

# State of Minnesota Distributed Energy Resources Interconnection Process

(MN DIP)

v.2.3

**Comment [A1]:** Consumers Energy Company (“Consumers Energy” or the “Company”) welcomes the chance to provide the following comments, questions, and proposed editorial changes on certain sections of the MN DIP, but the Company does so with several caveats:

- The MN DIP includes various references to Minnesota statutes, rules, and other Minnesota-specific documents (i.e., technical standards). Consumers Energy’s review of the MN DIP does not necessarily mean the Company has reviewed in detail or developed a position regarding other referenced documents. Consumers Energy reserves the right to provide later comment on other referenced documents as needed.
- The sections “assigned” for review at the January 10, 2019 MPSC stakeholder meeting include cross-references to attachments, exhibits, and other sections of the MN DIP. Consumers Energy has not necessarily reviewed in detail or developed a position regarding those cross-referenced sections. Consumers Energy reserves the right to provide later comment on cross-referenced sections as needed.
- The fact that Consumers Energy has or has not commented here on particular provisions of the MN DIP does not mean the Company will not have further input on those sections at a later time. Consumers Energy has made a significant effort to provide as much feedback to the MPSC as possible in the time allowed, but the Company reserves the right to provide later comment (or to change Consumers Energy’s position as needed) on these sections of the MN DIP.

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**GLOSSARY OF TERMS**

**ATTACHMENT 1: PRE-APPLICATION REPORT REQUEST FORM**

**ATTACHMENT 2: SIMPLIFIED APPLICATION FORM**

**EXHIBIT A – TERMS AND CONDITIONS FOR INTERCONNECTING AN INVERTER-BASED DER NO LARGER THAN 20 KW**

**EXHIBIT B - FOR ENERGY STORAGE**

**EXHIBIT C – CERTIFICATE OF COMPLETION**

**ATTACHMENT 3: INTERCONNECTION APPLICATION FORM**

**ATTACHMENT 4: CERTIFICATION CODES AND STANDARDS**

**ATTACHMENT 5: CERTIFICATION OF DISTRIBUTED ENERGY RESOURCE EQUIPMENT**

**ATTACHMENT 6: SYSTEM IMPACT STUDY AGREEMENT**

**ATTACHMENT 7: FACILITIES STUDY AGREEMENT**

**ATTACHMENT 8: FLOW CHARTS**

## Foreword

The Minnesota Public Utilities Commission is charged by Minnesota Statute §216B.1611 to establish generic, statewide standards for the interconnection and parallel operation of distributed energy resources<sup>1</sup> of no more than 10 MW. In updating Minnesota’s interconnection standards, we strive to:

- 1) Establish a practical, efficient interconnection process that is fair and easily understandable for everyone involved;
- 2) Maintain a safe and reliable electric system at fair and reasonable rates;
- 3) Give maximum possible encouragement of Encourage distributed energy resources consistent with protection of the ratepayers and the public;
- 4) Be consistent statewide and incorporate newly revised national standards;
- 5) Be technology neutral, where possible, and non-discriminatory;
- 5)6) Maintain flexibility in order to account for an evolving distributed energy resource environment.

At a minimum, these standards must:

- 1) To the extent possible, be consistent with industry and other federal and state operational and safety standards;
- 2) Provide for the low-cost economic, safe, fair, and standardized interconnection of distributed energy resources;
- 3) Take into account differing system requirements and hardware; as well as, the overall demand load requirements of individual utilities;
- 4) Allow for reasonable terms and conditions, consistent with the cost and operating characteristics of the various technologies, so that a utility can reasonably be assured of the reliable, safe and efficient operation of the interconnected equipment;
- 5) Establish a standard interconnection agreement that sets forth the contractual terms under which a company and customer agree that one or more facilities may be interconnected with the company’s utility system; and standard applications for interconnection and parallel operation with the utility system.
- 5)6) Provide sufficient flexibility to allow for a changing distributed energy resource environment, including shifts in demand for interconnections and the type and scale of projects for which interconnection is sought.

This standards document is modelled after the Federal Energy Regulatory Commission’s Small Generator Interconnection Process (FERC SGIP), and explains the process to interconnect Distributed Energy Resources for parallel operation with the Area Electrical Power System (Area EPS); including templates for applications and study agreements. There are three companion documents: 1) Minnesota Distributed Energy Resource Interconnection Agreement (MN DIA); 2) Minnesota Distributed Energy Resource Technical Interconnection

**Comment [A2]:** Consumers Energy comment: The Minnesota PUC appears to use a broader definition of DER here than used in IEEE 1547-2018, or than used by the MPSC. The MPSC should consider how it defines DER and how its own definition might affect the scope or function of new interconnection rules. In general, many of the defined terms in this document need to be reviewed and potentially refined for use in a Michigan-specific application.

**Comment [A3]:** Consumers Energy comment: We do not believe a MW limitation is necessary or warranted.

**Comment [A4]:** Consumers Energy comment: It is hard to define “maximum possible encouragement”. In addition, this appears to be a Minnesota-specific policy determination.

**Comment [A5]:** Consumers Energy comment: The MN DIP is not technology-neutral in all instances. Inverter-based generators are treated differently than synchronous generators, for instance.

**Comment [A6]:** Consumers Energy comment: The MPSC rules cannot be a “living document” like the MN DIP because the MPSC is updating its interconnection procedures through a formal rulemaking. As such, the MPSC process should build in flexibility to account for a changing DER environment. A primary concern for Consumers Energy, for example, is ensuring that the rules allow utilities time and flexibility to match internal resources with interconnection demands as the DER environment continues to evolve. This is necessary to ensure fairness (and align expectations) for utilities as well as project developers, customers, MPSC staff, and other stakeholders.

**Comment [A7]:** Consumers Energy comment: These rules cannot guarantee “low” cost, which is also difficult to define. But the rules can strive for “economic” costs.

**Comment [A8]:** Consumers Energy comment: Consistent with our prior comment, the MPSC rules should account for an evolving DER environment in which the number and type of interconnection applications continues to fluctuate. Among other things, the rules must provide flexibility so that utilities can tailor their resources over time to account for this evolution, to ensure fairness and alignment of expectations among utilities, project developers, customers, MPSC staff, and other stakeholders.

**Comment [A9]:** Consumers Energy comment: The MPSC should consider whether it wants to say expressly that its rules are “modeled after” the FERC SGIP and/or MN DIP, as that could potentially impact how the rules will be interpreted in the event of ambiguity or disagreement.

<sup>1</sup> “Distributed Energy Resources” (DER) is emerging terminology used to capture both traditional “distributed generation” and storage technologies; however, this term is not currently defined in Minnesota statute or rules, and at times the Commission applies it to a broader category that includes demand-side management (controlling load like air conditioners or water heaters) and, in some cases, even energy efficiency and electric vehicles. For this document, the definition is consistent with IEEE 1547 and limited to generation and storage, and does not include DER that behave solely as load.

and Interoperability Requirements (MN DTIR)<sup>2</sup>; and until updated or replaced 3) Attachment 6 Rates from the statewide interconnection standards adopted in 2004 (September 28, 2004 Order in E-999/CI-01-1023.)

The Commission is grateful to the participants of the Distributed Generation Workgroup comprised of representatives of Minnesota’s utilities, distributed energy resource industries, and consumers who informed this update of the state’s interconnection standards. As these standards go into effect and more distributed energy resources interconnect with utility systems, the Commission expects this to be a living document.

## Section 1. Application

### 1.1 Applicability

1.1.1 The Minnesota Distributed Energy Resources Interconnection Process (MN DIP) applies to any Distributed Energy Resource (DER) ~~no larger than 10 MW~~ interconnecting to, and operating in parallel with, an Area EPS distribution system, ~~in Minnesota~~<sup>3</sup> defined as the operation, for longer than 100 milliseconds, of a project while connected to the energized distribution system. See Minnesota Technical Requirements for more detail on what constitutes parallel operation. For the applicable interconnection process for DERs larger than 10 MW interconnected to, and operated in parallel with, an Area EPS distribution system in Minnesota, contact the Area EPS for details on the applicable interconnection process. The exception is Distributed Energy Resource interconnections that are subject to Federal Energy Regulatory Commission (FERC) jurisdiction.<sup>4</sup>

1.1.1.1 Interconnection Customers seeking to interconnect projects of greater than 150 kW shall submit a request for a Pre-Application Report and complete the Pre-Application Report process prior to submitting an application to interconnect.

~~1.1.1.1~~ 1.1.1.2 -An application to interconnect a certified<sup>5</sup>, inverter-based DER no larger than 20 kilowatts (kW) shall be evaluated under the Section 2 Simplified Process.

~~1.1.1.2~~ 1.1.1.3 An application to interconnect a DER shall be evaluated under the Section 3 Fast Track Process if the eligibility requirements of Section 3.1 Applicability are met.

~~1.1.1.3~~ 1.1.1.4 An application to interconnect a DER that does not meet the Simplified Process or Fast Track Process eligibility requirements, or does not pass the review as described in either process, shall be evaluated under the Study Process.

~~1.1.1.4~~ 1.1.1.5 Attachment 8 contains flow charts that provide an overview of the Simplified Process, the Fast Track Process, and the Study Process.

~~1.1.1.5~~ 1.1.1.6 Prior to submitting an Interconnection Application, the Interconnection Customer may ask the Area EPS Operator’s Interconnection Coordinator

**Comment [A10]:** Consumers Energy comment: As noted above, the MN DIP can more easily be flexible, or a “living document”, because it is not a formal rule. The MPSC rules must build in flexibility rather than relying on future changes to the rules.

**Comment [A11]:** Consumers Energy comment: “Parallel operation” needs to be defined clearly in the MPSC rules. The question of what defines parallel operation comes up often from the public. The rules shouldn’t be sending anyone to a different document to understand what these rules apply to. This proposed definition is the current definition used in Michigan.

**Comment [A12]:** Consumers Energy comment: “Certified” and “certified equipment” – or analogous terms – need to be defined specifically for the MPSC rules and used consistently. It may be necessary in some cases to define terms by reference to other documents (e.g., technical documents), but, where possible, the rules should avoid sending readers to other documents to understand the meaning of terms within the rules. Consumers Energy has not yet reviewed in detail or developed comments on Attachments 4 and 5 to the MN DIP.

**Comment [A13]:** Consumers Energy comment: The size of a proposed interconnection project should account for the total sum of generation at an individual site. In addition, project size should be defined by aggregate nameplate rating without consideration for software-based or other output limitations.

<sup>2</sup> See MN DIP Attachment 4: Certification Codes and Standards regarding statewide technical requirements in the interim between adoption of MN DIP and adoption of an updated MN DTIR.

<sup>3</sup> ~~Minnesota Statute §216B.1611~~

<sup>4</sup> The Federal Regulation and Development of Power Act ([16 U.S. Code Subchapter II](#)) outlines federal regulation of wholesale sales and transmission in interstate commerce and state regulation of generation, distribution, and retail sales.

<sup>5</sup> See Attachment 4 and Attachment 5 for certification criteria.

whether the proposed interconnection is subject to these procedures. The Area EPS Operator shall respond within fifteen (15) Business Days.

- 1.1.2 Capitalized terms used herein shall have the meanings specified in the Glossary of Terms or the body of these procedures. ~~All references to DER Nameplate Rating or maximum capacity as described in 5.14.3<sup>6</sup> herein are in alternating current (AC).~~
- 1.1.3 Neither these procedures nor the requirements included hereunder unless by mutual agreement of the Area EPS Operator and the Interconnection Customer apply to DERs interconnected, approved for interconnection or Interconnection Applications submitted to by the Area EPS Operator prior to June 17, 2019, and later deemed complete (provided these applications are later deemed complete following any applicable revisions no later than 60 days following this date). ~~These procedures and the requirements hereunder shall apply to applications to modify existing DERs if the application to modify is submitted on or after June 17, 2019.~~
  - 1.1.3.1 Nothing in this MN DIP affects an Interconnection Customer's Queue Position assigned before the effective date of this MN DIP. The Parties agree to complete work on any interconnection study agreement executed prior to the effective date of this MN DIP in accordance with the terms and conditions of that interconnection study agreement. Any new studies or other additional work will be completed pursuant to this MN DIP.
- 1.1.4 ~~Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All public utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber security practices.~~
- 1.1.5 References in these procedures to an Interconnection Agreement are to the Uniform Statewide Contract or Minnesota Distributed Energy Resource Interconnection Agreement (MN DIA).
  - 1.1.5.1 The Uniform Statewide Contract ([Minn. R. 7835.9910](#)) replaces the need to use the MN DIA if all of the following conditions are met and the Interconnection Customer does not request the MN DIA:
    - 1.1.5.1.1 Certified equipment
    - 1.1.5.1.2 20 kW<sub>ac</sub> or less of a qualifying DER Capacity
    - 1.1.5.1.3 No Area EPS system modifications are required to accommodate the DER;
    - 1.1.5.1.4 Signed Uniform Statewide Contract and Attachment 2: Simplified Application
    - 1.1.5.1.5 The Area EPS Operator may propose in its tariff an increase to the size threshold for the application of the Uniform Statewide Contract as a replacement for the MN DIA in its tariff. ~~There may also be situations where the Interconnection Customer would need to sign~~

**Comment [A14]:** Consumers Energy comment: Defined terms should be included in the body of the MPSC rulemaking, rather than in a separate document, consistent with usual practice.

**Comment [A15]:** Consumers Energy comment: This definition should be located in a definitions section (it is located in the MN DIP Glossary of Terms already, and so is redundant here). In addition, Consumers Energy does not support allowing "maximum capacity" to be different from aggregate nameplate rating. Aggregate nameplate ratings must be clearly stated for all proposed interconnections.

**Comment [A16]:** Consumers Energy comment: The MPSC should consider whether to allow grandfathering of projects developed under certain legacy programs, such as legacy net metering programs, to streamline certain amendments to old interconnection agreements where necessary.

**Comment [A17]:** Consumers Energy comment: This cut-off date could potentially be streamlined and discussed in more detail by the MPSC in an Order rather than in the rules themselves. This may clutter the rules in the future, after the cut-off date has come and gone.

**Comment [A18]:** Consumers Energy comment: We recommend that Paragraph 1.1.4 be removed from this document or moved to a different section. This does not appear relevant to application scope for the interconnection rules.

**Comment [A19]:** Consumers Energy comment: Consumers Energy currently employs two types of interconnection agreements, as contemplated here -- our Parallel Interconnection & Operating Agreement (PIOA) is presently used for all projects up to 150 kW and our Generator Interconnection & Operating Agreement (GIOA) is used for projects greater than 150 kW. We agree with a two-tiered contract structure in concept, but this section will need to be updated to reflect specific terms and conditions in existing, Michigan-specific interconnection agreements. Note that Consumers Energy does not support a structure whereby more than one interconnection agreement would be executed for a single project, or whereby an interconnection agreement would also serve as a Power Purchase Agreement.

<sup>6</sup> See Minnesota Technical Requirements for more detail on when to apply Nameplate Rating or a limited maximum capacity as defined in 5.14.3.

both the Uniform Statewide Contract and the MN DIA; such as, where the Nameplate Rating of the system is above the size threshold where the Uniform Statewide Contract replaces the MN DIA but the DER qualifies for net metering ([Minn. Stat. §216B.164](#) and [Minn. R. Ch. 7835](#)) under the Uniform Statewide Contract.

**Comment [A20]:** Consumers Energy comment: As stated above, we do not support requiring or allowing interconnection customers to sign more than one agreement for a single project. Consumers Energy currently requires interconnection customers to sign one of two mutually exclusive interconnection agreements, depending on project size, and there doesn't seem to be a good reason listed to change that practice.

1.1.5.2 The reference to Interconnection Agreement also applies when the Area EPS Operator and Interconnection Customer modify MN DIA with Commission approval.

1.1.6 The Area EPS Operator and Interconnection Customer may jointly seek Commission approval of an amendment to the MN DIA for use between them for a specific Interconnection Application in the following ways:

1.1.6.1 File a Petition with the Commission, or

1.1.6.2 File a Notice with the Commission of the proposed amendment. The Notice should include a copy of the amendment showing in redline format how the amendment would alter the MN DIA between the Area EPS Operator and Interconnection Customer for the Interconnection Application at issue. If no objection or notice of intent to object is filed within 30 days, then the proposed amendment would be considered to be approved by the Commission. If there is a timely filed objection or notice of intent to object, then the proposed amendment would not be considered to have been approved by the Commission and could only be used if the Commission subsequently issues a written order authorizing its use.

1.1.7 Commission approval of an amendment to the Interconnection Agreement is not needed where such an amendment only addresses updating or correcting: 1) information specified in the Interconnection Application; 2) exhibits or attachments to the Interconnection Agreement as long as they are not additional agreements or requirements not covered in the MN DIP on MN Technical Requirements; or 3) information provided in the blank lines to the MN DIA or Uniform Statewide Contract forms.

**Comment [A21]:** Consumers Energy comment: This category is not clearly defined. This should ensure that any substantive change to the agreement (i.e., any substantive change to the parties' rights or obligations under the agreement) must be approved by the Commission.

1.1.8 Amendments may only be sought with the prior mutual agreement of the Area EPS Operator and Interconnection Customer. This paragraph does not obligate an Area EPS Operator or an Interconnection Customer to negotiate for or agree to any amendment of the [MI Agreement]. Amendments may only be sought with the prior mutual agreement of the Area EPS Operator and Interconnection Customer.

## 1.2 Online Applications and Electronic Submission

1.2.1 Each Area EPS Operator shall allow Pre-Application Report requests and Interconnection Applications to be submitted electronically; such as, through the Area EPS Operator's website or via email. The Area EPS Operator may allow the Interconnection Agreement to be submitted electronically.

1.2.1.1 The Area EPS Operator may allow for electronic signatures to be used for the Pre-Application Report request, Interconnection Application and related agreements, including the Interconnection Agreement, and forms.

- 1.2.2 Each Area EPS Operator shall dedicate a page on their website or direct customers to a website with generic information on the MN DIP that the Area EPS Operator finds comports with its process. The relevant information that shall be available to the Interconnection Customer via a website includes:
  - 1.2.2.1 The MN DIP and attachments in an electronically searchable format;
  - 1.2.2.2 The Area EPS Operator’s Interconnection Application and all associated forms in a format that allows for electronic entry of data;
  - 1.2.2.3 The Uniform Statewide Contract and the Area EPS Operator’s tariff version of the MN DIA;
  - 1.2.2.4 Example documents; including, at a minimum, an example one-line diagram with required labels; and
  - 1.2.2.5 Contact information for the Area EPS Operator’s DER interconnection coordinator(s) and submission of Interconnection Applications, including email and phone number.

1.3 Communications

- 1.3.1 The Area EPS Operator shall designate a DER interconnection coordinator(s) and this person or persons shall serve as a single point of contact from which general information on the application process and on Affected System(s) can be obtained through informal request from the Interconnection Customer presenting a proposed project for a specific site. The name, telephone number, and e-mail address of such contact employee or office shall be made available on the Area EPS Operator’s Internet website in accordance with section 1.2.2.5. Some Area EPS Operators may have several DER Interconnection Coordinators assigned. The DER Interconnection Coordinator shall be available to provide coordinator assistance with the Interconnection Customer, but is not responsible to directly answer or resolve all of the issues involved in review and implementation of the interconnection process and standards. Upon request, electric system information provided to the Interconnection Customer should include relevant system study results, interconnection studies, and other materials useful to an understanding of an interconnection at a particular point on the Area EPS Operator’s System, to the extent such provision does not violate the privacy policies of the Commission, confidentiality provisions of prior agreements or critical infrastructure requirements. This listing does not include a Pre-Application Report under Section 1.4. The Area EPS Operator shall comply with reasonable requests for such information.
- 1.3.2 The Interconnection Customer may designate, on the Interconnection Application or in writing after the Application has been submitted, an Application Agent to serve as the single point of contact to coordinate with the DER Interconnection Coordinator on their behalf. Designation of an Application Agent does not absolve the Interconnection Customer from signing interconnection documents and the responsibilities outlined in the MN DIP and Interconnection Agreement.
- 1.3.3 Engineering Communication: Upon request of either party or the Commission, for the purpose of exchanging information regarding an active Interconnection Application, the Area EPS Operator and the Interconnection Customer shall each identify one point of contact with technical expertise for their organizations.

**Comment [A22]:** Consumers Energy comment: We recommend establishing a procedure whereby utilities can bring to the MPSC’s attention instances of Application Agents not adhering to the rules, such that these issues can be addressed without prejudice to the Interconnection Customer.

**Comment [A23]:** Consumers Energy comment: Our understanding is that this “one point of contact” may be different than the “interconnection coordinator(s)” discussed in 1.3.1, and that the “one point of contact” can be specific to individual interconnection projects. We support that concept.

## 1.4 Pre-Application Report

1.4.1 In addition to the information described in section 1.3.1, which may be provided in response to an informal request, an Interconnection Customer seeking to interconnect a project with an aggregate nameplate rating of greater than 150 kW shall may submit a formal written request form along with a non-refundable fee of up to \$300 for a Pre-Application Report on a proposed project at a specific site. An Interconnection Customer seeking to interconnect a project with an aggregate nameplate rating of 150 kW or less may submit such a request. The Area EPS Operator shall provide the data described in section 1.4.2 to the Interconnection Customer within fifteen (15) Business Days of receipt of the completed request form and payment of the up to \$300 fee. The Pre-Application Report produced by the Area EPS Operator is non-binding, does not confer any rights, and the Interconnection Customer must still successfully apply to interconnect to the Area EPS Operator's system. The written Pre-Application Report request form shall include the information in sections 1.4.1.1 through 1.4.1.8 below to clearly and sufficiently identify the location of the proposed Point of Common Coupling.

- 1.4.1.1 Project contact information, including name, address, phone number, and email address.
- 1.4.1.2 Project location (street address with nearby cross streets and town). Interconnection Customer may choose to also provide an aerial map or GPS coordinates for increased accuracy.
- 1.4.1.3 Meter number, pole-structure number, or other equivalent information identifying proposed Point of Common Coupling, if available.
- 1.4.1.4 DER type(s) (e.g., solar, wind, combined heat and power, storage, solar + storage, etc.).
- 1.4.1.5 Nameplate Rating (alternating current kW).
- 1.4.1.6 Single or three phase DER configuration.
- 1.4.1.7 Stand-alone generator (no onsite load, not including station service – Yes or No?).
- 1.4.1.8 Is new service requested? Yes or No? If there is existing service, include the customer account number, site minimum and maximum current or proposed electric loads in kW (if available) and specify how the load is expected to change.

1.4.2 Using the information provided in the Pre-Application Report request form in section 1.4.1, the Area EPS Operator will identify the substation/area bus, bank or circuit likely to serve the proposed Point of Common Coupling. This selection by the Area EPS Operator does not necessarily indicate, after application of the screens and/or study, that this would be the circuit the project ultimately connects to. The Interconnection Customer must request additional Pre-Application Reports if information about multiple Points of Common Coupling is requested. Subject to 1.4.3, the Pre-Application Report will include the following information:

- 1.4.2.1 Total capacity (in megawatts (MW)) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed Point of Common Coupling.

**Comment [A24]:** Consumers Energy comment: Fees associated with these rules should be reviewed and established only after the substance of the rules is fully vetted; otherwise, it is difficult to understand the level of effort and/or resources needed for compliance. In addition, these rules should provide for flexibility in adjusting fees over time as circumstances change.

**Comment [A25]:** Consumers Energy comment: We prefer to specify "structure number," as not all projects necessarily incorporate a "pole".

**Comment [A26]:** Consumers Energy comment: We have several comments to make regarding section 1.4.2.

- First**, this list of information does not distinguish between certain different types of distribution systems, such as Consumers Energy's "low voltage distribution" and "high voltage distribution" systems. It appears that much of the information would not be available for (or would not be relevant to) high voltage distribution systems. This comment appears to apply to the information required by 1.4.2.4; 1.4.2.6; 1.4.2.7; 1.4.2.8; 1.4.2.9; 1.4.2.10; 1.4.2.11; 1.4.2.12.
- Second**, much of this information is not "existing" information, meaning that it cannot be provided as part of a Pre-Application Report, but instead would need to be developed as part of further studies, and at additional cost.
- Third**, some of this information is not necessary for Interconnection Customers, and providing it could cause both confusion and the possibility of disputes.
- Fourth**, some of this information likely cannot be provided, or provided completely, without violating existing non-disclosure agreements or other contracts.
- Fifth**, some of this information would be subject to change rapidly as system conditions change and impact the complex studies needed to produce the information.

These comments may be addressed in part by 1.4.3 and 1.4.4, but they are still, collectively, one of Consumers Energy's primary concerns about the sections of the MN DIP reviewed here.

**Comment [A27]:** Consumers Energy comment: We disagree that "total capacity" should be provided, as it is not necessary or helpful to interconnection customers. "Available capacity" is covered by 1.4.2.4. Available capacity of a system to accept generation can be complicated (thermal ratings, voltage limitations, in some cases contingency conditions) and changes over time due to load growth or additions, generation changes, and other system changes. Thus "available capacity" requires utility study for the purpose being considered. Requiring utilities to provide "total capacity" in addition to "available capacity" will create confusion, and it has the potential to create unnecessary disputes where the "available capacity" determination is second-guessed by interconnection customers.



- 1.4.2.2 Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed Point of Common Coupling.
- 1.4.2.3 Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed Point of Common Coupling.
- 1.4.2.4 Available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed Point of Common Coupling (i.e., total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity).
- 1.4.2.5 Substation nominal distribution voltage and/or transmission nominal voltage if applicable.
- 1.4.2.6 Nominal distribution circuit voltage at the proposed Point of Common Coupling. If different, miles of conversion required to reach substation nominal distribution voltage.
- 1.4.2.7 Approximate circuit distance between the proposed Point of Common Coupling and the substation.
- 1.4.2.8 Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load as described in section 3.4.4.1 below and absolute minimum load, when available.
- 1.4.2.9 Whether the Point of Common Coupling is located behind a line voltage regulator.
- 1.4.2.10 Number and rating of protective devices and number and type (standard, bi-directional) of voltage regulating devices between the proposed Point of Common Coupling and the substation/area. Identify whether the substation has a load tap changer.
- 1.4.2.11 Number of phases available on the Area EPS medium voltage system at the proposed Point of Common Coupling. If a single phase less than three-phase, distance from the three-phase circuit.
- 1.4.2.12 Limiting conductor ratings from the proposed Point of Common Coupling to the distribution substation.
- 1.4.2.13 Whether the Point of Common Coupling is located on a spot network, grid network, or radial supply.
- 1.4.2.14 Based on the proposed Point of Common Coupling, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

**Comment [A28]:** Consumers Energy comment: We disagree that "existing aggregate generation" should be provided, for reasons similar to those explained in our prior comment. This information could be difficult to define and/or to compile in some circumstances. It is also not necessary or helpful to interconnection customers, and it is likely to lead to confusion and/or unnecessary disputes. Additionally, this provision could require utilities to violate non-disclosure agreements or other contracts with existing generators.

**Comment [A29]:** Consumers Energy comments: this information could be difficult to compile outside of more specific and detailed study processes, and it would be very difficult (and resource intensive) to keep compiled on a real-time basis.

**Comment [A30]:** Consumers Energy comment: This accuracy and value of this information will change regularly due to system and generator changes.

**Comment [A31]:** Consumers Energy comment: Is this asking for load data for just a portion of the circuit?

**Comment [A32]:** Consumers Energy comment: We would not have this data.

**Comment [A33]:** Consumers Energy comment: We would not have this data.

**Comment [A34]:** Consumers Energy comment: If the conductor is limiting a project, the project would have been given a reduced rating in 1.4.2.4. So, this information appears to be unnecessary.

1.4.3 The Pre-Application Report need only include existing data. A request for a Pre-Application Report does not obligate the Area EPS Operator to conduct a study or other analysis of the proposed DER in the event that data ~~is not readily available~~does not exist. If the Area EPS Operator cannot complete all or some of a Pre-Application Report due to lack of available-existing data, the Area EPS Operator shall provide the Interconnection Customer with a Pre-Application Report that includes the data that is existing-available. The confidentiality provisions found in 5.9 apply to Pre-Application Reports. The Area EPS Operator shall not be obligated to return any of the Pre-Application Report fee on the basis that some or all information does not exist. Any further study and analysis that may be required beyond the Pre-Application Report may require an Interconnection Customer to make additional requests and pay additional fees.

**Comment [A35]:** Consumers Energy comment: This section should use consistent language regarding "existing data" to clarify that the utility is not required to create or compile data that does not exist at the time it receives a Pre-Application Report request. Terms like "available data" and "readily available data" are not consistent and not precise, and could potentially lead to disputes.

**Comment [A36]:** Consumers Energy comment: We do not understand whether this means Pre-Applications Reports are/can be confidential, or whether information to be provided in Pre-Application Reports can be limited or withheld due to confidentiality concerns. We suggest both should be true. However, this should be addressed in conjunction with the outcome of further discussion and comment on Section 5.9 at a later time.

1.4.4 The provision of information on "available capacity" pursuant to required by section 1.4.2.4 does not imply that an interconnection up to this-a certain level may be completed without impacts since there are many variables studied as part of the interconnection review process. The distribution system is dynamic and subject to change, and data provided in the Pre-Application Report may become outdated at the time of the submission of the complete Interconnection Application. Notwithstanding any of the provisions of this section, the Area EPS Operator shall, in good faith, include data in the Pre-Application Report that represents the best available existing information at the time of reporting.

**Comment [A37]:** Consumers Energy comment: This disclaimer should apply to all information listed in Section 1.4.

## 1.5 Interconnection Application

1.5.1 The Interconnection Customer shall submit an Interconnection Application to the Area EPS Operator, together with the processing fee or deposit specified in the Interconnection Application. Additional fees or deposits for the interconnection process shall not be required, except as otherwise specified in these procedures. Application form templates are available in Attachment 2: Simplified Application Form and Attachment 3. The Area EPS Operator's tariff shall include specific fees for Simplified Process, Fast Track Process, and Study Process consistent with:

1.5.1.1 The processing fee for the Simplified Process Application shall be up to \$100.

1.5.1.2 For certified, Fast Track Process eligible applications, the processing fee shall be up to \$100 + \$1/kW. For non-certified Fast Track Process eligible applications, the processing fee shall be up to \$100 + \$2/kW.

1.5.1.3 For an Interconnection Application that is not eligible or does not apply for Simplified Process or Fast Track Process, the processing fee shall be a down payment not to exceed \$1,000 plus \$2.00 per kW toward the deposit required for the study(s) under Section 4 Study Process.

1.5.1.4 Interconnection Applications shall contain a single line diagram and site diagram. A signature from a professional engineer licensed in Minnesota shall be required when: 1) Certified equipment is greater than 250 kW; or 2) non-certified equipment is greater than 50 kW.

1.5.2 The Interconnection Application shall be date- and time-stamped upon initial and, if necessary, resubmission receipt. Unless Section 2 Simplified Process applies, the Interconnection Customer shall be notified of receipt by the Area EPS Operator within three (3) Business Days of receiving the Interconnection Application. The Area EPS Operator shall notify the Interconnection Customer within ten (10) Business Days of the receipt of the Interconnection Application as to whether the Interconnection Application is complete or incomplete. If the Interconnection Application is incomplete, the Area EPS Operator shall provide along with the notice that the Interconnection

Application is incomplete, a written list detailing all information that must be provided to complete the Interconnection Application. The Interconnection Customer will have ten (10) Business Days after receipt of the notice to submit all of the listed information. If the Interconnection Customer does not provide the listed information within the deadline the Interconnection Application will be deemed withdrawn. An Interconnection Application will be deemed complete upon submission of documents adhering to Minnesota Technical Requirements and containing the listed information to the Area EPS Operator. The Area EPS Operator will have five (5) Business Days to review the additional material and notify the Interconnection Customer if the Interconnection Application is deemed complete. The date-and time- stamp of receipt of a complete Interconnection Application shall be accepted as the qualifying date for the purposes of establishing queue position as described in section 1.8.

## 1.6 Modification of the Interconnection Application or a DER Interconnection

- 1.6.1 At any time after an Interconnection Application is deemed complete, including after the receipt of Fast Track, supplemental review, system impact study, and/or facilities study results, the Interconnection Customer, the Area EPS Operator, or the Affected System owner may identify modifications to the planned Interconnection that may improve the costs and benefits (including reliability) of the Interconnection, and/or the ability of the Area EPS Operator to accommodate the Interconnection. The Interconnection Customer shall submit to the Area EPS Operator, in writing, all proposed modifications to any information provided in the Interconnection Application. Neither the Area EPS Operator nor the Affected System operator may unilaterally modify the Interconnection Application.
- 1.6.2 Within ten (10) Business Days of receipt of a proposed modification, the Area EPS Operator shall evaluate whether a proposed modification to either an Interconnection Application or an existing DER Interconnection constitutes a Material Modification. If applicable, the Area EPS Operator shall make Reasonable Effort to consult with the Affected System owner. The definition in Glossary of Terms includes examples of what does and does not constitute a Material Modification.
- 1.6.2.1 If the proposed modification is determined to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the Customer may: 1) withdraw the proposed modification; or 2) proceed with a new Interconnection Application for such modification. The Interconnection Customer shall provide its determination in writing to the Area EPS Operator within ten (10) Business Days after being provided the Material Modification determination results. If the Interconnection Customer does not provide its determination, the Customer's Application shall be deemed withdrawn.
- 1.6.2.2 If the proposed modification is determined not to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and that the Interconnection Customer shall retain its eligibility for interconnection, including its place in the interconnection queue.
- 1.6.3 Any dispute as to the Area EPS Operator's determination that a modification constitutes a Material Modification shall proceed in accordance with the dispute resolution provisions in section 5.3 of these procedures.
- 1.6.4 Any modification to machine data, equipment configuration or to the interconnection site of the DER not agreed to in writing by the Area EPS Operator and the Interconnection Customer may be

deemed a withdrawal of the Interconnection Application and may require submission of a new Interconnection Application, unless proper notification of each Party by the other as described in sections 1.6.1 and 1.6.2.

#### 1.7 Site Control

Documentation of site control must be submitted with the Interconnection Application. Site control may be demonstrated through providing documentation showing any of the following:

- 1.7.1 Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the DER;
- 1.7.2 An option to purchase or acquire a leasehold site for such purpose; or
- 1.7.3 An exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease, or grant the Interconnection Customer the right to possess or occupy a site for such purpose; or
- 1.7.4 For DERs utilizing the Section 2 Simplified Process, proof of site control may be demonstrated by the site owner's signature on the Interconnection Application.

#### 1.8 Queue Position

- 1.8.1 Queue Position is assigned by the Area EPS based on when the Interconnection Application is deemed complete as described in section 1.5.2. The Queue Position of each Interconnection Application will be used to determine the cost responsibility for the Upgrades necessary to accommodate the interconnection. The Queue Position also establishes conditional interconnection capacity for an Interconnection Customer, contingent upon all requirements of the MN DIP and MN Technical Requirements being met.
- 1.8.2 Subject to the provisions in sections 1.5, 1.6, and 1.7, the DER shall retain the Queue Position assigned to their Interconnection Application throughout the review process for the purpose of determining cost responsibility and conditional interconnection capacity, including when moving through the processes covered by Section 2 Simplified Process and Section 3 Fast Track Process. Failure by the Interconnection Customer to meet the time frames outlined in these procedures or request a timeline extension shall result in a withdrawal of the Interconnection Application. The Area EPS shall notify the Interconnection Customer of the missed time frame with an opportunity to request a timeline extension as defined in section 5.2.3 before the Interconnection Application is deemed withdrawn.
- 1.8.3 The Area EPS Operator shall maintain a single, administrative queue and may manage the queue by geographical region (i.e. feeder, substation, etc.) This administrative queue shall be used to address Interconnection Customer inquiries about the queue process. If the Area EPS Operator and the Interconnection Customer(s) agree, Interconnection Applications may be studied in clusters for the purpose of the system impact study; otherwise, they will be studied serially.
- 1.8.4 Each Area EPS Operator that has received at least forty (40) complete Interconnection Applications, including Simplified Process Applications, in a year shall maintain a public interconnection queue, available in a sortable spreadsheet format on its website, which it shall update on at least a monthly basis unless no changes to the spreadsheet have occurred in that month. The date of the most recent update shall be clearly indicated.

- 1.8.4.1 At a minimum, the following shall be included in the public interconnection queue:
  - 1.8.4.1.1 Application or Queue Number
  - 1.8.4.1.2 Date Application Deemed Complete
  - 1.8.4.1.3 Interconnection Process Track (Simplified, Fast Track, or Study Process)
  - 1.8.4.1.4 Proposed DER Capacity (Nameplate Rating unless limited as defined in 5.14.3)
  - 1.8.4.1.5 DER type (technology)
  - 1.8.4.1.6 Proposed DER Location by geographic region (i.e. by feeder or line section)
  - 1.8.4.1.7 Status of the Application's progress through the process (e.g. Initial Review, Supplemental Review, Facilities Study, Construction, Inspection, etc.)

## Section 2. Simplified Process

### 2.1 Applicability

- 2.1.1 For ~~Certified~~certified, inverter-based DERs with a DER Capacity of 20 kW ac or less: The Area EPS Operator shall comport with the Simplified Process, including the time frames described in that process. Simplified Process eligibility does not imply or indicate that a DER will pass the Initial Review Screens, failure to pass the screens will route the application to the Fast Track Process.
- 2.1.2 Certified Equipment – UL 1741 listing is a common form of DER inverter certification. See Attachment 4: Certification Codes and Standards and Attachment 5: Certification of Distributed Energy Resource Equipment.

### 2.2 Simplified Process Application Review Process

- 2.2.1 The Interconnection Customer with an eligible DER shall complete the Simplified Process Application and submit it and the application processing fee to the Area EPS Operator. A Simplified Process Application template is provided in Attachment 2: Simplified Application Form.
- 2.2.2 Within ten (10) Business Days of receipt of the Simplified Process Application, the Area EPS Operator shall acknowledge to the Interconnection Customer receipt of the Simplified Process Application, evaluate the Simplified Process Application for completeness, and notify the Interconnection Customer whether the Simplified Process Application is or is not complete, and, if not, identify what material is missing. The Area EPS Operator shall to the best of its ability identify all missing material and other errors or omissions at this time. The Interconnection Customer shall submit any additional material within five (5) Business Days of the Area EPS Operator's notice; if the additional material is not submitted within [TBD] business days, the Simplified Process Application will be considered withdrawn. The Area EPS Operator shall have

**Comment [A38]:** Consumers Energy comment: The Simplified Process (or another provision of the MPSC rule) should address transfer-of-rights issues for small generators, particularly net-metering generators impacted by home sales.

an additional five (5) Business Days to review the additional material and notify the Interconnection Customer that the Simplified Process Application is complete.

- 2.2.3 The Area EPS Operator shall determine if the DER can be interconnected safely and reliably using the Initial Review Screens contained in the Fast Track Process at 3.2.1, and without construction of facilities by the Area EPS Operator. The Area EPS Operator has twenty (20) Business Days from receipt of a complete Simplified Process Application to complete this process and inform the Interconnection Customer of the results.

Unless the Area EPS Operator determines and demonstrates that the DER cannot be interconnected safely and reliably or requires construction of facilities by the Area EPS Operator, the Area EPS Operator approves the Application and provides the Interconnection Customer an executable Uniform Statewide Contract or MN DIA within five (5) days as described in sections 1.1.5.1 and 5.1.1.

If the Area EPS Operator determines the DER can be connected safely and reliably only with construction of facilities by the Area EPS Operator, the Area EPS Operator shall follow the procedures set forth in Section 3.2.2.

If the Area EPS Operator does not or cannot determine that the DER may be interconnected safely and reliably unless the Interconnection Customer is willing to consider minor modifications or further study, the Area EPS Operator shall follow the procedures set forth in Section 3.2.3.

## 2.3 Simplified Interconnection

- 2.3.1 the Interconnection Customer shall sign and return the Interconnection Agreement within thirty (30) Business Days<sup>7</sup> or may request an extension as described in Section 5.1.2 and 5.2. The Interconnection Customer must submit to the Area EPS Operator either 1) a signed copy of the Uniform Statewide Contract, if applicable, ~~which serves as both the power purchase agreement and Interconnection Agreement;~~ or 2) the Interconnection Customer must submit a signed Uniform Statewide Contract, if applicable, and a separate MN DIA as described in section 1.1.5..

- 2.3.1.1 Upon receipt of the signed Interconnection Agreement, and then after fully executing it as provided for in Section 5.1.2, the Area EPS Operator shall schedule and execute appropriate construction of facilities, if necessary, which shall be completed prior to the Interconnection Customer returning the Certificate of Completion. If construction of facilities is required by the Area EPS Operator, the Area EPS Operator shall notify the customer upon completion of construction.

- 2.3.2 After installation, the Interconnection Customer returns the Certificate of Completion to the Area EPS Operator. Prior to parallel operation, and consistent with the MN DIP, the Area EPS Operator may inspect the DER for compliance with standards, which may include a witness test, and may schedule appropriate metering replacement, if necessary. The Area EPS Operator is obligated to complete the witness test, if required, within ten (10) Business Days of the receipt of the Certificate of Completion. If the Area EPS Operator does not inspect within ten (10) Business Days, the witness test is deemed waived.

**Comment [A39]:** Consumers Energy comment: These time frames should be longer – a minimum of 10 days each. In general, Consumers Energy recommends using consistent timelines throughout these procedures to minimize confusion, rather than imposing 5-, 10-, 15-, and 20- day deadlines for varying types of procedures.

**Comment [A40]:** Consumers Energy comment: We are opposed to a single agreement that would serve both as an interconnection agreement and a PPA.

**Comment [A41]:** Consumers Energy comment: "Witness test" should be a defined term for clarity and consistency.

<sup>7</sup> The 30-day timeframe in this step originates from Section 5.1.2 and does not represent a new step or timeframe.

2.3.3 Within three (3) Business Days of inspection or waiver of inspection, the Area EPS Operator shall notify the Interconnection Customer in writing that interconnection of the DER has permission to operate. If the witness test is not satisfactory, the Area EPS Operator has the right to disconnect the DER. The Interconnection Customer has no right to operate in parallel, except for optional testing not to exceed two hours, until permission to operate is granted by the Area EPS Operator.

**Comment [A42]:** Consumers Energy comment: The MPSC rules should establish a process for handling an unsatisfactory witness test beyond just the utility's right to disconnect the generator. Will the generator be provided an opportunity to correct within a specified timeframe so that there is a clear point where the generator needs to withdraw and start from the beginning, should they not adequately correct?

**Comment [A43]:** Consumers Energy comment: This additional "optional testing" should be better defined for clarity and consistency. The Interconnection Customer should not be entitled to perform additional testing without permission of the utility and/or without including an opportunity for the utility to witness the testing.

## **Glossary of Terms**

**Comment [A44]:** Consumers Energy comment: We have not yet reviewed this in detail or developed a position regarding the individual terms included.

**Affected System** – Another Area EPS Operator’s System, Transmission Owner’s Transmission System, or Transmission System connected generation which may be affected by the proposed interconnection.

**Applicant Agent** – A person designated in writing by the Interconnection Customer to represent or provide information to the Area EPS on the Interconnection Customer’s behalf throughout the interconnection process.

**Area EPS** – The electric power distribution system connected at the Point of Common Coupling

**Area EPS Operator** – An entity that owns, controls, or operates the electric power distribution systems that are used for the provision of electric service in Minnesota.

**Business Day** – Monday through Friday, excluding Holidays as defined by [Minn. Stat. §645.44, Subd. 5](#). See MN DIP Section 5.2.1 for more on computation of time.

**Certified Equipment** - UL 1741 listing is a common form of DER inverter certification. See Attachment 4: Certification Codes and Standards and Attachment 5: Certification of Distributed Energy Resource Equipment

**Confidential Information** – See MN DIP 5.9

**Distributed Energy Resource (DER)** – A source of electric power that is not directly connected to a bulk power system. DER includes both generators and energy storage technologies capable of exporting active power to an EPS. An interconnection system or a supplemental DER device that is necessary for compliance with this standard is part of a DER. For the purpose of the MN DIP and MN DIA, the DER includes the Customer’s Interconnection Facilities but shall not include the Area EPS Operator’s Interconnection Facilities.

**Distribution System** – The Area EPS facilities which are not part of the Local EPS, Transmission System or any generation system.

**Distribution Upgrades** – The additions, modifications, and upgrades to the Distribution System at or beyond the Point of Common Coupling to facilitate interconnection of the DER and render the distribution service necessary to effect the Interconnection Customer’s connection to the Distribution System. Distribution Upgrades do not include Interconnection Facilities.

**Electric Power System (EPS)** – The facilities that deliver electric power to a load.

**Fast Track Process** – The procedure as described in Section 3 for evaluating an Interconnection Application for a DER that meets the eligibility requirements of section 3.1.



**Force Majeure Event** – An act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, an order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or another cause beyond a Party’s control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

**Good Utility Practice** – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and act which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**Governmental Authority** – Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, the Area EPS Operator, or any Affiliate thereof. The Minnesota Public Utilities Commission is the authority governing interconnection requirements unless otherwise provided for in the Minnesota Technical Requirements.

**Interconnection Agreement** – The terms and conditions between the Area EPS Operator and Interconnection Customer (Parties). See MN DIP Section 1.1.5 for when the Uniform Statewide Contract or MN DIA applies.

**Interconnection Application** – The Interconnection Customer’s request to interconnect a new or modified, as described in MN DIP Section 1.6, DER. See Attachment 2: Simplified Application Form and Attachment 3 Interconnection Application Form.

**Interconnection Customer** – The person or entity, including the Area EPS Operator, whom will be the owner of the DER that proposes to interconnect a DER(s) with the Area EPS Operator’s Distribution System. The Interconnection Customer is responsible for ensuring the DER(s) is designed, operated and maintained in compliance with the Minnesota Technical Requirements.

**Interconnection Facilities** – The Area EPS Operator’s Interconnection Facilities and the Interconnection Customer’s Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the DER and the Point of Common Coupling, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the DER to the Area EPS Operator’s System. Some examples of Customer Interconnection Facilities include: supplemental DER devices, inverters, and

associated wiring and cables up to the Point of DER Connection. Some examples of Area EPS Operator Interconnection Facilities include sole use facilities; such as, line extensions, controls, relays, switches, breakers, transformers and shall not include Distribution Upgrades or Network Upgrades.

**Material Modification** – A modification to machine data, equipment configuration or to the interconnection site of the DER at any time after receiving notification by the Area EPS Operator of a complete Interconnection Application that has a material impact on the cost, timing, or design of any Interconnection Facilities or Upgrades, or a material impact on the cost, timing or design of any Interconnection Application with a later Queue Position or the safety or reliability of the Area EPS.<sup>8</sup>

**MN DIA** - The Minnesota Distributed Energy Resource Interconnection Agreement. See MN DIP Section 1.1.5 for when the Uniform Statewide Contract or MN DIA applies.

**MN DIP** – The Minnesota Distributed Energy Resource Interconnection Process. Statewide interconnection standards in this document.

**MN Technical Requirements** – The term including all of the DER technical interconnection requirement documents for the state of Minnesota; including: 1) Attachment 2 Distributed Generation Interconnection Requirements established in the Commission’s September 28, 2004 Order in E-999/CI-01-1023) until superseded and upon Commission approval of updated Minnesota DER Technical Interconnection and Interoperability Requirements in E-999/CI-16-521 (anticipated in late 2019.)

**Nameplate Rating** - nominal voltage (V), current (A), maximum active power (kW<sub>ae</sub>), apparent power (kVA), and reactive power (kvar<sub>var</sub>) at which a DER is capable of sustained operation. For a Local EPS with multiple DER units, the aggregate nameplate rating is equal to the sum of all DERs nameplate rating in the Local EPS, not including aggregate capacity limiting mechanisms such as coincidence factors, plant controller limits, etc. that may be applicable for

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<sup>8</sup> A Material Modification shall include, but may not be limited to, a modification from the approved Interconnection Application that: (1) changes the physical location of the point of common coupling; such that it is likely to have an impact on technical review; (2) increases the nameplate rating or output characteristics of the Distributed Energy Resource; (3) changes or replaces generating equipment, such as generator(s), inverter(s), transformers, relaying, controls, etc., and substitutes equipment that is not like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; (4) changes transformer connection(s) or grounding; and/or (5) changes to a certified inverter with different specifications or different inverter control settings or configuration. A Material Modification shall not include a modification from the approved Interconnection Application that: (1) changes the ownership of a Distributed Energy Resource; (2) changes the address of the Distributed Energy Resource, so long as the physical point of common coupling remains the same; (3) changes or replaces generating equipment such as generator(s), inverter(s), solar panel(s), transformers, relaying, controls, etc. and substitutes equipment that is a like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; and/or (4) increases the DC/AC ratio but does not increase the maximum AC output capability of the Distributed Energy Resource in a way that is likely to have an impact on technical review.

specific cases (Aggregate Nameplate Rating). The nameplate ratings referenced in the MN DIP are alternating current nameplate DER ratings. See Section 5.14 on Capacity of the Distributed Energy Resource and Minnesota Technical Requirements.

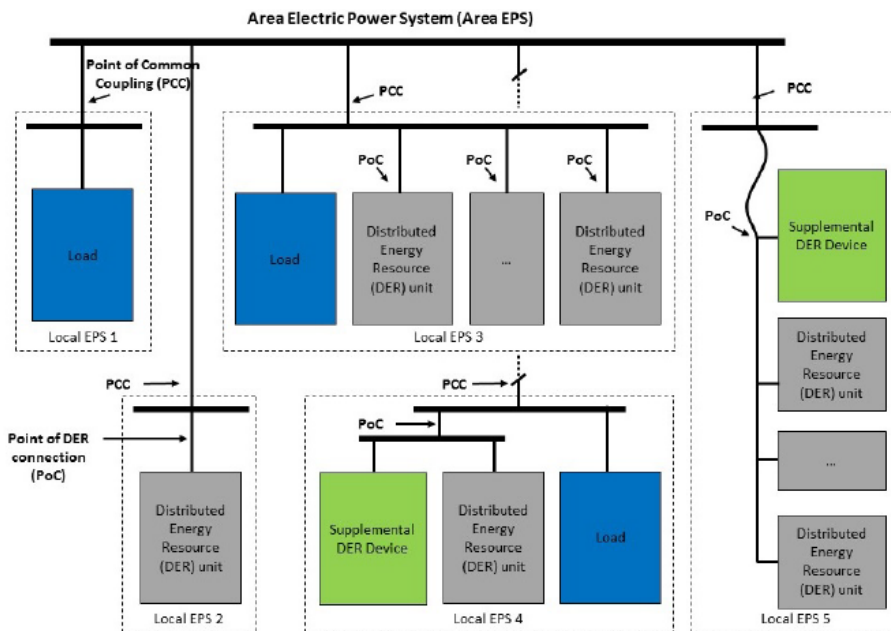
**Network Upgrades** – Additions, modifications, and upgrades to the Transmission System required at or beyond the point at which the DER interconnects with the Area EPS Operator’s System to accommodate the interconnection with the DER to the Area EPS Operator’s System. Network Upgrades do not include Distribution Upgrades.

**Notice of Dispute** – The disputing Party shall provide the other Party this written notice containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express notice by the disputing Party that it is invoking the procedures under MN DIP 5.3.

**Operating Requirements** – Any operating and technical requirements that may be applicable due to the Transmission Provider’s technical requirements or Minnesota Technical Requirements, including those set forth in the MN DIA.

**Party or Parties** – The Area EPS Operator and the Interconnection Customer.

**Point of Common Coupling (PCC)**– The point where the Interconnection Facilities connect with the Area EPS Operator’s Distribution System. See figure 1. Equivalent, in most cases, to “service point” as specified by the Area EPS Operator and described in the National Electrical Code and the National Electrical Safety Code.



**Figure 1: Point of Common Coupling and Point of DER Connection**

(Source: IEEE 1547)

**Point of DER Connection (PoC)** – When identified as the Reference Point of Applicability, the point where an individual DER is electrically connected in a Local EPS and meets the requirements of this standard exclusive of any load present in the respective part of the Local EPS (e.g. terminals of the inverter when no supplemental DER device is required.) For DER unit(s) that are not self-sufficient to meet the requirements without (a) supplemental DER device(s), the Point of DER Connection is the point where the requirements of this standard are met by DER in conjunction with (a) supplemental DER device(s) exclusive of any load present in the respective part of the Local EPS.

**Queue Position** – The order of a valid Interconnection Application, relative to all other pending valid Interconnection Applications, that is established based upon the date- and time- of receipt of the complete Interconnection Application as described in sections 1.5.2 and 1.8. .

**Reasonable Efforts** – With respect to an action required to be attempted or taken by a Party under these procedures, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

**Reference Point of Applicability** – The location, either the Point of Common Coupling or the Point of DER Connection, where the interconnection and interoperability performance

requirements specified in IEEE 1547 apply. With mutual agreement, the Area EPS Operator and Customer may determine a point between the Point of Common Coupling and Point of DER Connection. See Minnesota DER Technical Interconnection and Interoperability Requirements for more information.

**Simplified Process** – The procedure for evaluating an Interconnection Application for a certified inverter-based DER no larger than 20 kW that uses the screens described in section 3.2. The Simplified Process includes simplified procedures. Attachment 2: Simplified Application Form includes a brief set of terms and conditions, and the option for Interconnection Agreement described in 1.1.5. See Section 2 Simplified Process.

**Study Process** – The procedure for evaluating an Interconnection Application that includes the Section 4 scoping meeting, system impact study, and facilities study.

**Tariff** – The Area EPS Operator’s Tariff filed in compliance with the Minnesota Distributed Energy Resource Interconnection Procedures (MN DIP) and approved by the Minnesota Public Utilities Commission (MPUC or Commission).

**Transmission Owner** – The entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System relevant to the Interconnection.

**Transmission Provider** – The entity (or its designated agent) that owns, leases, controls, or operates transmission facilities used for the transmission of electricity. The term Transmission Provider includes the Transmission Owner when the Transmission Owner is separate from the Transmission Provider. The Transmission Provider may include the Independent System Operator or Regional Transmission Operator.

**Transmission System** – The facilities owned, leased, controlled or operated by the Transmission Provider or the Transmission Owner that are used to provide transmission service. See the Commission’s July 26, 2000 Order Adopting Boundary Guidelines for Distinguishing Transmission from Generation and Distribution Assets in Docket No. E-999/CI-99-1261.

**Uniform Statewide Contract** – State of Minnesota’s standard, uniform contract that must be applied to all qualifying new and existing interconnections between a utility and DER having capacity less than 40 kilowatts if interconnecting with a cooperative or municipal utility, and 1,000 kilowatts if interconnecting with a public utility. ([Minn. Rules 7835.9910](#))

**Upgrades** – The required additions and modifications to the Area EPS Operator’s Transmission or Distribution System at or beyond the Point of Interconnection. Upgrades may be Network Upgrades or Distribution Upgrades. Upgrades do not include Interconnection Facilities