and how the application processing will resume depending on the outcome of the Material Modification Review and what changes the Customer decides will be advanced with the application. Upon Customer request, I&M will have a one-hour consultation to discuss the results of the review. In some cases, I&M may determine that a new application is necessary.

5.12.2 Modifications to Applications Not Yet Accepted as Complete

Changes before the application has been deemed complete and conforming tend to have the fewest impacts in terms of repeating steps, slowing processing time, or causing additional invoicing. The changes may still result in an application needing to be considered in a different level than originally started or taking a longer time in technical review if the nature of the DER Facility is significantly more complex or has significantly more risks to the electric system. An increase in the total nameplate capacity of the DER may result in an increase to the application fee.

5.12.3 Modifications to Applications Complete but Not Yet in an Executed IA

Depending on whether the Technical Review is in progress already, changes at this time may cause repeat of portions or all of the Technical Review, or expansion of the necessary review (such as impact and facilities studies that previously were not required) Repeated or new engineering studies will require payment of associated study fees. Changes at this time could cause the Customer's application to lose its position in the application processing sequence. If an IA has been issued but not executed, that will also need to be modified to reflect the new Technical Review results and any new mitigation or project specific connection facilities that are required as well as to get the right description of the DER Facility including DER level and or tariff/program selection.

5.12.4 Modifications to Applications with Completed Interconnection Agreement (IA) but Not Yet Placed In Service

Customers shall communicate proposed DER changes to I&M for review. Customers who make any modifications without participating in a material modification review with the Company will be considered in breach of the Customer's IA and will remain as such until I&M determines a review has been properly performed, changes approved, and the resulting updated or new IA is executed. While Installation Verification, Meter Change and Installation, and Commissioning steps are meant to help identify such instances where a customer has failed to notify the Company of changes to the DER, it will save time in the processing of the application if the Customer proactively provides notification. Unreported changes to a DER can also result in damage to the DER, other equipment or property, or injuries to persons.

Changes at this time may cause repeat of portions or all of the Technical Review, or expansion of the necessary review (such as impact and facilities studies that previously were not required) Repeated or new engineering studies will require payment of associated study fees and will prolong the DER interconnection process review time.

5.12.5 Modifications to Existing DER Facilities

Customers with existing DER Facilities seeking to change, modify, enhance, or replace any equipment, settings, or operating profiles or owner/tariff information, must contact I&M to evaluate if a Material Modification, per Section 5.12 of these procedures, has occurred. Regardless of whether the changes are deemed a Material Modification, the Customer will need to update the DER records through the Application System and may need to have the IA updated as well. If the changes and modifications are deemed material, the Customer may need to submit a new DER application and/or provide all DER equipment details as per R 460.901 et *seq* and update their Tariff selection. I&M may need to disconnect the modified DER until the appropriate steps and technical review have been completed. For existing customers being served under the legacy net metering tariff, please see Section 5.2.1.1.

6.0 Appendices

Appendix A: Screening Questions

Appendix B: Interconnection Governing Duration Limits