



State of Minnesota

**Distributed Energy Resources Interconnection
Process
(MN DIP)**

v.2.3

For Commission Consideration - 11/30/18 Notice

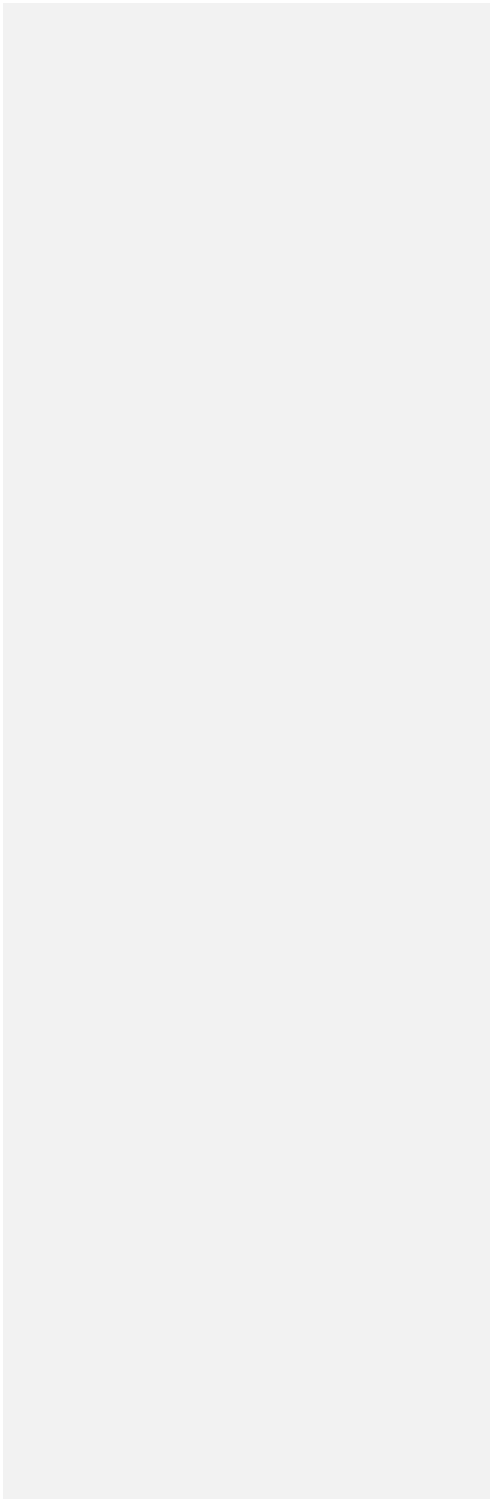


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Foreword

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 resources¹ of no more than 10 MW. In updating Minnesota's interconnection standards, we strive to:

- 1) Establish a practical, efficient interconnection process that is easily understandable for everyone involved;
- 2) Maintain a safe and reliable electric system at fair and reasonable rates;
- 3) Give maximum possible encouragement of 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 and non-discriminatory.

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, safe, 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.

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);

¹ "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.

2) Minnesota Distributed Energy Resource Technical Interconnection and Interoperability Requirements (MN DTIIR)²; 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.³ 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.⁴

1.1.1.1 An application to interconnect a certified⁵, inverter-based DER no larger than 20 kilowatts (kW) shall be evaluated under the Section 2 Simplified Process.

1.1.1.2 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

1.1.1.3 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.

² 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 DTIIR.

³ [Minnesota Statute §216B.1611](#)

⁴ 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.

⁵ See Attachment 4 and Attachment 5 for certification criteria.

- 1.1.1.4 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 Prior to submitting an Interconnection Application, the Interconnection Customer may ask the Area EPS Operator's Interconnection Coordinator 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 5.14.3⁶ 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

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

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 kWac 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 Attachment 1: Pre-Application Report Request Form

Requests for an Interconnection Pre-Application Report shall include the information identified in Sections 1.4.1.1 through 1.4.1.8 of the Minnesota Distributed Energy Resource Interconnection Process (MN DIP) (and as provided in the fields below) to clearly and sufficiently identify the location of the proposed Point of Common Coupling and relevant project details.

Additionally, a non-refundable processing fee of _____ (not to exceed \$300) is required as specified in Section 1.4.1 of the MN DIP.

Upon receipt of a complete Request Form (including site map) and processing fee, the Area EPS Operator shall provide a report containing as much of the data described in Section 1.4.2 as is pre-existing and available within 15 business days. A Pre-Application Report request does not obligate the Area EPS Operator to conduct a study or other analysis of the proposed project if data is not available.

1. Requestor Contact Information:

Name: _____
Company Name (if applicable): _____
Street Address: _____
City/State/Zip: _____
Phone Number: _____
Email Address: _____

2. Project Information:

a) Project Name: _____

b) Planned Equipment:

DER Nameplate Rating: _____ kW
DER Type: Inverter based Other _____
DER Number of Phases: Single Three
Service Voltage (120/240 V, 277/480 V, etc.) : _____ V
Stand-alone Generator (no onsite load)? Yes No
Existing DER? Yes No
Location of Existing DER (include county):

c) Proposed Point of Common Coupling:

Note: The proposed Point of Common Coupling shall be defined by all or some combination of the below information, enough to clearly identify the location of the Point of Common Coupling.

Street Address: _____

City/State/Zip Code: _____

County: _____

Cross streets: _____

Latitude (in degrees/minutes/seconds or 6 decimal places): _____

Longitude: _____

Meter number: _____

Utility equipment number (e.g. pole number): _____

Other identifying information: _____

d) An attached Site Map is required that shows the following:

- True north
- Proposed project location, including general area of project
- Proposed service point location
- Major roads, streets and/or highways

3. Requestor Signature:

I understand that the confidentiality provisions of MN DIP Section 5.9 apply to the contents of the Pre-Application Report. The MN DIP Section 5.9, states in part as follows:

“Each Party shall hold in confidence and shall not disclose Confidential Information, to any person (except employees, officers, representatives and agents, who agree to be bound by this section). Confidential Information shall be clearly marked as such on each page or otherwise affirmatively identified. ... Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information. ... Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.”

I understand that 1) the existence of “Available Capacity” in no way implies that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, 2) the distribution system is dynamic and subject to change and 3) data provided in the Pre-Application Report may become outdated and not useful at the time of submission of the complete Interconnection Request.

Name (type or print): _____

Signature: _____

Date: _____

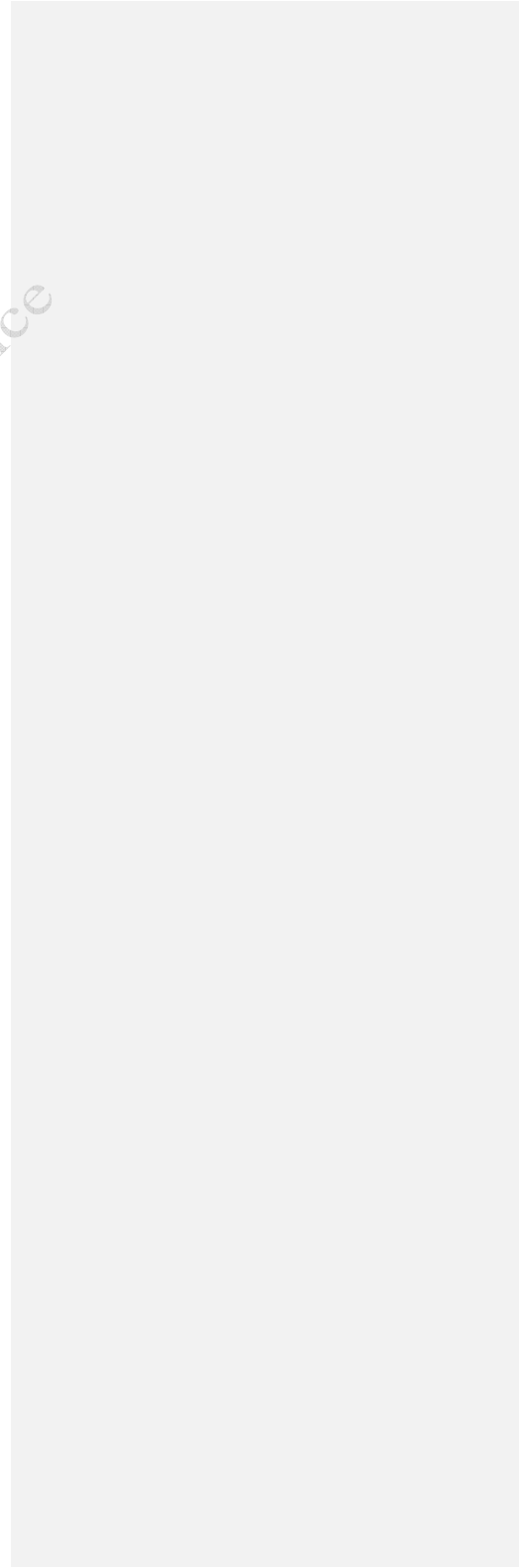
Pre-Application Report requests shall be submitted with attachments to:

[Fill in method of submittal as specified by Area EPS]

Fees shall be submitted by:

[Fill in method of payment as specified by Area EPS]

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- 1.1.5.1.5 Attachment 2: Simplified Application Form
Attachment 2: Simplified Application
- 1.1.5.1.6 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 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.
- 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 of 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.

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.

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 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. 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 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.
 - 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.
 - 1.4.2.7 Approximate circuit distance between the proposed Point of Common Coupling and the substation.

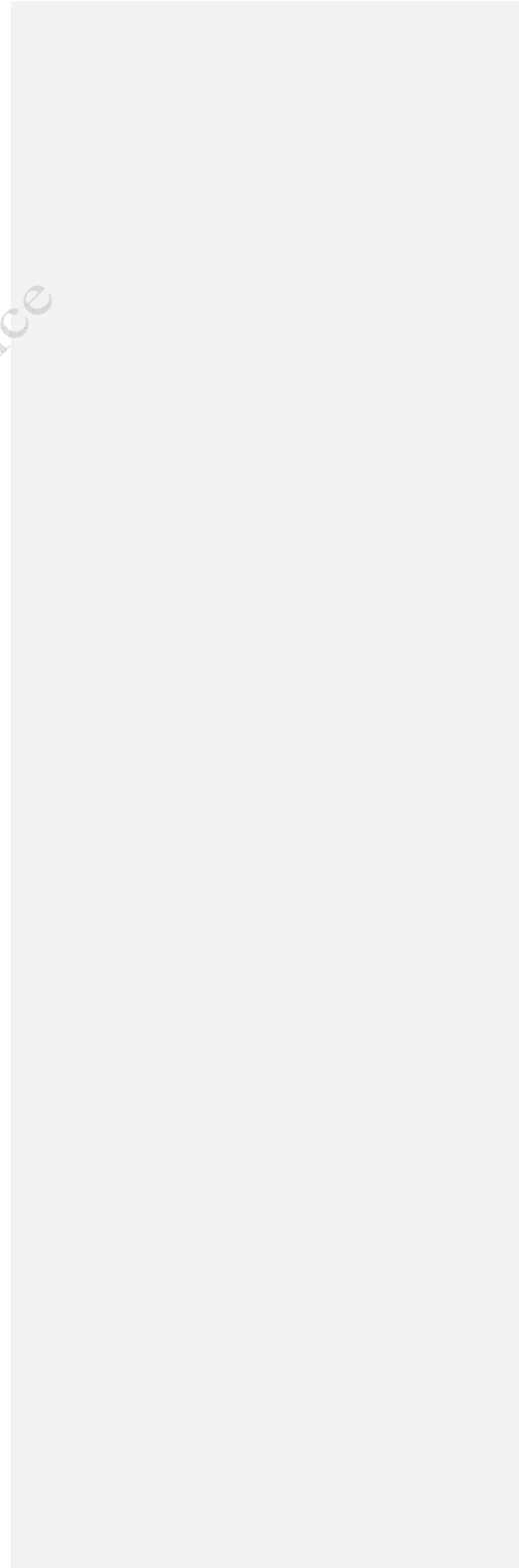
- 1.4.2.8 Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load as described in section 3.4.4.1 below and absolute minimum load, when available.
- 1.4.2.9 Whether the Point of Common Coupling is located behind a line voltage regulator.
- 1.4.2.10 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, 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.
- 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. If the Area EPS Operator cannot complete all or some of a Pre-Application Report due to lack of available data, the Area EPS Operator shall provide the Interconnection Customer with a Pre-Application Report that includes the data that is available. The confidentiality provisions found in 5.9 apply to Pre-Application Reports.
- 1.4.4 The provision of information on “available capacity” pursuant to section 1.4.2.4 does not imply that an interconnection up to this 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 information at the time of reporting.

1.5 Interconnection Application

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

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Attachment 2: Simplified Application Form**Attachment 1: Pre-Application Report Request Form**

Requests for an Interconnection Pre-Application Report shall include the information identified in Sections 1.4.1.1 through 1.4.1.8 of the Minnesota Distributed Energy Resource Interconnection Process (MN DIP) (and as provided in the fields below) to clearly and sufficiently identify the location of the proposed Point of Common Coupling and relevant project details.

Additionally, a non-refundable processing fee of _____ (not to exceed \$300) is required as specified in Section 1.4.1 of the MN DIP.

Upon receipt of a complete Request Form (including site map) and processing fee, the Area EPS Operator shall provide a report containing as much of the data described in Section 1.4.2 as is pre-existing and available within 15 business days. A Pre-Application Report request does not obligate the Area EPS Operator to conduct a study or other analysis of the proposed project if data is not available.

1. Requestor Contact Information:

Name: _____
Company Name (if applicable): _____
Street Address: _____
City/State/Zip: _____
Phone Number: _____
Email Address: _____

2. Project Information:

a) Project Name: _____

b) Planned Equipment:

DER Nameplate Rating: _____ kW
DER Type: Inverter based Other _____
DER Number of Phases: Single Three
Service Voltage (120/240 V, 277/480 V, etc.): _____ V
Stand-alone Generator (no onsite load)? Yes No
Existing DER? Yes No
Location of Existing DER (include county): _____

c) Proposed Point of Common Coupling:

Note: The proposed Point of Common Coupling shall be defined by all or some combination of the below information, enough to clearly identify the location of the Point of Common Coupling.

Street Address: _____
City/State/Zip Code: _____
County: _____
Cross streets: _____

Latitude (in degrees/minutes/seconds or 6 decimal places):

Longitude: _____
Meter number: _____
Utility equipment number (e.g. pole number): _____
Other identifying information: _____

d) An attached Site Map is required that shows the following:

- True north
- Proposed project location, including general area of project
- Proposed service point location
- Major roads, streets and/or highways

3. Requestor Signature:

I understand that the confidentiality provisions of MN DIP Section 5.9 apply to the contents of the Pre-Application Report. The MN DIP Section 5.9, states in part as follows:

“Each Party shall hold in confidence and shall not disclose Confidential Information, to any person (except employees, officers, representatives and agents, who agree to be bound by this section). Confidential Information shall be clearly marked as such on each page or otherwise affirmatively identified. ... Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information. ... Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.”

I understand that 1) the existence of “Available Capacity” in no way implies that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, 2) the distribution system is dynamic and subject to change and 3) data provided in the Pre-Application Report may become outdated and not useful at the time of submission of the complete Interconnection Request.

Name (type or print): _____
Signature: _____
Date: _____

Pre-Application Report requests shall be submitted with attachments to:
[Fill in method of submittal as specified by Area EPS]

Fees shall be submitted by:
[Fill in method of payment as specified by Area EPS]

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- 1.5.1 Attachment 2 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 **Error! Reference source not found.** 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, 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

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

2.2.1 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 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. The Area EPS Operator shall have 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 Days¹ 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.

¹ The 30-day timeframe in this step originates from Section 5.1.2 and does not represent a new step or timeframe.

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.

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.

Section 3. Fast Track Process

3.1 Applicability

3.1.1 The Fast Track Process is available to an Interconnection Customer proposing to interconnect a DER with the Area EPS Operator’s Distribution System if the DER capacity does not exceed the size limits identified in this Section, including the table below and does not qualify for the Section 2 Simplified Process. Fast Track eligibility does not imply or indicate that a DER will pass the Fast Track Initial Review Screens in 3.2.1 or the Supplemental Review screens in 3.4 below.

Fast Track eligibility for DERs is determined based upon the generator type, the size of the generator, voltage of the line, and the location of and the type of line at the Point of Common Coupling. All synchronous and induction machines must be no larger than 2 MW to be eligible for Fast Track Process consideration. The Fast Track Process size limits are included in the table below.

Fast Track Eligibility for Distributed Energy Resources		
Line Voltage	Fast Track Eligibility ² Regardless of Location	Fast Track Eligibility for certified, inverter-based DER on a Mainline ³ and ≤ 2.5 Electrical Circuit Miles from Substation ⁴
< 5 kV	≤ 500 kW	≤ 500 kW
≥ 5 kV and < 15 kV	≤ 1 MW	≤ 2 MW
≥ 15 kV and < 30 kV	≤ 3 MW	≤ 4 MW

² Synchronous and induction machines eligibility is limited to no more than 2MW even when line voltage is greater than 15 kV.

³ For purposes of this table, a Mainline is the three-phase backbone of a circuit. It will typically constitute lines with wire sizes of 4/0 American wire gauge, 266 kcmil, 336.4 kcmil, 397.5 kcmil, 477 kcmil and 795 kcmil.

⁴ An Interconnection Customer can determine this information about its proposed interconnection location in advance by requesting a pre-application report pursuant to section 1.4.

≥ 30 kV and ≤ 69 kV	≤ 4 MW	≤ 5 MW
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3.1.2 In addition to the size threshold, the Interconnection Customer’s proposed DER must meet the codes, standards, and certification requirements of Attachment 4 and Attachment 5 of these procedures, or the Area EPS Operator has reviewed the design or tested the proposed DER and is satisfied that it is safe to operate.

3.2 Initial Review

Within 15 Business Days after the Area EPS Operator notifies the Interconnection Customer it has received a complete Interconnection Application, the Area EPS Operator shall perform an initial review using the screens set forth below, notify the Interconnection Customer of the results; including copies of the analysis and data underlying the Area EPS Operator’s determinations under the screens.

The technical screens listed in this section shall not preclude the Area EPS Operator from seeking approval of tools that perform screening functions using different methodology given that the analysis is aimed at preventing the same voltage, thermal and protection limitations as the initial and supplemental review screens described below.

3.2.1 Initial Review Screens

- 3.2.1.1 The proposed DER’s Point of Common Coupling must be on a portion of the Area EPS Operator’s Distribution System.
- 3.2.1.2 For interconnection of a proposed DER to a radial distribution circuit, the aggregated generation, including the proposed DER, on the circuit shall not exceed 15% of the line section annual peak load as most recently measured. A line section is that portion of an Area EPS Operator’s electric system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line. The Area EPS Operator may consider 100% of applicable loading (i.e. daytime minimum load for solar), if available, instead of 15% of line section peak load.
- 3.2.1.3 For interconnection of a proposed DER to the load side of network protectors, the proposed DER must utilize an inverter-based equipment package and, together with the aggregated other inverter-based DERs, shall not exceed the smaller of 5% of a network’s maximum load or 50 kW.⁵
- 3.2.1.4 The proposed DER, in aggregation with other DERs on the distribution circuit, shall not contribute more than 10% to the distribution circuit’s maximum fault current at the point on the high voltage (primary) level nearest the proposed Point of Common Coupling.
- 3.2.1.5 The proposed DER, in aggregate with other Distributed Energy Resources on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation

⁵ Network protectors are protective devices used on secondary networks (spot and grid networks) to automatically disconnect its associated transformer when reverse power flow occurs. Secondary networks are most often used in densely populated downtown areas.

breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the system to exceed 87.5% of the short circuit interrupting capability; nor shall the interconnection be proposed for a circuit that already exceeds 87.5% of the short circuit interrupting capability.

- 3.2.1.6 Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the Interconnecting Customer, including line configuration and the transformer connection to limit the potential for creating over-voltages on the Area EPS Operator’s electric power system due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result/Criteria
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass screen
Three-phase, four wire	Effectively-grounded 3 phase or Single-phase, line-to-neutral	Pass screen

- 3.2.1.7 If the proposed DER is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed DER, shall not exceed 20 kW or 65% of the transformer nameplate rating.
- 3.2.1.8 If the proposed DER is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.
- 3.2.1.9 If the proposed DER is single-phase and is to be interconnected to a three-phase service, its Nameplate Rating shall not exceed 10% of the service transformer nameplate rating.
- 3.2.1.10 If the DER’s Point of Common Coupling is behind a line voltage regulator⁶, the DER’s Nameplate Rating shall be less than 250 kW.

- 3.2.2 If the proposed interconnection passes the screens, or if the proposed interconnection fails the screens, but the Area EPS Operator determines that the DER may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the Interconnection Application shall proceed as follows:

- 3.2.2.1 If the proposed interconnection requires no construction of facilities by the Area EPS Operator on its own system, the Area EPS Operator shall provide the Interconnection Customer an executed Interconnection Agreement within five (5) Business Days after the determination.
- 3.2.2.2 If the proposed interconnection requires construction of any facilities, the Area EPS Operator shall notify the Interconnection Customer of such requirement

⁶ This screen does not include substation voltage regulators.

when it provides the Initial Review results and copies of the analysis and data underlying the Area EPS Operator's determinations under the screens and either: 1) provide a good faith cost estimate; or 2) require a facilities study pursuant to 4.4.1. Within five (5) Business Days, the Interconnection Customer shall inform the Area EPS Operator if the Interconnection Customer elects to proceed with the proposed interconnection. If the Interconnection Customer makes such an election, the Area EPS Operator shall either provide: i) an Interconnection Agreement, along with a non-binding good faith cost estimate and construction schedule for such upgrades, within twenty (20) Business Days after the Area EPS Operator receives such an election or ii) a facilities study agreement pursuant to section 4.4.

- 3.2.3 If the proposed interconnection fails the screens, and the Area EPS Operator does not or cannot determine from the Initial Review that the DER may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Customer is willing to consider minor modifications or further study, the Area EPS Operator shall provide the Interconnection Customer the opportunity to attend a customer options meeting.

3.3 Customer Options Meeting

If the Area EPS Operator determines the Interconnection Application cannot be approved without either 1) supplemental review, other additional studies or actions; or 2) incurring significant cost to address safety, reliability, or power quality problems, the Area EPS Operator shall notify the Interconnection Customer of that determination and provide copies of all directly pertinent data and analyses underlying its conclusion, subject to confidentiality provisions in Section 5.9 and where applicable limited by privacy rules. Within ten (10) Business Days of the Area EPS Operator's determination, unless mutual agreement, the Area EPS Operator and Interconnection Customer shall schedule a customer options meeting with the Interconnection Customer to review possible facility modifications, screen analysis and related results to determine what further steps are needed to permit the DER to be connected safely and reliably. At the time of notification of the Area EPS Operator's determination, or at the customer options meeting, the Area EPS Operator shall:

- 3.3.1 Offer to perform a supplemental review in accordance with section 3.4 and provide a non-binding good faith estimate of the costs of such review; or
- 3.3.2 Obtain the Interconnection Customer's agreement to continue evaluating the Interconnection Application under the Section 4 Study Process.

3.4 Supplemental Review

- 3.4.1 To accept the offer of a supplemental review, the Interconnection Customer shall agree in writing and submit a deposit for the estimated costs of the supplemental review in the amount of the Area EPS Operator's good faith estimate of the costs of such review, both within fifteen (15) Business Days of the offer. If the written agreement and deposit have not been received by the Area EPS Operator within that timeframe, the Interconnection Application shall continue to be evaluated under the Section 4 Study Process unless it is withdrawn by the Interconnection Customer.
- 3.4.2 The Interconnection Customer may specify with the written agreement and deposit the order in which the Area EPS Operator will complete the supplemental review screens. The order specified shall be at the level of sections 3.4.4.1, 3.4.4.2, and 3.4.4.3.

3.4.3 The Interconnection Customer shall be responsible for the Area EPS Operator's actual costs for conducting the supplemental review. The Interconnection Customer shall pay any review costs that exceed the deposit within twenty (20) Business Days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Area EPS Operator will return such excess within twenty (20) Business Days of the invoice without interest.

3.4.4 Within thirty (30) Business Days following receipt of the deposit for a supplemental review, the Area EPS Operator shall: 1) perform a supplemental review using the screens set forth below; 2) notify in writing the Interconnection Customer of the results; and 3) include with the notification copies of the analysis and data underlying the Area EPS Operator's determinations under the screens. Unless the Interconnection Customer provided instructions for how to respond to the failure of any of the supplemental review screens below at the time the Interconnection Customer accepted the offer of supplemental review, the Area EPS Operator shall notify the Interconnection Customer following the failure of any of the screens, or if it is unable to perform the screen in this section within two (2) Business Days of making such determination to obtain the Interconnection Customer's permission to: 1) continue evaluating the proposed interconnection under this section 3.4.4; 2) terminate the supplemental review and continue evaluating the DER under Section 4 Study Process; or 3) terminate the supplemental review upon withdrawal of the Interconnection Application by the Interconnection Customer. The Interconnection Customer shall respond with its choice within five (5) Business Days of notification from the Area EPS Operator.

3.4.4.1 Minimum Load Screen: Where 12 months of line section minimum load data (including onsite load but not station service load served by the proposed DER) are available, can be calculated, can be estimated from existing data, or determined from a power flow model, the aggregate DER capacity on the line section is less than 100% of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed DER. If minimum load data is not available, or cannot be calculated, estimated or determined, the Area EPS Operator shall include the reason(s) that it is unable to calculate, estimate or determine minimum load in its supplemental review results notification under section 3.4.4.

3.4.4.1.1 The type of generation used by the proposed DER will be taken into account when calculating, estimating, or determining circuit or line section minimum load relevant for the application of screen 3.4.4.1. Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (i.e., 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other generation uses absolute minimum load.

3.4.4.1.2 When this screen is being applied to a DER that serves some station service load, only the net injection into the Area EPS Operator's electric system will be considered as part of the aggregate generation.

3.4.4.1.3 Area EPS Operator will not consider as part of the aggregate generation for purposes of this screen DER capacity known to be already reflected in the minimum load data.

3.4.4.2 Voltage and Power Quality Screen: In aggregate with existing generation on the line section: (1) the voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions; (2) the

voltage fluctuation is within acceptable limits as defined by Institute of Electrical and Electronics Engineers (IEEE) Standard 1453, or utility practice similar to IEEE Standard 1453; and (3) the harmonic levels meet IEEE Standard 519 limits.

3.4.4.3 Safety and Reliability Screen: The location of the proposed DER and the aggregate generation capacity on the line section do not create impacts to safety or reliability that cannot be adequately addressed without application of the Study Process. The Area EPS Operator shall give due consideration to the following and other factors in determining potential impacts to safety and reliability in applying this screen.

3.4.4.3.1 Whether the line section has significant minimum loading levels dominated by a small number of customers (e.g., several large commercial customers).

3.4.4.3.2 Whether the loading along the line section is uniform or even.

3.4.4.3.3 Whether the proposed DER is located in close proximity to the substation (i.e., less than 2.5 electrical circuit miles), and whether the line section from the substation to the Point of Common Coupling is a Main line rated for normal and emergency ampacity.

3.4.4.3.4 Whether the proposed DER incorporates a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time.

3.4.4.3.5 Whether operational flexibility is reduced by the proposed DER, such that transfer of the line section(s) of the DER to a neighboring distribution circuit/substation may trigger overloads or voltage issues.

3.4.4.3.6 Whether the proposed DER employs equipment or systems certified by a recognized standards organization to address technical issues such as, but not limited to, islanding, reverse power flow, or voltage quality.

3.4.5 If the proposed interconnection passes the supplemental screens in sections 3.4.4.1, 3.4.4.2, and 3.4.4.3 above, or if the proposed interconnection fails the screens, but the Area EPS Operator determines that the DER may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the interconnection shall proceed as follows:

3.4.5.1 If the proposed interconnection passes the supplemental screens in sections 3.4.4.1, 3.4.4.2, and 3.4.4.3 above and does not require construction of facilities by the Area EPS Operator on its own system, the Area EPS Operator shall provide the Interconnection Customer an executable Interconnection Agreement within five (5) Business Days.

3.4.5.2 If the proposed interconnection requires construction of any facilities, the Area EPS Operator shall notify the Interconnection Customer of such requirement when it provides the supplemental review results and either: 1) provide a good faith cost estimate; or 2) require a facilities study pursuant to 4.4.1. Within five

(5) Business Days, the Interconnection Customer shall inform the Area EPS Operator if the Interconnection Customer elects to proceed with the proposed interconnection. If the Interconnection Customer makes such an election, the Area EPS Operator shall either provide: i) an Interconnection Agreement, along with a non-binding good faith cost estimate and construction schedule for such upgrades, within twenty (20) Business Days after the Area EPS Operator receives such an election or ii) a facilities study agreement pursuant to section 4.4.

3.4.6 If the proposed interconnection fails the screens, and the Area EPS Operator does not or cannot determine that the DER may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Customer is willing to consider minor modifications or further study, the Area EPS Operator shall provide the Interconnection Customer the option of commencing the Section 4 Study Process. If the Interconnection Customer wishes to proceed it shall notify the Area EPS Operator within fifteen (15) Business Days to retain its queue position.

Section 4. Study Process

4.1 Applicability

The Study Process shall be used by an Interconnection Customer proposing to interconnect its DER with the Area EPS Operator's Distribution System if the DER 1) is not eligible for Section 2 Simplified Process review or Section 3 Fast Track Process review, or 2) did not pass the Fast Track Process or the Simplified Process. The application fee described in section 1.5.1.3 shall be applied to the application completeness review costs and the ~~first deposit~~costs required in this section.

Commented [A1]: Reference to the Simplified and Fast Track processes throughout this section can be combined should the processes be combined as recommended.

Commented [A2]: As in earlier comments, the costs should be determined after the process has been agreed upon.

4.2 Scoping Meeting

4.2.1 A scoping meeting ~~shall~~may be requested by the Interconnection Customer and will be held by call or in-person meeting at a time mutually agreed upon within ten (10) Business Days after the Interconnection Application is deemed complete or, if applicable, the Fast Track Process or Simplified Process has been completed and the Interconnection Customer has elected to continue with the Study Process, or as mutually agreed to by the Parties. The Area EPS Operator and the Interconnection Customer will ~~bring~~include into the meeting personnel, including system engineers and other resources, as may be reasonably required to accomplish the purpose of the meeting.

4.2.2 The purpose of the scoping meeting is to discuss the Interconnection Application and review ~~any~~existing study results and relevant underlying data and assumptions relevant to the Interconnection Application. ~~The Parties shall further discuss whether the Area EPS Operator should perform a system impact study or studies, or proceed directly to a facilities study or an Interconnection Agreement. If the Area EPS Operator determines there is no potential for Transmission System or Distribution System adverse system impacts, the Interconnection Application shall proceed directly to a facilities study or an executable Interconnection Agreement, as agreed to by the Parties.~~

Commented [A3]: Are these referring to study results for other applicants? If so, then results should be shared at the discretion of the utility keeping in mind confidentiality concerns.

Commented [A4]: If the application is in the Study Process, then it should be understood that a study is needed.

4.2.3 The scoping meeting may be omitted by mutual agreement.

4.3 System Impact Study

4.3.1 A system impact study shall identify and detail the electric system impacts that would result if the proposed DER(s) were interconnected without project modifications or electric system modifications, and to study potential impacts, including but not limited to those identified in the scoping meeting. A system impact study shall provide a list of facilities that are required as a result of the Interconnection Application and non-binding good faith estimates of cost responsibility and time to construct. A system impact study shall evaluate the impact of the proposed interconnection on the reliability of the electric system.

Commented [A5]: Added to align with the scope identified in Attachment 6 (System Impact Study Agreement).

4.3.2 If the Parties agree at ~~the a~~ scoping meeting that a system impact study should be performed, the Area EPS Operator shall provide the Interconnection Customer, as soon as possible, but not later than five (5) Business Days after the scoping meeting, a system impact study agreement as defined in 4.3.3.

If the scoping meeting is omitted by mutual agreement or, if applicable, the Simplified Process or Fast Track Process has been completed and the Interconnection Customer has elected to continue with the Study Process, and a system impact study is required, the Area EPS Operator shall provide the Interconnection Customer a system impact study agreement within ten (10) Business Days.

4.3.3 The system impact study agreement (Attachment 6) shall include an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study. If applicable, the agreement shall list any additional and reasonable technical data on the DER needed to perform the system impact study. The scope of and cost responsibilities for a system impact study are described in the attached system impact study agreement. A ~~deposit one-time non-refundable payment~~ of the good faith estimated costs for each system impact study shall be provided by the Interconnection Customer when it returns the study agreements. The additional and reasonable technical data as determined by the utility, if applicable, shall be returned with the system impact agreement. Upon Interconnection Customer request, the Area EPS Operator shall grant a time frame extension as described in 5.2.3 if additional technical data is requested.

4.3.4 In order to remain in consideration for interconnection, an Interconnection Customer who has requested a System Impact Study must return the executed system impact study agreement and pay the required ~~study deposit~~ one-time non-refundable payment within twenty (20) Business Days.

4.3.4.3.5 If the Interconnection Customer does not return an executed system impact study agreement and pay the required one-time non-refundable study payment within twenty (20) Business Days, the application will be considered withdrawn.

A System Impact Study shall be completed within ~~thirty (30)~~ forty-five (45) Business Days after the system impact study agreement is signed by the Parties and delivered with ~~a one-time non-refundable payment deposit~~ to the Area EPS Operator phase begins. The results and, if necessary, facilities study agreement shall be delivered to the Interconnection Customer within five (5) Business Days of completion of the System Impact Study. ~~Upon request, the Area EPS Operator shall provide Interconnection Customer supporting documentation and workpapers developed in the preparation of the system impact study, subject to confidentiality arrangements consistent with these procedures and the System Impact Study agreement.~~

4.3.5 In instances where the System Impact Study shows potential for Transmission System adverse system impacts, within five (5) Business Days following the identification of such impacts by the Area EPS Operator, the Area EPS Operator shall notify the relevant Transmission Provider. ~~The~~

Commented [A6]: For projects that may have an impact to Transmission we could commit to notification of it to the relevant Transmission Provider, but then where it goes from there is up to the Transmission Provider's policies, etc. The utility would not enter into any agreements on behalf of the Transmission Provider, etc., or commit to anything in regards to it.

~~Interconnection Customer will coordinate with the Transmission Provider. e-coordinate with the appropriate Transmission Provider to have the necessary studies completed to determine if the DER causes any adverse transmission impacts.~~

~~4.3.6 In order to remain in consideration for interconnection, an Interconnection Customer must return the executed Transmission System impact study agreement within fifteen (15) Business Days.~~

~~4.3.7.3.6 A Transmission System impact study, if required, shall be completed and the results transmitted to the Interconnection Customer in as timely a manner as possible after the transmission system impact study agreement is signed by the Parties. The Area EPS Operator shall be responsible for coordination with the Transmission Provider as needed. Affected Systems shall participate in the study and provide all information necessary to prepare the study.~~

4.4 Facilities Study

4.4.1 If construction of facilities is required, a facilities study may be necessary to specify and estimate the cost of the equipment, engineering, procurement and construction work identified in Initial Review, Supplemental Review, or the Study Process to provide interconnection and interoperability of the DER with the Area EPS Operator's Distribution System as required by Minnesota Technical Requirements. Interconnection Applications reviewed in the Simplified Process and Fast Track Process that require construction of facilities may be eligible, upon determination of the Area EPS Operator, to forego a facilities study as described in section 3.2.2.2.

The Area EPS Operator shall provide the Interconnection Customer a facilities study agreement in tandem with the results of the Interconnection Customer's system impact study, ~~or, if required, Transmission System impact study.~~

Commented [A7]: See comments regarding Transmission System adverse system impact.

If no system impact study is required, ~~and a scoping meeting has been requested~~ but a facilities study is required, then the Area EPS Operator shall provide as soon as possible, but not later than five (5) Business Days after the scoping meeting, a facilities study agreement.

If the scoping meeting is omitted by mutual agreement and no system impact study is required, but a facilities study is required, the Area EPS Operator shall provide the Interconnection Customer a facilities study agreement within ten (10) Business Days after the Interconnection Application is deemed complete and, if applicable, the Simplified Process or Fast Track Process has been completed.

4.4.2 The facilities study agreement (Attachment 7) shall be accompanied by an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the facilities study. The scope of and cost responsibilities for the facilities study are described in the attached facilities study agreement. A ~~deposit one-time non-refundable payment~~ of the good faith estimated costs for the facilities study shall be provided by the Interconnection Customer at the time it returns the study agreement.

~~4.4.3 In order to remain under consideration for interconnection, the Interconnection Customer must return the executed facilities study agreement and pay the required study deposit within fifteen (15) Business Days.~~

~~4.4.3~~

4.4.4 The facilities study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the system impact study(s).

~~4.4.5 Design Preliminary Scope for any required Interconnection Facilities and/or Upgrades shall be performed under the Facilities Study Agreement unless the Interconnection Application is processed under the provisions of section 3.2.2.2. However, in the event that the Interconnection Customer did not provide to the Area EPS Operator all required Conditional Use Permits at the time of entering into the Facilities Study Agreement, any such Design and/or Upgrades by the Area EPS Operator may be delayed until after the Interconnection Customer has provided to the Area EPS Operator all required Conditional Use Permits or provided a final design. The information in the Conditional Use Permits, or changes to the design, may result in significant modifications to the planned design and/or Upgrades. The Interconnection Customer may send to the Area EPS Operator a redacted version of the Conditional Use Permit to ensure confidentiality, but any and all information that the Area EPS Operator would reasonably need to perform an accurate Facilities Study shall not be redacted. If necessary to comply with these requirements, a confidential version of the Conditional Use Permit may be provided to the Area EPS Operator, with the confidential information being clearly marked and subject to the Confidentiality provisions in 5.9. The Area EPS Operator may contract with consultants to perform activities required under the facilities study agreement. The Interconnection Customer and the Area EPS Operator may agree to allow the Interconnection Customer to separately arrange for the design of some of the Interconnection Facilities. In such cases, facilities design will be reviewed and/or modified prior to acceptance by the Area EPS Operator, under the provisions of the Facilities Study Agreement. If the Parties agree to separately arrange for design and construction, and provided security and confidentiality requirements can be met, the Area EPS Operator shall make sufficient information available to the Interconnection Customer in accordance with confidentiality and critical infrastructure requirements to permit the Interconnection Customer to obtain an independent design and cost estimate for any necessary facilities.~~

Commented [A8]: This appears to refer to a Minnesota-specific issue.

~~If the Interconnection Customer does not return an executed facilities study agreement and pay the required one-time non-refundable study payment within twenty (20) Business days, the application will be considered withdrawn.~~

Commented [A9]: We do not support allowing the Interconnection Customer to contract separately for the design of Interconnection Facilities, as it could lead to inconsistency and disputes.

Commented [A10]: Make sure this timeframe is consistent with other payment timeframes.

~~4.4.5.4.6~~

Commented [A11]: To be consistent with existing rules.

~~4.4.6.4.7 In cases where Upgrades are required, the~~ The facilities study must be completed within ~~forty-fivesixty (60/45)~~ Business Days of the receipt of the executed facilities study agreement and deposit.

~~4.4.7 In cases where no Upgrades are necessary, and the required facilities are limited to Interconnection Facilities, the facilities study must be completed within thirty (30) Business Days of the receipt of the executed facilities study agreement and deposit.~~

4.4.8 Once the facilities study is completed, a ~~draft~~ facilities study report shall be prepared and transmitted to the Interconnection Customer. ~~Upon request, the Area EPS Operator shall provide Interconnection Customer supporting documentation and workpapers developed in the preparation of the Interconnection Facilities Study, subject to confidentiality arrangements consistent with these procedures and the facilities study agreement.~~

4.4.9 Within ten (10) Business Days of providing a draft facilities study report to Interconnection Customer, the ~~Area EPS Operator and~~ Interconnection Customer ~~shall meet~~ can request a meeting to discuss the results of the facilities study unless the meeting is omitted by mutual agreement.

~~4.4.10 Interconnection Customer may, within twenty (20) Business Days after receipt of the draft report, provide written comments to the Area EPS Operator, which the Area EPS Operator shall address in the final report.~~

~~4.4.11 The Area EPS Operator shall issue the final facilities study report within fifteen (15) Business Days of receiving Interconnection Customer's comments or promptly upon receiving Interconnection Customer's statement that it will not provide comments. The Area EPS Operator may reasonably extend the time frame upon notice to the Interconnection Customer if the Interconnection Customer's comments require additional analyses or lead to significant modifications by the Area EPS Operator prior to issuance of the final facilities study report.~~

Commented [A12]: There should not be a draft and final report. There should be one report that follows utility practices. Having a draft and final implies that there will be a negotiation process between the two. That could lead to partiality should one Interconnection Customer be offered something that others will not be offered, as well as uncertainty and delays.

Commented [A13]: Same comment as above.

Section 5. Provisions that Apply to All Interconnection Applications

5.1 Interconnection Agreement

5.1.1 The Area EPS Operator shall provide the Interconnection Customer an executable Interconnection Agreement as described in section 1.1.5 within five (5) Business Days after the completion of all required review or study of the Interconnection Application unless sections 3.2.2.2, 3.4.5.1, 3.4.5.2 or 4.2.2 applies.

5.1.2 After receiving an Interconnection Agreement from the Area EPS Operator, the Interconnection Customer shall have thirty (30) Business Days to sign and return the interconnection agreement. If the Interconnection Customer does not sign the interconnection agreement, request an extension pursuant to these procedures, or ask the Area EPS Operator to file an unexecuted Interconnection Agreement with the Commission within thirty (30) Business Days, the Interconnection Application shall be deemed withdrawn. The Area EPS Operator shall provide the Interconnection Customer a fully executed Interconnection Agreement within five (5) Business Days after receiving a signed interconnection agreement from the Interconnection Customer. After the Interconnection Agreement is signed by the Parties, the interconnection of the DER shall proceed under the provisions of the Interconnection Agreement, except to the extent these procedures remain applicable, including, but not limited to, sections 5.5, 5.6, and 5.7. **Error! Reference source not found.**

5.2 Time Frames and Extensions

5.2.1 Response or Action Timeframes: Unless otherwise stated, all time frames are measured in Business Days. For purposes of measuring these time intervals and consistent with Minn. Stat. §645.15, the time shall be computed so as to exclude the first and include the last day of the prescribed or fixed period or duration of time. Any communication sent or received after 4:30 p.m. (local time in Saint Paul, Minnesota) or on a Saturday, Sunday, or Holiday shall be considered to have been sent on the next Business Day.

5.2.2 The Area EPS Operator shall make Reasonable Efforts to meet all time frames provided in these procedures. If the Area EPS Operator cannot meet a deadline provided herein, it must notify the Interconnection Customer in writing within three (3) Business Days after the deadline to explain the reason for the failure to meet the deadline, and provide an estimated time by which it will complete the applicable interconnection procedure in the process.

5.2.3 For applicable time frames described in these procedures, the Interconnection Customer may request in writing one extension equivalent to half of the time originally allotted (e.g., ten (10) Business Days for a twenty (20) Business Days original time frame) which the Area EPS Operator

may not unreasonably refuse. No further extensions for the applicable time frame shall be granted absent a Force Majeure Event or other similarly extraordinary circumstances.

5.3 Disputes

- 5.3.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process and associated study and Interconnection Agreements according to the provisions of this article and Minnesota Administrative Rules 7829.1500-7829.1900. More information on the Commission's Consumer Affairs Office dispute resolution services is available on the Commission's website: <https://mn.gov/puc/consumers/help/complaint/>
- 5.3.2 Prior to a written Notice of Dispute, the Party shall contact the other Party and raise the issue and the relief sought in an attempt to resolve the issue immediately.
- 5.3.3 In the event of a dispute, the disputing Party shall provide the other Party a written Notice of Dispute 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 this article. The Interconnection Customer may utilize the Commission's Consumer Affairs Office's complaint/inquiry form and Informal Complaint dispute resolution process to assist with the written Notice of Dispute. The notice shall be sent to the non-disputing Party's email address and physical address set forth in the Interconnection Agreement or Interconnection Application, if there is no Interconnection Agreement. If the Interconnection Customer chooses not to utilize the Commission's Consumer Affairs Office dispute resolution process, the Interconnection Customer shall provide an informational electronic copy of the Notice of Dispute to the Consumer Affairs Office at the Commission at consumer.puc@state.mn.us.
- 5.3.4 The non-disputing Party shall acknowledge the notice within three (3) Business Days of its receipt and identify a representative with the authority to make decisions for the non-disputing Party with respect to the dispute.
- 5.3.5 The non-disputing Party shall provide the disputing Party with relevant regulatory and/or technical details and analysis regarding the Area EPS Operator interconnection requirements under dispute within ten (10) Business Days of the date of the Notice of Dispute. Within twenty (20) Business Days of the date of the Notice of Dispute, the Parties' authorized representatives will be required to meet and confer to try to resolve the dispute. Parties shall operate in good faith and use best efforts to resolve the dispute.
- 5.3.6 If a resolution is not reached in the thirty (30) Business Days from the date of the notice described in section 5.3.3, the Parties may 1) if mutually agreed, continue negotiations for up to an additional twenty (20) Business Days; or 2) either Party may request the Commission's Consumer Affairs Office provide mediation in an attempt to resolve the dispute within twenty (20) Business Days with the opportunity to extend this timeline upon mutual agreement. Alternatively, both Parties by mutual agreement may request mediation from an outside third-party mediator with costs to be shared equally between the Parties.
- 5.3.7 If the results of the mediation are not accepted by one or more Parties and there is still disagreement, the dispute shall proceed to the Commission's Formal Complaint process as described in Minn. Rules 7829.1700-1900 unless mutually agreed to continue with informal dispute resolution.
- 5.3.8 At any time, either Party may file a complaint before the Commission pursuant to Minn. Stat. §216B.164, if applicable, and Commission rules outlined in Minn. Rules Ch. 7829.

5.4 Interconnection Metering

Any metering requirements necessitated by the use of the DER shall be installed at the Interconnection Customer's expense. The Interconnection Customer is responsible for replacement meter costs not covered in the Interconnection Customer's general customer charge. The Area EPS Operator may charge Interconnection Customers an ongoing metering-related charge for an estimate of ongoing metering-related costs specifically demonstrated and approved in tariff regardless of the choice of meter payment. The Area EPS Operator shall offer the Interconnection Customer the following payment options:

- 5.4.1 Pay upfront the cost of metering requirements for the DER. Any maintenance or replacement costs may be billed separately to the Interconnection Customer after these costs are incurred.
- 5.4.2 Pay a tariffed monthly charge for the actual, DER-related meter and metering-related costs. If no tariffed monthly charge is an exact match, then the closest applicable tariffed monthly charge shall apply; unless metering requirements are so different that individual case basis pricing should apply.

5.5 Non-Warranty

The Area EPS Operator does not give any warranty, expressed or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or devices owned, operated, installed or maintained by the Interconnection Customer, including without limitation the DER and any structures, equipment, wires, appliances or devices not owned, operated or maintained by the Area EPS Operator.

5.6 Design, Procurement, Installation and Construction of Interconnection Facilities and Upgrades

- 5.6.1 The Interconnection Customer shall pay for the actual cost of the Interconnection Facilities and Distribution Upgrades as described and itemized pursuant to the Interconnection Agreement and its attachments. If Network Upgrades are required, the actual cost of the Network Upgrades, including overheads, shall be borne by the Interconnection Customer pursuant to the Transmission Provider and associated agreement(s). As indicated in the Interconnection Agreement, the Area EPS Operator shall provide a good faith cost estimate, including overheads, for the purchase and construction of the Interconnection Facilities, Distribution Upgrades, and Network Upgrades, and provide a detailed itemization of such costs.
- 5.6.2 The Interconnection Customer and the Area EPS Operator shall agree on milestones for which each Party is responsible and list them in an attachment to the Interconnection Agreement. To the greatest extent possible, the Parties will identify all design, procurement, installation and construction requirements associated with a project, and clear associated timelines, at the beginning of the design, procurement, installation and construction phase, or as early within the process as possible.
- 5.6.3 A Party's obligations under this provision may be extended by agreement. If a Party anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event, it shall immediately notify the other Party of the reason(s) for not meeting the milestone and 1) propose the earliest reasonable alternate date by which it can attain this and future milestones, and 2) request appropriate amendments to the Interconnection Agreement and its attachments. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless 1) it will suffer significant uncompensated economic or operational harm from the delay, 2) attainment of the same milestone has previously been delayed, or 3) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment. If the Party affected by the failure

to meet a milestone disputes the proposed extension, the affected Party may pursue dispute resolution pursuant to 5.3.

- 5.6.4 At the option of the Area EPS Operator, either the “Traditional Security” or the “Modified Security” method shall be used.
- 5.6.4.1 Under the Traditional Security method, the Interconnection Customer shall provide reasonable adequate assurances of credit, including a letter of credit or personal guaranty of payment and performance from a creditworthy entity acceptable under the Area EPS Operator credit policy and procedures for the unpaid balance of the estimated amount shown in Interconnection Agreement for the totality of all anticipated work or expense incurred by the Area EPS Operator associated with the Interconnection Application. The payment for these estimated costs shall be as follows:
 - 5.6.4.1.1 1/3 of estimated costs shall be due no later than when the Interconnection Customer signs the Interconnection Agreement.
 - 5.6.4.1.2 An additional 1/3 of estimated costs shall be due prior to initial energization of the Generation System with the Area EPS Operator.
 - 5.6.4.1.3 Remainder of actual costs, incurred by Area EPS Operator, shall be due within 30 days from the date the bill is mailed by the Area EPS Operator after project completion.
 - 5.6.4.2 Under the Modified Security method, at least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Area EPS Operator’s Interconnection Facilities and Upgrades, the Interconnection Customer shall provide the Area EPS Operator, at the Interconnection Customer’s option, a guarantee, letter of credit or other form of security that is reasonably acceptable to the Area EPS Operator and is consistent with the Minnesota Uniform Commercial Code. Such security for payment shall be in an amount sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Area EPS Operator’s Interconnection Facilities and Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to the Area EPS Operator under the Interconnection Agreement during its term.
 - 5.6.4.3 The guarantee must be made by an entity that meets the creditworthiness requirements of the Area EPS Operator, and contain terms and conditions that guarantee payment of any amount that may be due from the Interconnection Customer, up to an agreed-to maximum amount.
 - 5.6.4.4 The letter of credit must be issued by a financial institution or insurer reasonably acceptable to the Area EPS Operator and must specify a reasonable expiration date not sooner than sixty (60) Business Days (three calendar months) after the due date of the final accounting report and bill described in 5.6.6.
- 5.6.5 The Area EPS Operator shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of Interconnection Facilities and Upgrades described in the Interconnection Agreement on a monthly basis, or as otherwise agreed by the Parties in the

interconnection agreement. The Interconnection Customer shall pay each bill within twenty-one (21) Business Days of receipt, or as otherwise agreed to by the Parties in the interconnection agreement.

5.6.6 Within eighty (80) Business Days (approximately four (4) calendar months) of completing the construction and installation of the Area EPS Operator's Interconnection Facilities and/or Upgrades described in the interconnection agreement and its attachments, the Area EPS Operator shall provide the Interconnection Customer with a final accounting report of any difference between 1) the Interconnection Customer's cost responsibility for the actual cost of such facilities or Upgrades, and 2) the Interconnection Customer's previous aggregate payments to the Area EPS Operator for such facilities or Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Area EPS Operator shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Area EPS Operator within twenty (20) Business Days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility under the Interconnection Agreement, the Area EPS Operator shall refund to the Interconnection Customer an amount equal to the difference within twenty (20) Business Days of the final accounting report.

5.7 Inspection, Testing, Commissioning and Authorization

5.7.1 The Interconnection Customer shall arrange for the inspection and testing of the DER and the Customer's Interconnection Facilities prior to interconnection pursuant to Minnesota Interconnection Technical Requirements. Commissioning tests of the Interconnection Customer's installed equipment shall be performed pursuant to applicable codes and standards pursuant to Minnesota Technical Requirements.

5.7.2 The Interconnection Customer shall notify the Area EPS Operator of testing and inspection no fewer than five (5) Business Days in advance, or as may be agreed to by the Parties. Testing and inspection shall occur on a Business Day. The Area EPS Operator may, at its own expense if not required in Minnesota Interconnection Technical Requirements, send qualified personnel to the DER site to inspect the interconnection and witness the testing. The Interconnection Customer shall provide the Area EPS Operator a written results report.

5.7.3 The Area EPS Operator shall provide the Interconnection Customer written acknowledgment that it has received the Interconnection Customer's written test report. Such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by the Area EPS Operator of the safety, durability, suitability, or reliability of the DER or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the DER.

5.8 Authorization Required Prior to Parallel Operation

5.8.1 Area EPS Operator shall use Reasonable Efforts to list applicable parallel operation requirements by attaching the Minnesota Interconnection Technical Requirements to the Interconnection Agreement. Additionally, the Area EPS Operator shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. The Area EPS Operator shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.

5.8.2 The Interconnection Customer shall not operate its DER in parallel with the Area EPS Operator's Distribution System without prior written permission to operate authorization from the Area EPS

Operator. The Area EPS Operator shall provide such authorization within three (3) Business Days from when the Area EPS Operator receives notification that the Interconnection Customer has complied with all applicable parallel operation requirements and all payments for issued bills under the Interconnection Agreement, System Impact Study Agreement, Facilities Study Agreement or Section 5.6.5 above that are past due have been paid in full. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

5.9 Confidentiality

- 5.9.1 Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated “Confidential.” For purposes of these procedures, design, operating specifications, and metering data provided by the Interconnection Customer may be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such. If requested by either Party, the other Party shall provide in writing the basis for asserting that the information warrants confidential treatment. Parties providing a Governmental Authority trade secret, privileged or otherwise not public or nonpublic data under the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, shall identify such data consistent with the Commission’s September 1, 1999 Revised Procedures for Handling Trade Secret and Privileged Data, available online at: <https://mn.gov/puc/puc-documents/#4>
- 5.9.2 Confidential Information does not include information previously in the public domain with proper authorization, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be publicly divulged in an action to enforce these procedures. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under these procedures, or to fulfill legal or regulatory requirements that could not otherwise be fulfilled by not making the information public.
- 5.9.2.1 Each Party shall hold in confidence and shall not disclose Confidential Information, to any person (except employees, officers, representatives and agents, who agree to be bound by this section). Confidential Information shall be clearly marked as such on each page or otherwise affirmatively identified. If a court, government agency or entity with the right, power, and authority to do so, requests or requires either Party, by subpoena, oral disposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the other Party with prompt notice of such request(s) or requirements(s) so that the other Party may seek an appropriate protective order or waive compliance with the terms of this Agreement. In the absence of a protective order or waiver the Party shall disclose such confidential information which, in the opinion of its counsel, the party is legally compelled to disclose. Each Party will use reasonable efforts to obtain reliable assurance that confidential treatment will be accorded any confidential information so furnished.
- 5.9.2.2 Critical infrastructure information or information that is deemed or otherwise designated by a Party as Critical Energy/Electric Infrastructure Information (CEII) pursuant to FERC regulation, [18 C.F.R. §388.133](#), as may be amended from time to time, may be subject to further protections for disclosure as required by FERC or FERC regulations or orders and the disclosing Party’s CEII policies.

- 5.9.2.3 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.
- 5.9.2.4 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

5.10 Insurance

5.10.1 At a minimum, the Interconnection Customer shall maintain, during the term of the Interconnection Agreement, general liability insurance, from a qualified insurance agency with a B+ or better rating by “Best” and with a combined single limit of not less than the limits described in the chart below.

Distributed Energy Resource System Size	Liability Insurance Requirement
≤ 40 kWac	\$300,000
> 40 kWac and ≤ 250 kWac	\$1,000,000
> 250 kWac and ≤ 5 MWac	\$2,000,000
> 5 MWac and ≤ 10 MWac	\$3,000,000

Such general liability insurance shall include coverage against claims for damages resulting from (i) bodily injury, including wrongful death; and (ii) property damage arising out of the Interconnection Customer’s ownership and/or operation of the DER under this agreement

- 5.10.2 The general liability insurance required shall, by endorsement to the policy or policies, (a) include the Area EPS Operator as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that the Area EPS Operator shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for the payment of premium for such insurance; and (d) provide for twenty (20) business days’ written notice to the Area EPS Operator prior to cancellation, termination, alteration or material change of such insurance.
- 5.10.3 If the DER is connected to an account receiving residential service from the Area EPS Operator and its system size is less than 40kW, then the endorsements required in Section 5.10.2 shall not apply.
- 5.10.4 The Interconnection Customer shall furnish the required insurance certificates and endorsements to the Area EPS Operator prior to the initial operation of the DER. Thereafter, the Area EPS Operator shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance.
- 5.10.5 Evidence of the insurance required in Section 5.10.1 shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance maintained by the Area EPS Operator.

5.10.6 If the Interconnection Customer is self-insured with an established record of self-insurance, the Interconnection Customer may comply with the following in lieu of Sections 5.10.1 - 5.10.5.

5.10.6.1 Interconnection Customer shall provide the Area EPS Operator, at least twenty (20) days prior to the date of initial operation, evidence of an acceptable plan to self-insure to a level of coverage equivalent to that required under Section 5.10.1.

5.10.6.2 If the Interconnection Customer ceases to self-insure to the level required hereunder, or if the Interconnection Customer is unable to provide continuing evidence of the ability to self-insure, the Interconnection Customer agrees to immediately obtain the coverage required under Section 5.10.1.

5.10.6.3 Failure of the Interconnection Customer or the Area EPS Operator to enforce the minimum levels of insurance does not relieve the Interconnection Customer from maintaining such levels of insurance or relieve the Interconnection Customer of any liability.

5.10.7 An Interconnection Customer's insurance requirements shall be limited to no more than an aggregate cap of \$35 million if the Interconnection Customer has multiple DER systems in the Area EPS Operator's service territory.

5.11 Comparability

The Area EPS Operator shall receive, process and analyze all Interconnection Applications in a timely manner as set forth in this document. The Area EPS Operator shall use the same Reasonable Efforts in processing and analyzing Interconnection Applications from all Interconnection Customers, whether the DER is owned or operated by the Area EPS Operator, its subsidiaries or affiliates, or others.

5.12 Record Retention

The Area EPS Operator shall maintain for three years records, subject to audit, of all Interconnection Applications received under these procedures, the times required to complete Interconnection Application approvals and disapprovals, and justification for the actions taken on the Interconnection Applications.

5.13 Coordination with Affected Systems

The Area EPS Operator shall coordinate the conduct of any studies required to determine the impact of the Interconnection Application on Affected Systems with Affected System operators and, if possible, include those results (if available) in its applicable interconnection study within the time frame specified in these procedures. The Area EPS Operator will make Reasonable Effort to include the Affected System operator(s) in all relevant meetings held with the Interconnection Customer as required by these procedures. The Interconnection Customer will cooperate with the Area EPS Operator and the Affected System operator(s) in all matters related to the conduct of studies and the determination of modifications to Affected Systems. Affected System operators shall cooperate with the Area EPS Operator and Interconnection Customer(s) with whom interconnection has been requested in all matters related to the conduct of studies and the determination of modifications to Affected Systems.

5.14 Capacity of the Distributed Energy Resource

5.14.1 If the Interconnection Application is for an increase in capacity for an existing DER, the Interconnection Application shall be evaluated on the basis of the new total alternating current ("AC") capacity of the Distributed Energy Resource. The maximum capacity of a Distributed

Energy Resource shall be the Aggregate Nameplate Rating or may be limited as described in 5.14.3.

- 5.14.2 An Interconnection Application for a DER that includes a single or multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Common Coupling shall be evaluated on the basis of the Aggregate Nameplate Rating of the multiple DERs unless 5.14.3 applies.
- 5.14.3 If the maximum capacity of the DER(s) is limited (e.g., through use of a control system, power relay(s), or other similar device settings or adjustments), then the Interconnection Customer must obtain the Area EPS Operator's agreement that the manner in which the Interconnection Customer proposes to implement such a limit will effectively limit active power output so as to not adversely affect the safety and reliability of the Area EPS Operator's system. Such agreement shall not to be unreasonably withheld. If the Area EPS Operator does not so agree, then the Interconnection Application must be withdrawn or revised. Nothing in this section shall prevent an Area EPS Operator from considering an output higher than the limited output (e.g. Aggregate Nameplate Rating), if the limitations do not provide adequate assurance, when evaluating system impacts. See Minnesota Technical Requirements for more detail.

Glossary of Terms

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.¹³

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.

¹³ 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.

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 (kWac), apparent power (kVA), and reactive power (kvar) 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 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.

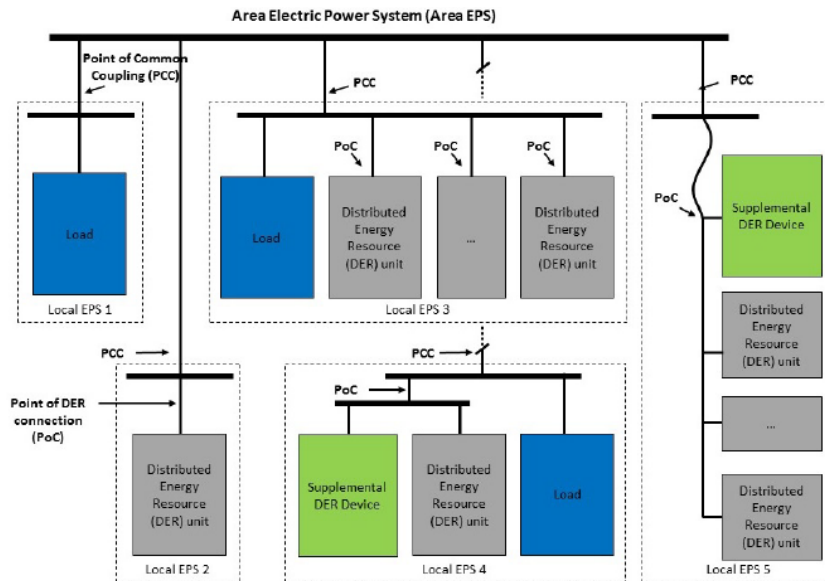


Figure 1: Point of Common Coupling and Point of DER Connection

(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. .

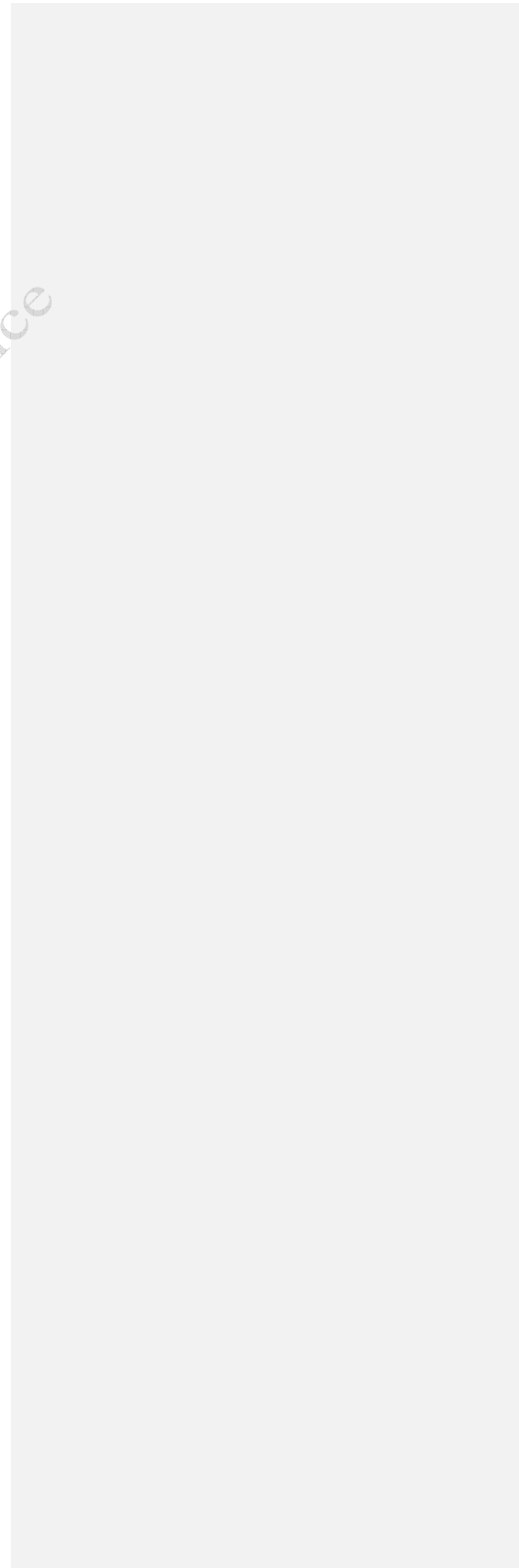
Reasonable Efforts – With respect to an action required to be attempted or taken by a Party under these procedures, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

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.

For Commission Consideration - 11/30/18 Notice



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.

Attachment 1: Pre-Application Report Request Form

Requests for an Interconnection Pre-Application Report shall include the information identified in Sections 1.4.1.1 through 1.4.1.8 of the Minnesota Distributed Energy Resource Interconnection Process (MN DIP) (and as provided in the fields below) to clearly and sufficiently identify the location of the proposed Point of Common Coupling and relevant project details.

Additionally, a non-refundable processing fee of _____ (not to exceed \$300) is required as specified in Section 1.4.1 of the MN DIP.

Upon receipt of a complete Request Form (including site map) and processing fee, the Area EPS Operator shall provide a report containing as much of the data described in Section 1.4.2 as is pre-existing and available within 15 business days. A Pre-Application Report request does not obligate the Area EPS Operator to conduct a study or other analysis of the proposed project if data is not available.

1. Requestor Contact Information:

Name: _____
Company Name (if applicable): _____
Street Address: _____
City/State/Zip: _____
Phone Number: _____
Email Address: _____

2. Project Information:

a) Project Name: _____

b) Planned Equipment:

DER Nameplate Rating: _____ kW
DER Type: Inverter based Other _____
DER Number of Phases: Single Three
Service Voltage (120/240 V, 277/480 V, etc.): _____ V
Stand-alone Generator (no onsite load)? Yes No
Existing DER? Yes No
Location of Existing DER (include county):

c) Proposed Point of Common Coupling:

Note: The proposed Point of Common Coupling shall be defined by all or some combination of the below information, enough to clearly identify the location of the Point of Common Coupling.

Street Address: _____
City/State/Zip Code: _____
County: _____
Cross streets: _____
Latitude (in degrees/minutes/seconds or 6 decimal places): _____

Longitude: _____
Meter number: _____
Utility equipment number (e.g. pole number): _____
Other identifying information: _____

d) An attached Site Map is required that shows the following:

- True north
- Proposed project location, including general area of project
- Proposed service point location
- Major roads, streets and/or highways

3. Requestor Signature:

I understand that the confidentiality provisions of MN DIP Section 5.9 apply to the contents of the Pre-Application Report. The MN DIP Section 5.9, states in part as follows:

“Each Party shall hold in confidence and shall not disclose Confidential Information, to any person (except employees, officers, representatives and agents, who agree to be bound by this section). Confidential Information shall be clearly marked as such on each page or otherwise affirmatively identified. ... Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information. ... Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.”

I understand that 1) the existence of “Available Capacity” in no way implies that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, 2) the distribution system is dynamic and subject to change and 3) data provided in the Pre-Application Report may become outdated and not useful at the time of submission of the complete Interconnection Request.

Name (type or print): _____
Signature: _____
Date: _____

Pre-Application Report requests shall be submitted with attachments to:
[Fill in method of submittal as specified by Area EPS]

Fees shall be submitted by:
[Fill in method of payment as specified by Area EPS]

Attachment 2: Simplified Application Form

MINNESOTA DISTRIBUTED ENERGY RESOURCES

SIMPLIFIED PROCESS APPLICATION (Form Template)

The Simplified Process is available only for certified, inverter-based Distributed Energy Resources (DER) no larger than 20 kW that meet the requirements of Attachment 4: Certification Codes and Standards and Attachment 5: Certification of Distributed Energy Resource Equipment.

This Application is deemed complete when it provides all applicable and correct information required below. The following additional information must be submitted with an application:

- Single Line Diagram Site Plan with site owner signature if different than Interconnection Customer Specification Sheet(s) Insurance Document

A DER with an energy storage component must additionally complete Exhibit B - For Energy Storage

A non-refundable processing fee of [up to \$100] must accompany this Application.

Interconnection Customer/Owner

Name: _____

Account Number: _____ Meter Number: _____

Mailing Address: _____

Telephone: _____ Email: _____

Application Agent / Company: _____

Telephone: _____ Email: _____

Distributed Energy Resource Information

Location (if different from above): _____

The Distributed Energy Resource is a single generating unit or multiple? Single Multiple

The Distributed Energy Resource is or includes energy storage? Yes (Complete No

Type: Solar Wind Other: _____ Exhibit B - For Energy Storage

Inverter Manufacturer: _____

Model: _____

AC Rated Nameplate Rating: _____ (kWac) _____ (kVAac) Single Phase Three Phase

Export Capability Limited (e.g., through use of a control system, power relay(s), or other similar device settings or adjustments): Yes No

If yes, describe: _____

DER capacity (as described in MN DIP 5.14.3): _____

(kWac)

Is equipment certified (i.e. UL 1741 Listed)? Yes (Certification is a Simplified Process requirement)

Installed DER System Cost (before incentives): _____

Estimated Installation Date: _____

Interconnection Customer Signature [This Section must be completed by the Customer]

The simpler Uniform Statewide Contract replaces the longer Interconnection Agreement (MN DIA) if the conditions of MN DIP 1.1.5 are met. A qualifying customer signing a Uniform Statewide Contract may elect to be additionally provided the MN DIA. Request a MN DIA? No Yes

Disclaimer: The Area EPS Operator shall notify the Interconnection Customer with an opportunity to request a timeline extension (See MN DIP Section 1.8.2 and 5.2.2.) Failure by the Interconnection Customer to meet or request an extension for a timeline outlined in the MN DIP could result in a withdrawn queue position and the need to re-apply. INITIAL: _____

I designate the individual or company listed as my Application Agent to serve as my agent for the purpose of coordinating with the Area EPS Operator on my behalf throughout the interconnection process (see MN DIP 1.3.2.) INITIAL: _____

I hereby certify that, to the best of my knowledge, the information provided in this Application is true, and that I have appropriate Site Control in conformance with the MN DIP. I agree to abide by the Terms and Conditions for Interconnecting an Inverter-Based Distributed Energy Resource No Larger than 20 kW (Simplified Process) (see Exhibit A – Terms and Conditions for Interconnecting an Inverter-Based DER No Larger than 20 kW) and return the Certificate of Completion (see Exhibit C – Certificate of Completion) when the DER has been installed.

Interconnection Customer Signature: _____

Name (print): _____ Date: _____

Send a completed and signed copy of this form with attachments to (insert Company name) at (insert email) or (c/o Address). Send application fee to (c/o Address) or make payment online by visiting (website [if applicable]).

Attachment 2: Simplified Application Form (cont'd)

Exhibit A – Terms and Conditions for Interconnecting an Inverter-Based DER No Larger than 20 kW

1.0 Construction of the Facility

The Interconnection Customer (the “Customer”) may proceed to construct (including operational testing not to exceed two hours) the Distributed Energy Resource(s) when the Area EPS Operator (the “Company”) approves the Interconnection Application (the “Application”).

2.0 Interconnection and Operation

The Customer may operate Distributed Energy Resource(s) and interconnect with the Company’s electric system once all of the following have occurred:

- 2.1. Upon completing construction, the Customer will cause the Distributed Energy Resource(s) to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction, and
- 2.2. The Customer returns the Certificate of Completion to the Company, and
- 2.3. The Company:
 - 2.3.1 Shall have the opportunity to witness test as described in Minnesota Technical Requirements, but takes no liability for the results of the test. Completes its inspection of the Distributed Energy Resource(s) to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes and standards. All inspections must be conducted by the Company, at its own expense, within ten Business Days after receipt of the Certificate of Completion and shall take place at a time agreeable to the Parties. The Company shall provide a written permission to operate authorization that the Distributed Energy Resource(s) has passed inspection or shall notify the Customer of what steps it must take to pass inspection within three (3) Business Days.

or
 - 2.3.2 Does not schedule an inspection of the Distributed Energy Resource(s) within ten business days after receiving the Certificate of Completion, in which case the witness test is deemed waived (unless the Parties agree otherwise).

or
 - 2.3.3 Waives the right to inspect the Distributed Energy Resource(s).

- 2.4. The Company has the right to disconnect the Distributed Energy Resource(s) in the event of: 1) improper installation or failure to return the Certificate of Completion, or 2) does not meet any of the requirements of this Agreement or, 3) if applicable, refusal to sign Uniform Statewide Contract.
- 2.5. Revenue quality metering equipment must be installed and tested in accordance with applicable Minnesota Technical Requirements.
- 2.6. If the Distributed Energy Resource(s) either: 1) does not use default IEEE 1547-2018 functions and settings; or 2) is not yet subject to a developed national standard or national certification, then at the option of the Area EPS Operator there needs to be in place an operating agreement to document and govern the operation of the Distributed Energy Resource(s).

3.0 Safe Operations and Maintenance

The Customer shall be fully responsible to operate, maintain, and repair the Distributed Energy Resource(s) as required to ensure that it complies at all times with the interconnection standards to which it has been certified.

4.0 Access

The Company shall have access to the disconnect switch, if required by the Area EPS Operator, and metering equipment of the Distributed Energy Resource(s) at all times as described in Minnesota Technical Requirements. The Company shall provide reasonable notice to the Customer when possible prior to using its right of access.

5.0 Disconnection

The Company may temporarily disconnect the Distributed Energy Resource(s) upon the following conditions:

- 5.1. For scheduled outages upon reasonable notice.
- 5.2. For unscheduled outages or emergency conditions.
- 5.3. If the Distributed Energy Resource does not operate in the manner consistent with these Terms and Conditions.
- 5.4. The Company shall inform the Customer in advance of any scheduled disconnection, or as is reasonable after an unscheduled disconnection.
- 5.5. If the Customer is in Default it may be disconnected after a 60-day written notice is provided and the Default is not cured during this 60-day notice. This provision does not apply to disconnection based on outages or emergency conditions.

6.0 Treatment Similar to Other Retail Customers

- 6.1. The Customer may be disconnected consistent with the rules and practices for disconnecting other retail electrical customers

7.0 Indemnification

- 7.1. This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement.
- 7.2. The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations under this agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.
- 7.3. This indemnification obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of the indemnified Party, but the indemnifying Party's liability to indemnify the indemnified Party shall be reduced in proportion to the percentage by which the indemnified Party's negligent or intentional acts, errors or omissions caused the damages.
- 7.4. Neither Party shall be indemnified for its damages resulting from its sole negligence, intentional acts or willful misconduct. These indemnity provisions shall not be construed to relieve any insurer of its obligation to pay claims consistent with the provisions of a valid insurance policy.
- 7.5. If an indemnified person is entitled to indemnification under this article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this article, to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.
- 7.6. If an indemnifying party is obligated to indemnify and hold any indemnified person harmless under this article, the amount owing to the indemnified person shall be the amount of such indemnified person's actual loss, net of any insurance or other recovery.

- 8.0 Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this article may apply, the indemnified person shall notify the indemnifying party of such fact. Any failure of or delay in such notification

shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying party. Insurance

The Parties agree to follow all applicable insurance requirements imposed by Minnesota. All insurance policies must be maintained with insurers authorized to do business in Minnesota. See MN DIP Section 5.10.

9.0 Limitation of Liability

Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever, except as allowed under paragraph 6.0.

10.0 Termination

The agreement to operate in parallel may be terminated under the following conditions:

10.1. By the Customer

By providing written notice to the Company.

10.2. By the Company

If the Distributed Energy Resource(s) fails to operate for any consecutive 12 month period or the Customer fails to remedy a violation of these Terms and Conditions.

10.3. Permanent Disconnection

In the event this Agreement is terminated, the Company shall have the right to disconnect its facilities or direct the Customer to disconnect its Distributed Energy Resource.

10.4. Survival Rights

This Agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

11.0 Assignment/Transfer of Ownership of the Facility

This Agreement shall survive the transfer of ownership of the Distributed Energy Resource(s) to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Company.

Exhibit B - For Energy Storage

Application for: Stand-alone storage as the DER
 Storage as a component of a DER

This form is required in addition to a completed Minnesota DER Interconnection Process (MN DIP) Application form for any DER with an energy storage component. Additional information in the application may be required. See Minnesota Technical Requirements.

(An application to interconnect is required only for storage designed to operate in parallel with the grid. Backup generators and electric vehicles that do not parallel need not apply.)

Customer Account Number: _____

Address of Generating Facility: _____

City: _____ State: MN Zip: _____

Equipment Manufacturer: _____

Equipment Model: _____

Real Power, max continuous (kW): _____

Apparent Power, max continuous (kVA): _____

Power factor range of adjustability: _____

Real Power, peak AC Energy (kWh): _____

Available control operating modes: _____

Control modes being enabled for interconnection: _____

Is equipment UL 1741 Listed? Yes No

Manufacturer specification sheet(s) are required to be additionally attached.

Is the storage 100% charged by a net energy metering eligible energy source? Yes No

Source charging the storage (check all that apply): _____ Utility _____ Solar _____ Wind
_____ Diesel _____ Other: _____

Is the storage configured to export energy to the Area EPS? Yes No

Are the settings accessible to the end user? Yes No

For non-export, how does the system determine the magnitude of customer load?

What is the process for changing operational modes of the energy storage?

Exhibit C – Certificate of Completion

Distributed Energy Resource Certificate of Completion

MN DIP Simplified Process Interconnection

Customer: _____

Account Number: _____ Meter Number: _____

Application ID number: _____

Address of Distributed Energy Resource (DER):

City: _____ State: MN Zip: _____

Is the DER owner-installed? Yes No If no: Install

Company: _____

Contact: _____

Phone: _____ Email: _____

Electrician Name / License#: _____

The DER has been installed and inspected in compliance with the local electrical permitting authority as verified by the signature below or the additionally attached document.

Inspector Signature: _____

Print Name: _____ Date: _____

Authority Having Jurisdiction (city/county): _____

As a condition of interconnection, email a completed copy of this form to

_____ at _____.

Electronic submission of this form through an Area EPS Operator's online portal [if one exists] shall be an alternative means to satisfy the Certificate of Completion submission requirements.

If you prefer to mail the form, please mail to:

Attachment 3: Interconnection Application Form

MINNESOTA DISTRIBUTED ENERGY RESOURCES

INTERCONNECTION APPLICATION (Form Template)

This form is for Distributed Energy Resources (DERs) that meets the eligibility of the Minnesota Interconnection Process (see Section 1.1) and are not eligible for consideration under the Section 2 Simplified Process.

This Application is considered complete when it provides all applicable and correct information required below. Additional technical data may be necessary prior to the system impact study process as described in 4.3.3, if applicable, but is not relevant to application completeness. The following additional information must be submitted with an application:

- Single Line Diagram Proof of Site Control (see Section 1.7) Specification Sheet(s) and Site Diagram

A DER with an energy storage component must additionally complete Exhibit B - For Energy Storage

Application is for:

- New DER(s) Capacity addition or Material Modification to Existing DER
(see MN DIP Glossary of Terms)

Select Review Process:

- Fast Track Process Study Process

Confirm eligibility requirements at MN DIP Section 3.1

Confirm eligibility requirements at MN DIP Section 4.

[For Certified Equipment, the processing fee shall be up to \$100 + \$1/kW. For non-certified DER, the processing fee shall be up to \$100 + \$2/kW.]

[The processing fee shall be a deposit not to exceed \$1,000 plus \$2.00 per kW towards the cost of the first study under Section 4 Study Process.]

Additional fees or deposits shall not be required, except as otherwise specified in the MN DIP.

Interconnection Customer/Owner

Name:

Account Number:

Meter Number:

Mailing Address:

Telephone:

Email:

[If different,] Application Agent/Company:

Telephone:

Email:

If capacity addition or Material Modification to existing facility, please describe:

Will the DER be used for any of the following?

Net Metering? Yes ___ No ___

To Supply Power to the Interconnection Customer? Yes ___ No ___

To Supply Power to Area EPS? Yes ___ No ___

Requested Point of Common Coupling (at a minimum, provide: 1) an address or nearest cross-section and 2) GPS coordinates or an annotated aerial map):

Installed DER System Cost (before incentives): _____

Interconnection Customer's Requested In-Service Date:

Distributed Energy Resource Information

Data applies only to the Distributed Energy Resource not the Interconnection Facilities.

Energy Source:

- Solar Wind Storage Hydro Type (e.g. Run-of-River):
 Diesel Natural Gas Fuel Oil Other (state type, e.g. solar + wind + storage):

Prime Mover:

- Photovoltaic Microturbine Reciprocating Engine Fuel Cell
 Gas Turbine Steam Turbine Wind Turbine Other (state type):

Type of Generator: Inverter Synchronous Induction

DER Nameplate Rating (in kWac):

DER Nameplate kVAR:

Interconnection Customer or
Customer-Sited Load (in kW, if
none, so state):

Typical Reactive Load
(if known):

Maximum Physical Export
Capability Requested (in kW):

Export Capability Limited (e.g., through use of a control system, power relay(s), or other similar device settings of adjustments): Yes No

If yes, describe: _____

List components of the Distributed Energy Resource Certified Equipment:

	Equipment Type	Certifying Entity
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

Is the prime mover compatible with the certified protective relay package? Yes No

Distributed Energy Resource
Manufacturer, Model Name & Number:

Version Number:

Nameplate Rating in (Summer): _____ (Winter): _____
kW:

Nameplate Rating in (Summer): _____ (Winter): _____
kVA:

Individual Generator Power Factor

Rated Power Factor: Leading: _____ Lagging: _____

Total Number of Distributed Energy Resources to be interconnected pursuant to this

Interconnection Application: _____ Single Phase Three Phase

Inverter Manufacturer, Model
Name & Number (if used):

List of adjustable set points for the
protective equipment or software:

Note: A completed power systems load flow data sheet must be supplied with the Interconnection
Application.

Distributed Energy Resource Characteristic Data (for inverter-based machines)

Max design fault contribution current:	Instantaneous or RMS?
Harmonic characteristics:	
Start-up requirements:	

Distributed Energy Resource Characteristic Data (for rotating machines)

RPM frequency:	*Neutral Grounding Resistor (if applicable):
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Synchronous Generators:

Direct Axis Synchronous Reactance, X_d :	Zero Sequence Reactance, X_0 :
Direct Axis Transient Reactance, X'_d :	KVA Base:
Direct Axis Subtransient Reactance, X''_d :	Field Volts:
Negative Sequence Reactance, X_2 :	Field Amperes:

Induction Generators:

Motoring Power (kW):	Exciting Current:
I22t or K (Heating Time Constant):	Temperature Rise:
Rotor Resistance, R_r :	Frame Size:
Stator Resistance, R_s :	Design Letter:
Stator Reactance, X_s :	Reactive Power Required In Vars (No Load):
Rotor Reactance, X_r :	Reactive Power Required In Vars (Full Load):
Magnetizing Reactance, X_m :	Total Rotating Inertia, H:

Per Unit on kVA
Base

Short Circuit
Reactance, X_d'' :

Note: Please contact the Area EPS Operator prior to submitting the Interconnection Application to determine if the specified information above is required.

Excitation and Governor System Data for Synchronous Generators Only

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

Interconnection Facilities Information

Will a transformer be used between the DER and the Point of Common Coupling? Yes No

Will the transformer be provided by the Interconnection Customer? Yes No

Transformer Data (If Applicable, for Interconnection Customer-Owned Transformer):

Is the transformer: Single Phase Three Phase

Size (kVA): Transformer Impedance (%) on kVA Base:

If Three Phase:

Transformer Primary:	Volts:	Delta:	Wye:	Wye
Transformer Secondary:	Volts:	Delta:	Wye:	Grounded:
Transformer Tertiary:	Volts:	Delta:	Wye:	Grounded:

Transformer Fuse Data (If Applicable, for Interconnection Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

Manufacturer: Type: Size: Speed:

Interconnecting Circuit Breaker (if applicable):

Manufacturer: Type:

Load Rating
(Amps)

Interrupting Rating
(Amps):

Trip Speed
(Cycles):

Interconnection Protective Relays (If Applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer: _____	Type: _____	Style/Catalog No.: _____	Proposed Setting: _____
Manufacturer: _____	Type: _____	Style/Catalog No.: _____	Proposed Setting: _____
Manufacturer: _____	Type: _____	Style/Catalog No.: _____	Proposed Setting: _____
Manufacturer: _____	Type: _____	Style/Catalog No.: _____	Proposed Setting: _____
Manufacturer: _____	Type: _____	Style/Catalog No.: _____	Proposed Setting: _____

Current Transformer Data (If Applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer:

Type:	Accuracy	Proposed
	Class:	Ratio
		Connection:

Manufacturer:

Type:	Accuracy	Proposed
	Class:	Ratio
		Connection:

Potential Transformer Data (If Applicable):

Manufacturer:

Type: Accuracy Proposed
Class: Ratio
Connection:

Manufacturer:

Type: Accuracy Proposed
Class: Ratio
Connection:

General Information

Enclose copy of site electrical one-line diagram showing the configuration of all DER equipment, current and potential circuits, and protection and control schemes. The one-line diagram shall include:

- Interconnection Customer name.
- Application ID (or, if applicable, Customer account number)
- Installer name and contact information.
- Install address- must match application address.
- Correct positions of all equipment, including but not limited to panels, inverter, and DC/AC disconnect. Include distances between equipment, and any labeling found on equipment. See Minnesota Technical Requirements.

This one-line diagram must be signed and stamped by a Professional Engineer licensed in Minnesota if the DER is larger than 50 kW (if uncertified) and 250 kW (if certified.)

Is One-Line Diagram Enclosed? Yes No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Distributed Energy Resource (e.g., USGS topographic map or other diagram or documentation). Is Available Documentation Enclosed? Yes No

Proposed location of protective interface equipment on property (include address if different from the Interconnection Customer's address) _____

Enclose copy of any site documentation that describes and details the operation of the protection and control schemes. Is Available Documentation Enclosed? Yes No

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).
Are Schematic Drawings Enclosed? Yes No

Enclose copies of documentation showing site control (MN DIP Section 1.7)

Is Available Documentation Enclosed?

Yes No

Disclaimer: The Area EPS Operator shall notify the Interconnection Customer with an opportunity to request a timeline extension (See MN DIP Section 1.8.2 and 5.2.3.). Failure by the Interconnection Customer to meet and request an extension as described in MN DIP Section 5.2.3 for a timeline outlined in the MN DIP could result in a withdrawn queue position and the need to re-apply. INITIAL: _____

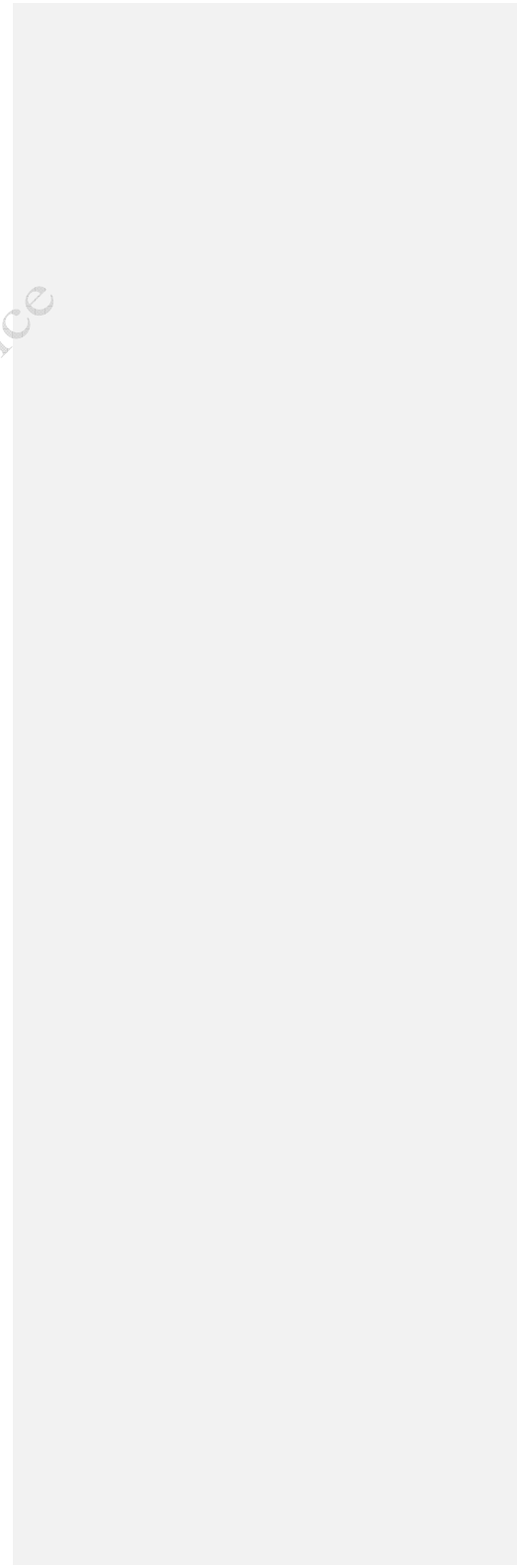
Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Application is true and correct.

Interconnection Customer:

Date:

For Commission Consideration - 11/20/18 Notice



Attachment 4: Certification Codes and Standards

Prior to Commission approval of the update of Minnesota Technical Requirements (anticipated in February 2019), the existing Minnesota Technical Requirements and the following standards shall be used in conjunction with the Minnesota Interconnection Process (MN DIP) and Minnesota Interconnection Agreement (MN DIA) for Distributed Energy Resources.¹⁴ Once approved, the Minnesota DER Technical Interconnection and Interoperability Requirements will supersede this attachment.

When the stated version of the following standards is superseded by an approved revision then that revision shall apply.

IEEE 1547-2003 IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems

IEEE 1547a-2014 IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems – Amendment 1

IEEE 1547.1-2005 IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

IEEE 1547.1a-2015 (Amendment to IEEE Std 1547.1 – 2005) IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems – Amendment 1

UL 1741 Inverters, Converters, Controllers, and Interconnection System Equipment for Use in Distributed Energy Resources (2010)

NFPA 70 (2017), National Electrical Code

IEEE Std C37.90.1(2012) (Revision of IEEE Std C37.90.1-2002), IEEE Standard for Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems Associated with Electric Power Apparatus

IEEE Std C37.90.2 (2004) (Revision of IEEE Std C37.90.2-1995), IEEE Standard for Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

¹⁴ This is an interim document while the Commission updates the Minnesota Distributed Energy Resource Interconnection and Interoperability Technical Requirements which includes alignment with the anticipated final IEEE 1547-2018 revision. For the transition period between Minnesota's existing statewide interconnection standards and the updated standards, both inverters certified to existing 1547.1 and 1547.1a-2015 (most current version); as well as, certified inverters per the expected revised 1547.1 standard should be acceptable.

IEEE Std C37.108-2002/1989 (Revision of C37.108-1989/2002), IEEE Guide for the Protection of Network Transformers

IEEE Std C57.12.44-2014 (Revision of IEEE Std C57.12.44-2005), IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.41.2-2002_Cor 1-2012 (Corrigendum to IEEE Std C62.41.2-2002) - IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits Corrigendum 1: Deletion of Table A.2 and Associated Text

IEEE Std C62.45-2002 (Revision of IEEE Std C62.45-1992) - IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and less) AC Power Circuits

ANSI C84.1-(2016) Electric Power Systems and Equipment – Voltage Ratings (60 Hertz)

IEEE Standards Dictionary Online, [Online]

NEMA MG 1-2016, Motors and Generators

IEEE Std 519-2014, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

For Commission Consideration - 1/20/18 Notice

Attachment 5: Certification of Distributed Energy Resource Equipment

- 1.0 Distributed Energy Resource (DER) equipment proposed for use in an interconnection system shall be considered certified for interconnected operation if: 1) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in MN DIP Attachment 4, 2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and 3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
- 2.0 The Interconnection Customer must verify that the assembly and use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.
- 3.0 Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for a DER Design Evaluation or an on-site commissioning test by the parties to the interconnection as provided for in the Minnesota Technical Requirements.
- 4.0 If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
- 5.0 Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further type-test review, testing or additional equipment on the customer side of the Point of Common Coupling shall be required to be considered certified for the purposes of this interconnection procedure; however, nothing herein shall preclude the need for a DER Design Evaluation or an on-site commissioning test by the parties to the interconnection as provided for in the Minnesota Technical Requirements.
- 6.0 An equipment package does not include equipment provided by the Area EPS.

Attachment 6: System Impact Study Agreement

THIS AGREEMENT is made and entered into this ____ day of _____
20__ by and between _____,
a _____ organized and existing under the laws of the State of
_____, (“Interconnection Customer”), and
_____, a _____ existing under the
laws of the State of Minnesota, (“Area EPS Operator”). Interconnection Customer and Area EPS
Operator each may be referred to as a “Party,” or collectively as the “Parties.”

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Distributed Energy Resource (DER) or generating capacity addition to an existing DER consistent with the Interconnection Application completed by the Interconnection Customer on _____; and

WHEREAS, the Interconnection Customer desires to interconnect the DER with the Area EPS Operator’s electric system;

WHEREAS, the Interconnection Customer has requested the Area EPS Operator to perform a system impact study(s) to assess the impact of interconnecting the DER with the Area EPS Operator’s electric System, and potential Affected System(s);

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the standard Minnesota Distributed Energy Resources Interconnection Procedures (MN DIP.)
- 2.0 The Interconnection Customer elects and the Area EPS Operator shall cause to be performed a system impact study(s) consistent with the MN DIP. The scope of a system impact study shall be subject to the assumptions set forth in this Agreement; including Attachment A.
- 3.0 A system impact study will be based upon the technical information provided by Interconnection Customer in the Interconnection Application. The Area EPS Operator reserves the right to request additional technical information from the Interconnection

Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the system impact study.

4.0 A system impact study may, as necessary, consist of a short circuit analysis, a stability analysis, a power flow analysis, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews. A system impact study shall state the assumptions upon which it is based, state the results of the analyses, and provide the requirement or potential impediments to providing the requested interconnection service, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and implement the interconnection. A system impact study shall provide a list of facilities that are required as a result of the Interconnection Application and non-binding good faith estimates of cost responsibility and time to construct.

~~5.0 A distribution system impact study shall incorporate a distribution load flow study, an analysis of equipment interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and set point coordination studies, grounding reviews, and the impact on electric system operation, as necessary.~~

Commented [A14]: It seems this information is covered in 4.0 above.

~~6.05.0~~ Affected Systems may participate in the preparation of a system impact study, with a division of costs among such entities as they may agree. All Affected Systems shall be afforded an opportunity to review and comment upon a system impact study that covers potential adverse system impacts on their electric systems.

~~7.06.0~~ If the Area EPS Operator uses a queuing procedure for sorting or prioritizing projects and their associated cost responsibilities for any required Network Upgrades, the system impact study shall consider all Distributed Energy Resources (and with respect to paragraph 7.3 below, any identified Upgrades associated with such higher queued interconnection) that, on the date the system impact study is commenced –

~~7.1-6.1~~ Are directly interconnected with the Area EPS Operator’s electric system; or

~~7.2-6.2~~ Are interconnected with Affected Systems and may have an impact on the proposed interconnection; and

~~7.3-6.3~~ Have a pending higher queued Interconnection Application to interconnect with the Area EPS Operator’s electric system.

~~8.07.0~~ A deposit of the equivalent of the good faith estimated cost of a distribution system impact study ~~and the good faith estimated cost of a transmission system impact study~~ shall be required from the Interconnection Customer when the signed Agreement is provided to the Area EPS Operator.

Commented [A15]: Not needed if we defer to Transmission Provider on this process

~~9.08.0~~ ~~To ensure cost consistency, a~~ Any study fees shall be based on the Area EPS Operator’s ~~actual-estimated costs for studying prior like projects and will be invoiced to the Interconnection Customer within 20 Business Days after the study is completed and~~

~~delivered and will include a summary of professional time and will not be reconciled to actual costs.~~

~~10.0 The Interconnection Customer must pay any study costs that exceed the deposit without interest within 20 Business Days on receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, the Area EPS Operator shall refund such excess within 20 Business Days of the invoice without interest.~~

~~11.0~~ 11.0 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the state of Minnesota. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

~~12.0~~ 12.0 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

~~13.0~~ 13.0 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

~~14.0~~ 14.0 Waiver

~~14.1~~ 14.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

~~14.2~~ 14.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Area EPS Operator. Any waiver of this Agreement shall, if requested, be provided in writing.

15.013.0 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument. Electronic signatures are acceptable if the Area EPS Operator has made such a determination pursuant to MN DIP 1.2.1.1.

16.014.0 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

17.015.0 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

18.016.0 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

18.1.16.1. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Area EPS Operator be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

~~18.2.16.2.~~ The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

~~19.0~~17.0 Inclusion of Area EPS Operator Tariffs and Rules

The interconnection services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the tariff schedules and rules applicable to the electric service provided by the Area EPS, which tariff schedules and rules are hereby incorporated into this Agreement by this reference. Notwithstanding any other provisions of this Agreement, the Area EPS Operator shall have the right to unilaterally file with the Minnesota Public Utilities Commission, pursuant to the Commission's rules and regulations, an application for change in rates, charges, classification, service, tariff, or rule or any agreement relating thereto. The Interconnection Customer shall also have the right to unilaterally file with the Minnesota Public Utilities Commission, pursuant to the Commission's rules and regulations, an application for change in rates, charges, classification, service, tariff, or rule or any agreement relating thereto. Each Party shall be have the right to protest any such filing by the other Party and/or to participate fully in any proceeding before the Minnesota Public Utilities Commission in which such modifications may be considered, pursuant to the Commission's rules and regulations.

IN WITNESS THEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Area EPS Operator] [Insert name of Interconnection Customer]

Signed: _____ Signed: _____

Name (Printed): _____ Name (Printed): _____

Title: _____ Title: _____

Attachment 6: System Impact Study Agreement (cont'd)

Attachment A

Assumptions Used in Conducting the System Impact Study

The system impact study shall be based upon the following assumptions:

1) Designation of Point of Common Coupling and configuration to be studied.

2) Designation of alternative Points of DER Interconnection and configuration

1) ~~and 2) is are~~ to be completed by the Interconnection Customer. Other assumptions (listed below) are to be provided by the Interconnection Customer and the Area EPS Operator. The Area EPS Operator shall use the Reference Point for Applicability which is either the Point of Common Coupling or the Point(s) of DER Interconnection as described in IEEE 1547.

Commented [A16]: This process should include study of only one interconnection point/configuration.

Additional DER technical data required for System Impact Study

If applicable, the Area EPS Operator shall list below any additional technical data that is required to adequately perform the System Impact Study. As indicated in MN DIP section 4.3.3, this information is to be returned with the signed system impact study agreement and deposit.

Attachment 7: Facilities Study Agreement

THIS AGREEMENT is made and entered into this ____ day of _____
20__ by and between _____,
a _____ organized and existing under the laws of the State of
_____, (“Interconnection Customer,”) and
_____, a _____
existing under the laws of the State of _____,
 (“Area EPS Operator”). Interconnection Customer and Area EPS Operator each may be referred
to as a “Party, ” or collectively as the “Parties.”

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Distributed Energy Resource or generating capacity addition to an existing Distributed Energy Resource consistent with the Interconnection Application completed by the Interconnection Customer on _____; and

WHEREAS, the Interconnection Customer desires to interconnect the Distributed Energy Resource with the Area EPS Operator’s Distribution System;

WHEREAS, the Area EPS Operator has completed Initial Review, Supplemental Review, and/or a system impact study and provided the results of said review to the Interconnection Customer, or determined none was required; and

WHEREAS, the Interconnection Customer has requested the Area EPS Operator to perform a facilities study to specify, and estimate the cost of, the equipment, engineering, procurement and construction work needed to implement the conclusions of the above noted review in accordance with Good Utility Practice to physically and electrically connect the Distributed Energy Resource with the Area EPS Operator’s Distribution System.

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the standard State of Minnesota Distributed Energy Resources Interconnection Procedures (MN DIP).
- 2.0 The Interconnection Customer elects and the Area EPS Operator shall cause a facilities study consistent with the standard MN DIP to be performed. The scope of the facilities study shall be subject to data provided in Attachment A to this Agreement.
- 3.0 The facilities study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the system impact study(s). The facilities study shall also identify: 1) the electrical switching configuration of the equipment, including, without limitation, transformer, switchgear, meters, and other station equipment, 2) the nature and estimated cost of the Area EPS Operator's Interconnection Facilities and Upgrades necessary to accomplish the interconnection, and 3) an estimate of the time required to complete the construction and installation of such facilities.
- 4.0 The Area EPS Operator may propose to group facilities required for more than one Interconnection Customer in order to minimize facilities costs through economies of scale, but any Interconnection Customer may require the installation of facilities required for its own Distributed Energy Resource if it is willing to pay the costs of those facilities.
- 5.0 A deposit of the good faith estimate of the facilities study costs shall be required from the Interconnection Customer and provided when the signed Agreement is provided to the Area EPS Operator.
- 6.0 Any study fees shall be based on the Area EPS Operator's actual costs and will be invoiced to the Interconnection Customer within 20 Business Days after the study is completed and delivered and will include a summary of professional time.
- 7.0 The Interconnection Customer must pay any study costs that exceed the deposit without interest within 20 Business Days on receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced fees, the Area EPS Operator shall refund such excess within 20 Business Days of the invoice without interest.
- 8.0 Governing Law, Regulatory Authority, and Rules
The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the state of Minnesota. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek

changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9.0 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

10.0 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

11.0 Waiver

11.1. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

11.2. Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Area EPS Operator. Any waiver of this Agreement shall, if requested, be provided in writing.

12.0 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument. Electronic signatures are acceptable if the Area EPS Operator has made such a determination pursuant to MN DIP 1.2.1.1.

13.0 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

14.0 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other

Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

15.0 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

15.1. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Area EPS Operator be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

15.2. The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

16.0 Inclusion of Area EPS Operator Tariffs and Rules

The interconnection services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the tariff schedules and rules applicable to the electric service provided by the Area EPS, which tariff schedules and rules are hereby incorporated into this Agreement by this reference. Notwithstanding any other provisions of this Agreement, the Area EPS Operator shall have the right to unilaterally file with the MPUC, pursuant to the MPUC's rules and regulations, an application for change in rates, charges, classification, service, tariff, or rule or any agreement relating thereto. The Interconnection Customer shall also have the right to unilaterally file with the MPUC, pursuant to the MPUC's rules and regulations, an application for change in rates, charges, classification, service, tariff, or rule or any agreement relating thereto. Each Party shall have the right to protest any such filing by the other Party and/or to participate fully in

any proceeding before the MPUC in which such modifications may be considered, pursuant to the MPUC's rules and regulations.

17.0 Data to be provided by the Interconnection Customer with the Facilities Study Agreement

- 17.1. The Interconnection Customer shall be available to meet on site with the Area EPS Operator within 5 Business Days of signing the Facilities Study Agreement. The personnel furnished by the Interconnection Customer for this site meeting shall bring detailed information on the site layout. The Area EPS Operator may request the Interconnection Customer physically places stakes at the location of the major components.¹⁵
- 17.2. The Interconnection Customer shall furnish a final site plan detailing the location of major equipment at the time this agreement is returned. The Point of Common Coupling (PCC) and Point of DER Connection (PoC) shall be clearly marked. The site plan shall depict any nearby roads and be labeled with the road name. Accurate dimensions shall be included on the site plan. The proper emergency (911) address, corresponding to the site, shall be labeled on the site plan.
- 17.3. The Interconnection Customer shall furnish a final one-line diagram detailing the electrical connections between major components. The one-line shall be returned with the signed Facilities Study Agreement.
- 17.4. Technical cut sheets on all equipment related to metering shall be provided by the Interconnection Customer along with the signed Facilities Study Agreement.
- 17.5. If available, copies of Conditional Use Permit(s) from all necessary authorities shall be returned by the Interconnection Customer with the signed Facilities Study Agreement.
- 17.6. The Interconnection Customer shall secure any necessary easements from private land owners prior to signing the Facilities Study Agreement. Documentation of any such agreements shall be provided to the Area EPS Operator.
- 17.7. In the event that the Area EPS Operator determines a site survey is necessary in order to complete a Facilities Study, the Interconnection Customer shall make good faith efforts to complete the site survey in a timely manner.

¹⁵ Examples of major components include, but are not limited to, interconnection transformers, breakers, fuses, reclosers, meters, current transformers (CTs), potential transformers (PTs), switch cabinets, inverters.

- 17.8. The Facilities Study assumes all land use permits required for the interconnection will be approved by the proper authorities. Permits are submitted after the Interconnection Agreement is signed and may impact project costs (i.e. overhead to underground requirement.)
- 17.9. The Interconnection Customer and Area EPS Operator shall provide a single point of contact for design and construction related matters. The Interconnection Customer single point of contact shall respond in a timely manner to Area EPS Operator questions during the Facilities Study.
- 17.10. In the event that an Interconnection Customer does not provide the necessary information described in this agreement, or if the Interconnection Customer takes more than five (5) Business Days to respond to a question during the Facilities Study, the Facilities Study timeframe shall pause until the question is resolved.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Area EPS Operator] [Insert name of Interconnection Customer]

Signed _____ Signed _____

Name (Printed): _____ Name (Printed): _____

Title _____ Title _____

For Commission Consideration - 11/5/19 Notice

Attachment 8: MN DIP Flow Charts

For Commission Consideration - 11/30/18 Notice

