



*Detroit Lakes Public Utility's 29.3 kW Select Solar  
Community Solar Garden  
Detroit Lakes, MN*

# INTERCONNECTION PROCESS

## *Process Overview*

### ABSTRACT

Information for interconnecting all Distributed Energy Resources smaller than 10 megawatts in size to the utility distribution system.



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## Foreword

The State of Minnesota currently has interconnection process standards in effect to address the interconnection of distributed energy resources (DER) to the distribution grid. Under Minnesota Statute §216B.1611, cooperatives and municipals shall adopt an interconnection process that addresses the same issues as the interconnection process approved by the Minnesota Public Utilities Commission. The Mora Municipal Utilities Distributed Energy Resources Interconnection Process (Interconnection Process) applies to any DER no larger than 10-megawatts (MW) AC interconnecting to and operating in parallel with Mora Municipal Utilities' distribution system in Minnesota. This interconnection process document is designed to be customer-centric when explaining the steps and details to interconnect DER systems to the distribution grid.

The Interconnection Process is comprised of four manuals: 1) Process Overview, 2) Simplified Process, 3) Fast Track Process, and 4) Study Process and also contains several forms, including a final Interconnection Agreement. For the majority of DER interconnections, only the Process Overview and the Simplified Process manuals will apply. For larger and more complex DER interconnections, the Fast Track Process or the Study Process may apply.

As part of the Interconnection Process, an Interconnection Agreement is to be executed prior to interconnecting a DER system to the utility distribution grid. For most DER interconnections, the utility's Contract for Cogeneration and Small Power Production Facilities (Uniform Contract) will be used. For DER systems that do not fall under the terms of the Uniform Contract, the Municipal Minnesota Interconnection Agreement (MMIA) will apply.

The process to interconnect a DER system to the distribution grid starts with the submission of an Interconnection Application. Each track has different information that is requested in the application and the non-refundable interconnection application fees will vary. Both the electric utility and the interconnecting customer have timelines that are enforced to ensure a timely application review, contract execution and interconnection commissioning.

The key to a successful interconnection of a DER system is communication between all parties. Timely submission of the Interconnection Application prior to the purchase and installation of a DER system is strongly recommended. The Utility encourages customers to ask questions throughout the interconnection process. Interconnecting DER system to the distribution grid is not an effortless process, but it does not need to be a problematic process either.

# 1 Key Terminology

## 1.1. Distributed Energy Resource

Distributed Energy Resources, DER, were often referred to in past interconnection processes as Distributed Generation, DG, and on occasion also interchanged with the term Qualifying Facility, QF. This Interconnection Process uses the term DER to address all types of generation and energy resources that can be interconnected to the electric Distribution System. DER technologies can include photovoltaic solar systems, wind turbines, storage batteries or diesel generators and are not limited to renewable types of technologies.

## 1.2. Point of Common Coupling (PCC) / Point of DER Connection (POC)

DER systems often reside behind the utility's revenue meter of a residence or business. The meter is normally the point of demarcation between the utility-owned equipment and the customer-owned equipment. The term Point of Common Coupling, PCC, is the demarcation location between the utility and the customer.

The Point of DER Connection, PoC, can be different from the PCC. The PoC is the location where a DER system would interconnect to the electrical system normally owned by the customer. For example, the PoC for a rooftop photovoltaic solar system may be the main electrical panel in a customer's home.

## 1.3. Capacity

Throughout the Interconnection Process will be references to the capacity of the DER system. In most cases, the capacity listed is referring to the Nameplate Capacity of the DER system. All capacity references will be in alternating current, AC.

There can be multiple DER systems with different PoCs that all have the same PCC submitted on a single interconnection application. The capacity for this type of interconnection would be the aggregate Nameplate Capacity of all DER systems at the individual PoCs. Additional examples of DER system arrangements can be seen in Section 13 under the definition of Point of Common Coupling.

# 2 Roles

## 2.1. Overview

During the interconnection process for a proposed DER system, there may be multiple entities involved in the application, approval and commissioning processes. The main entities that are involved during the Interconnection Process for a proposed DER system are the Interconnection Customer, the Application Agent and the DER

Interconnection Coordinator. Official definitions of each entity are defined in the Glossary (Section 13). Additional details are explained in the subsections below.

## **2.2. DER Interconnection Coordinator**

The utility is referred to as the Area Electric Power Supply Operator in this Interconnection Process. The Area EPS Operator shall designate a DER Interconnection Coordinator to serve as a single point of contact from which general information on the application process may be obtained. The DER Interconnection Coordinator shall be available to provide coordination assistance with the Interconnection Customer but is not responsible for directly answering or resolving all of the issues involved in review and implementation of the interconnection process and standards.

The contact information of the DER Interconnection Coordinator will be posted on the Area EPS Operator's website if feasible, or available from the utility.

## **2.3. Interconnection Customer**

The owner of the proposed DER system and the entity requesting interconnection to the distribution system.

## **2.4. Application Agent**

The Interconnection Customer may designate, on the Interconnection Application or in writing after the application has been submitted, an Application Agent to serve as a 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 application documents and the responsibilities outlined in the Interconnection Process or in interconnection agreements. DER vendors, project managers or electricians are common entities that the Interconnection Customer may designate to perform this role.

## **2.5. Engineering Roles**

Either party may designate a specific person to be a single point of contact to provide technical expertise during the Interconnection Process for themselves or their organization. The person to supply engineering expertise may be a third party such as an engineering consultant or manufacturer's engineer.

# **3 Processes**

## **3.1. Overview**

The Interconnection Process applies to any DER no larger than 10 MW AC interconnecting to and operating in parallel with an Area EPS distribution system in

Minnesota. Interested parties with plans to interconnect DER systems larger than 10 MW AC to the distribution system should contact the Area EPS Operator for a case-specific interconnection process. Federal Energy Regulatory Commission's (FERC) interconnection process will supersede any interconnection process the Area EPS Operator has for DER system interconnections that fall under the jurisdiction of FERC.

The Interconnection Process for DER is broken into three different tracks; the Simplified Process, the Fast Track Process, and the Study Process. The general classification of each track is summarized in Table 3.1 below.

*Table 3.1. Interconnection Process Tracks*

<b>Track</b>	<b>DER Technology</b>	<b>Size Limitations</b>
Simplified Process	Certified Inverter only	20 kW AC
Fast Track Process	All types	5 MW AC
Study Process	All types	10 MW AC

If engineering screens are failed during the application process, a proposed DER interconnection may be moved into a different track. When a proposed DER interconnection is moved into a different track, additional information may be requested and additional fees may apply.

### 3.2. Importance of Process Timelines

It is very important to pay attention to timelines listed for each process track. The timelines exist for an orderly and efficient process to interconnect DER systems to the Distribution System. If a timeline is missed by an Interconnection Customer, without the Interconnection Customer requesting a Timeline Extension explained in Section 10, the Interconnection Application will be deemed withdrawn by the Area EPS Operator.

The Area EPS Operator also needs to abide by the timelines listed for each process track. The process for an Area EPS Operator to request Timeline Extensions is also addressed in Section 10.

Unless otherwise stated, all time frames are measured in Business Days. For purpose of measuring these time intervals, the time shall be computed so as to exclude the first and include the last day of the prescribed duration of time. Any communication sent or received after 4:30 p.m. Central Prevailing Time or on a Saturday, Sunday or Holiday shall be considered to be sent on the next Business Day.



### 3.3. Simplified Process

An application to interconnect a certified<sup>1</sup>, inverter-based DER system no larger than 20 kilowatts (kW) shall be evaluated under the Simplified Process. A common form of DER inverter certification is UL 1741. Proposed DER systems that require Area EPS system modifications to accommodate the interconnection do not qualify for the Simplified Process. A transformer change, fusing upgrades or line extensions are common examples of Area EPS system modification. Simplified Process eligibility does not imply or indicate the Interconnection Application will pass the initial review screens. Failure to pass the screens will route the Interconnection Application to the Fast Track Process.

### 3.4. Fast Track Process

An application to interconnect a DER shall be evaluated under the Fast Track Process if the eligibility requirements are not exceeded in Table 3.2 and the application does not qualify for the Simplified Process. Fast Track eligibility for DERs is determined based upon the generator type, the size of the generator, voltage of the line, and the location and type of line at the Point of Common Coupling, (PCC). All synchronous and induction machines must be no larger than 2 MW to be eligible for Fast Track Process consideration.

*Table 3.2. Fast Track Eligibility for DER*

<b>Line Voltage</b>	<b>Fast Track Eligibility<sup>2</sup> Regardless of Location</b>	<b>Fast Track Eligibility for certified, inverter-based DER on a Mainline<sup>3</sup> and ≤ 2.5 Electrical Circuit Miles from Substation<sup>4</sup></b>
< 5 kV	≤ 500 kW	≤ 500 kW
≥ 5 kV and < 15 kV	≤ 1 MW	≤ 2 MW
≥ 15 kV and < 30 kV	≤ 2 MW	≤ 4 MW
≥ 30 kV and ≤ 69 kV	≤ 4 MW	≤ 5 MW

In addition to the size threshold, the Interconnection Customer's proposed DER must meet the codes, standards and certification requirements found in Section 15 and Section 14.

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<sup>1</sup> Additional information regarding certified equipment is found in Sections 14 and 15.

<sup>2</sup> Synchronous and induction machine eligibility is limited to no more than 2 MW even when line voltage is greater than 15 kV.

<sup>3</sup> 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.

<sup>4</sup> An Interconnection Customer can determine this information about its proposed interconnection location in advance by requesting a pre-application report described in Section 5.

### 3.5. Study Process

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.

### 3.6. Process Assistance

Prior to submitting an Interconnection Application, the Interconnection Customer may ask the Area EPS Operator's DER Interconnection Coordinator which process track a proposed interconnection is subject to and about additional details regarding each process track.

An Interconnection Customer can obtain, through an informal request, general information about the Interconnection Process and about potentially Affected System(s) for a proposed interconnection at a specific location. The existing 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. Information will be provided to the extent such provision does not violate the privacy policies of the Area EPS Operator, confidentiality provisions of prior agreements or critical infrastructure requirements. The Area EPS Operator shall comply with reasonable requests for such information.

## 4 Interconnection Application

### 4.1. Overview

Each process track has different information that needs to be provided to the Area EPS Operator. Table 4.1 indicates which application is to be completed in its entirety and submitted to the Area EPS Operator to start the interconnection process for the proposed DER system.

*Table 4.1. Interconnection Application*

Process Track	Application
Simplified	Simplified Interconnection Application
Fast Track	Standard Interconnection Application
Study	Standard Interconnection Application

The Area EPS Operator will provide all necessary Interconnection Applications, Interconnection Process documents and sample interconnection agreements on its

website if possible. The Area EPS Operator will also accept Interconnection Applications submitted electronically either through a web portal or to an email address specified by the Area EPS Operator. The Area EPS Operator may allow the Interconnection Application to be submitted with an electronic signature.

#### 4.2. Availability of Information

The Area EPS Operator will provide all necessary Interconnection Applications, Interconnection Process documents and sample interconnection agreements on its website if possible. If a website is not available, the applicable documents will be readily available at the Area EPS Operator's main office.

The Area EPS Operator will establish a public queue of active interconnection applications on its website once the Area EPS Operator has received at least 40 completed Interconnection Applications in a year. The public queue will be updated, at minimum, on a monthly basis.

#### 4.3. Interconnection Application Process Fees

Each Interconnection Application submitted to the Area EPS Operator must include the appropriate interconnection application process fee prior to the Area EPS Operator reviewing the Interconnection Application. The required process fee for each process track is listed in Table 4.2.

*Table 4.2. Interconnection Application Process Fee*

Process Track		Process Fee
Simplified		\$100
Fast Track	Certified <sup>5</sup> System	\$100 + \$1/kW
	Non-Certified System	\$100 + \$2/kW
Study		\$1,000 + \$2/kW down payment. Additional study fees may apply.

#### 4.4. Application Review Timelines

The Interconnection Application shall be date- and time-stamped upon initial, and if necessary, resubmission receipt. The Area EPS Operator shall notify the Interconnection Customer if the Interconnection Application is deemed incomplete within ten (10) Business Days. This notification shall include a written list detailing all information that must be provided to complete the Interconnection Application. Depending on the process track the Interconnection Customer has between five (5) and

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<sup>5</sup> Additional information regarding certified equipment is found in Sections 14 and 15.

ten (10) Business Days to provide the missing information unless additional time is requested with valid reasons. Failure to submit the requested information within the stated timeline will result in the Interconnection Application being withdrawn.

An Interconnection Application will be deemed complete upon submission to the Area EPS Operator when all documents, fees and information required with the Interconnection Application adhering to Minnesota Technical Requirements are included. The time- and date- stamp of the completed Interconnection Application shall be accepted as the qualifying date for purposes of establishing a queue position as described in Section 4.7.

Depending on the process track the Area EPS Operator has either a total of twenty (20) Business Days or twenty-five (25) Business Days to complete the Interconnection Application review and submit notice back to the Interconnection Customer stating the proposed DER system may proceed with the interconnection process or the proposed DER system requires additional engineering studies. The period of time when waiting for the Interconnection Customer to provide missing information is not included in the Area EPS Operator's twenty (20) Business Days or twenty-five (25) Business Days review timeline.

#### 4.5. Comparability

The Area EPS Operator shall receive, process and analyze all Interconnection Applications in a timely manner. The Area EPS Operator shall use the same Reasonable Efforts in processing and analyzing Interconnection Applications from all Interconnection Customers.

#### 4.6. Changing Process Queues

During the review of the initially submitted Interconnection Application for the proposed DER system, the Area EPS Operator may determine the proposed DER system should be in a different process track. For proposed DER systems that are moved into a different process track after submittal of the initial application, the difference between the originally submitted processing fee and the current process track's processing fee will be assessed. In addition, the Area EPS Operator may request the Interconnection Customer to provide additional information regarding the proposed DER system.

#### 4.7. Queue Position

The Area EPS Operator shall maintain a single, administrative queue and may manage the queue by geographical region. The queue position of each completed Interconnection Application is used to determine the engineering review. The queue

position is also used to determine the cost responsibility for system upgrades necessary to accommodate the interconnection.

An Interconnection Application will retain its queue number even when it is moved into a different process track. An Interconnection Application can lose its queue position if the Interconnection Customer misses timelines in the applicable process track. The Interconnection Customer and Area EPS Operator have the opportunity to request timeline extensions which are explained in detail in Section 10.

#### **4.8. Site Control**

Documentation of site control must be submitted with the Interconnection Application. Site control may be demonstrated by any of the following:

- Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the DER system.
- An option to purchase or acquire a leasehold site for constructing the DER system.
- An exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease, or grant to the Interconnection Customer the right to possess or occupy a site for constructing the DER system.

For DER in the Simplified Process, proof of site control may be demonstrated by the site owner's signature on the Simplified Interconnection Application.

## **5 Pre-Application Report**

### **5.1. Pre-Application Report Requests**

The Interconnection Customer may submit a Pre-Application Report Request, including a non-refundable fee of \$300, for a Pre-Application Report on a proposed project at a specific site. The Interconnection Customer must fill out the Pre-Application Request form as completely as possible. The Area EPS Operator shall provide the readily available data listed in Section 5.3 within fifteen (15) Business Days of receipt of a completed request form and payment. The Pre-Application Report produced by the Area EPS Operator is non-binding, does not confer any rights, and does not preclude the Interconnection Customer from any interconnection process steps including submission of the Interconnection Application.

### **5.2. Information Provided**

Using the information provided in the Pre-Application Report Request form, the Area EPS Operator will identify the substation/area bus, bank or circuit likely to serve the

proposed PCC. 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 PCCs is requested.

The Pre-Application Report will 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. The Area EPS Operator will provide the Interconnection Customer with the data that is available. The confidentiality provisions in Section 12.1 apply to Pre-Application Reports.

### 5.3. Pre-Application Report Components

The Pre-Application Report shall include the following pieces of information provided the data currently exists and is readily available.

- 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.
- 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.
- 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.
- 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).
- Substation nominal distribution voltage and/or transmission nominal voltage if applicable.
- Nominal distribution circuit voltage at the proposed Point of Common Coupling.
- Approximate circuit distance between the proposed Point of Common Coupling and the substation.
- Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load and absolute minimum load, when available.

- Whether the Point of Common Coupling is located behind a line voltage regulator.
- 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.
- 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.
- Limiting conductor ratings from the proposed Point of Common Coupling to the distribution substation.
- Whether the Point of Common Coupling is located on a spot network, grid network, or radial supply.
- 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.

## **6 Capacity of the Distributed Energy Resources**

### **6.1. Existing DER System Expansion**

If the Interconnection Application is for an increase in capacity to an existing DER system, the Interconnection Application shall be evaluated on the basis of the total new alternating current (AC) capacity of the DER. The maximum capacity for the DER shall be the aggregate maximum Nameplate Rating unless the conditions in Section 6.3 are met.

### **6.2. New DER Systems**

An Interconnection Application for a DER that includes multiple energy production devices, (i.e. solar and storage), at a site for which the Interconnection Customer seeks a simple Point of Common Coupling, shall be evaluated on the basis of the aggregated maximum Nameplate Rating unless the conditions in Section 6.3 are met.

### **6.3. Limited Capacity**

A DER system may include devices, (i.e. control systems, power relays or other similar device settings), that can limit the maximum capacity at which the DER system can generate into the Area EPS Operator's distribution system. For DER system that include

capacity limited devices, the Interconnection Customer must obtain the Area EPS Operator's agreement to consider the DER system with the Nameplate Rating as the limited capacity. The Area EPS Operator's agreement shall not be unreasonably withheld provided proper documentation is provided showing the effective limit active power output will not adversely affect the safety and reliability of the Area EPS Operator's distribution system. If the Area EPS Operator does not agree, the Interconnection Application must be withdrawn or revised to specify the maximum capacity that the DER system is capable of injecting into the Area EPS Operator's distribution system without such limitations. Nothing in this section shall prevent the Area EPS Operator from considering a higher output, (i.e. aggregate Nameplate Rating), if the limitations do not provide adequate assurance, when evaluating the system impacts.

## **7 Modification to Interconnection Applications**

### **7.1. Procedures**

At any time after the Interconnection Application is deemed complete, the Interconnection Customer or the Area EPS Operator may identify modifications to the proposed DER system that may improve costs and benefits (including reliability) of the proposed DER system and the ability for the Area EPS Operator to accommodate the proposed DER system. The Interconnection Customer shall submit to the Area EPS Operator in writing all proposed modifications to any information provided in the Interconnection Application. The Area EPS Operator cannot unilaterally modify the Interconnection Application.

Additional information regarding modifications to interconnection applications is found in each process track document.

## **8 Interconnection Agreements**

### **8.1. Timelines**

After the Interconnection Application has been approved by the Area EPS Operator, the Area EPS Operator shall provide the Interconnection Customer with an executable Interconnection Agreement within five (5) Business Days. The Interconnection Customer shall have thirty (30) Business Days to sign and return the Interconnection Agreement to the Area EPS Operator. The Area EPS Operator shall sign the Interconnection Agreement within five (5) business days after receiving the signed Interconnection Agreement from the Interconnection Customer.



If the Interconnection Customer fails to return a signed Interconnection Agreement to the Area EPS Operator within thirty (30) Business Days and fails to request an extension as explained in Section 10, the Interconnection Application will be deemed withdrawn.

## 8.1. Types of Agreements

There are three main types of Interconnection Agreements that may be executed with an approved Interconnection Application. In general, Interconnection Customers with a proposed DER system that qualifies for the Simplified Process track will sign the Area EPS Operator's Uniform Contract for Cogeneration and Small Power Production Facilities (Uniform Contract). Proposed DER systems that are 40 kW and above will sign a Uniform Contract for Cogeneration and Small Power Production Facilities – 40 kW and above (Uniform Contract - 40kW and above). The EPS reserves the right to require the Interconnection Customers with systems of 40 kW or larger to sign the Municipal Minnesota Interconnection Agreement (MMIA). Area EPS Operators who do not purchase the excess generation of the proposed DER system will also require the MMIA to be executed for any size of DER system.

*Table 8.1. Interconnection Agreements*

Process Track		Interconnection Agreement
Simplified		Uniform Contract
Fast Track	Qualifies for Net Energy Billing	Uniform Contract
	40 kW or greater and EPS Agrees to Purchase Excess Generation	Uniform Contract – 40 kW and above OR MMIA
Study		Uniform Contract – 40 kW and above OR MMIA

Interconnection Customers may choose to sign the MMIA in lieu of the Uniform Contract or Uniform Contract – 40 kW and above. A separate power purchase agreement will also need to be executed if the uniform contracts are not utilized. Interconnection of the proposed DER system will not occur until a signed uniform contract or the MMIA is returned to the Area EPS Operator no later than five (5) days prior to scheduled testing and inspection.

## 9 Interconnection

### 9.1. Metering

Any metering requirements necessitated by the use of the DER system shall be installed at the Interconnection Customer's expense. The metering requirement costs will be included in the final invoice of interconnection costs to the Interconnection Customer. The Interconnection Customer is also responsible for metering replacement 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.

## 9.2. Inspection, Testing and Commissioning

The Interconnection Customer shall arrange for the inspection and testing of the DER system and the Customer's Interconnection Facilities prior to interconnection pursuant to Minnesota Technical Requirements. Commissioning tests of the Interconnection Customer's installed equipment shall be performed pursuant to applicable codes and standards of Minnesota's Technical Requirements and Section 15.

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. Depending on the process track, either a Certificate of Completion or a testing procedure shall be submitted to the Area EPS Operator prior to the testing and inspection date. The Area EPS Operator shall send qualified personnel to the DER site to inspect the interconnection and witness the testing. Testing and inspection shall occur on a Business Day at a mutually agreed upon time and date. The Area EPS Operator may waive the right to witness the testing.

## 9.3. Interconnection Costs

The Interconnection Customer shall pay for the actual cost of the Interconnection Facilities and Distribution Upgrades along with the Area EPS Operator's cost to commission the proposed DER system. An estimate of the interconnection costs shall be stated in the Uniform Contract or MMIA.

## 9.4. Technical Requirements

The Area EPS Operator shall use Reasonable Efforts to provide the Interconnection Customer the Minnesota Technical Requirements by providing the document with the notice of approval of the interconnection application or by providing a website link to the document. Additionally, the Area EPS Operator shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. Unless notified by the Area EPS Operator, the Interconnection Customer only needs to be in compliance with the current version of the Minnesota Technical Requirements at the time of interconnection.

## 9.5. Authorization for Parallel Operations

The Interconnection Customer shall not operate its DER system in parallel with the Area EPS Operator's distribution system without prior written 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 operations requirements; the completion of a successful testing and inspection of the DER system and all payments for issued bills related to the interconnection process that are past due have been paid in full. Such authorization shall not be unreasonably withheld, conditioned or delayed.

## **10 Extension of Timelines**

### **10.1. Reasonable Efforts**

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.

### **10.2. Extensions**

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 circumstance.

## **11 Disputes**

### **11.1. Procedures**

The Parties agree to make good faith efforts to attempt to resolve all disputes arising out of the interconnection process and associated study and Interconnection Agreements. The Parties agree to follow the established dispute resolution policy adopted by the Area EPS Operator.

## **12 Clauses**

### **12.1. Confidentiality**

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, or privileged or otherwise not public or nonpublic data under 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>.

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 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.

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 to any confidential information furnished.

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. 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.

## **12.2. 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. The Area EPS Operator does not guarantee uninterrupted power supply to the DER and will operate the Distribution System with the same reliability standards for the entire customer base.

## **12.3. Indemnification**

Each Party is protected from liability incurred to third parties as a result of carrying out the provisions of this interconnection process and subsequent interconnection agreements. 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.

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.

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.

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.

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.

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.

#### **12.4. 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 an indirect, incidental, special, consequential, or punitive damages of any kind whatsoever, except as allowed under in Section 12.3.

## 13 Glossary

**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. For this Interconnection Process the Area EPS Operator is Mora Municipal Utilities.

**Business Day** – Monday through Friday, excluding Holidays as defined by Minn. Stat. §645.44, Subdivision 5. Any communication to have been sent or received after 4:30 p.m. Central Prevailing Time or on a Saturday, Sunday or holiday shall be considered to have been sent on the next Business Day.

**Certified Equipment** – Certified equipment is equipment that has been tested by a nationally recognized lab meeting a specific standard. For DER systems, a UL 1741 listing is a common form of DER inverter certification. Additional information is contained in Sections 14 and 15.

**Confidential Information** – Any confidential and/or proprietary information provided by one Party to the other Party and is clearly marked or otherwise designated “Confidential.” All procedures, design, operating specifications, and metering data provided by the Interconnection Customer may be deemed Confidential Information. See Section 12.1 for further information.

**Distributed Energy Resource (DER)** – A source of electric power that is not directly connected to a bulk power system or central station service. 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 Interconnection Process and interconnection agreements, 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 the Interconnection Process - Fast Track Process for evaluating an Interconnection Application for a DER that meets the eligibility requirements of Section 3.4.

**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 governing authority of the municipal utility 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 Section 8 for when the Uniform Contract or Municipal Minnesota Interconnection Agreement applies.

**Interconnection Application** – The Standard or Simplified Interconnection Application, as applicable, pursuant to Section 4.

**Interconnection Customer** – The person or entity, including the Area EPS Operator, who will be the owner of the DER and who 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.

**Interconnection Process** – The Area EPS Operator's interconnection standards in this document.

**Material Modification** – A modification to machine data, equipment configuration or to the interconnection site of the DER at any time after receiving notification by the Area EPS Operator of a complete Interconnection Application that has a material impact on the cost, timing, or design of any Interconnection Facilities or Upgrades, or a material impact on the cost, timing or design of any Interconnection Application with a later Queue Position or the safety or reliability of the Area EPS.<sup>6</sup>

**MN Technical Requirements** – The term including all of the DER technical interconnection requirement documents for the state of Minnesota; including 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 July 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. For purposes of the Attachment V in the Interconnection Agreement, the DER system's capacity may, with the Area EPS's agreement, be

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<sup>6</sup> A Material Modification shall include, but may not be limited to, a modification from the approved Interconnection Application that: (1) changes the physical location of the point of common coupling such that it is likely to have an impact on technical review; (2) increases the nameplate rating or output characteristics of the Distributed Energy Resource; (3) changes or replaces generating equipment, such as generator(s), inverter(s), transformers, relaying, controls, etc., and substitutes equipment that is not like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; (4) changes transformer connection(s) or grounding; and/or (5) changes to a certified inverter with different specifications or different inverter control settings or configuration. A Material Modification shall not include a modification from the approved Interconnection Application that: (1) changes the ownership of a Distributed Energy Resource; (2) changes the address of the Distributed Energy Resource, so long as the physical point of common coupling remains the same; (3) changes or replaces generating equipment such as generator(s), inverter(s), solar panel(s), transformers, relaying, controls, etc. and substitutes equipment that is a like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; and/or (4) increases the DC/AC ratio but does not increase the maximum AC output capability of the Distributed Energy Resource in a way that is likely to have an impact on technical review.

limited thought use of control systems, power relays or similar device settings or adjustments as identified in IEEE 1547. The nameplate ratings referenced in the Interconnection Process are alternating current nameplate DER ratings at the Point of DER Coupling.

**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.

**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 Interconnection Agreement.

**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.

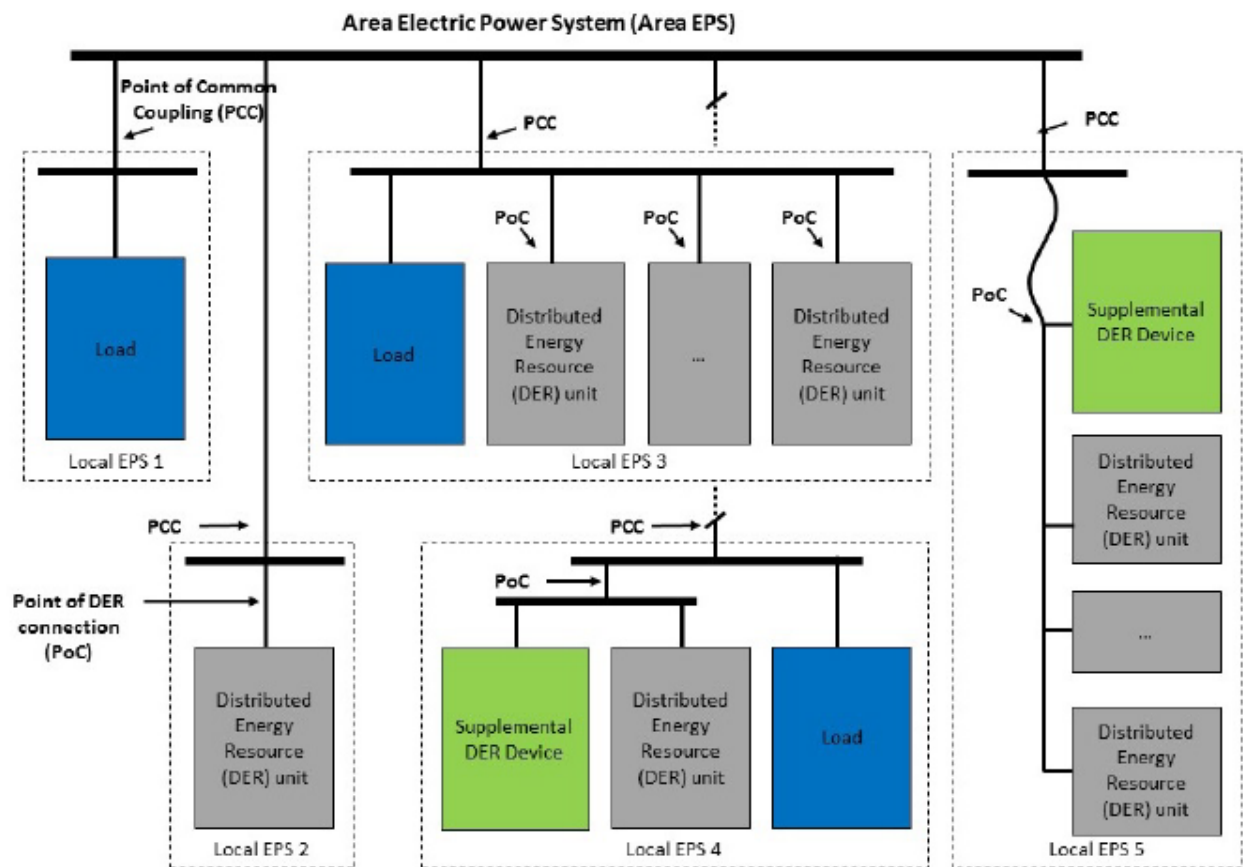


Figure 1: Point of Common Coupling and Point of DER Connection (Source: IEEE 1547)

**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 Section 4.7.

**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 Technical 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 the Interconnection Process – Simplified Process document. The Simplified Process includes simplified procedures.

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

**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 Contract** – the Area EPS Operator’s Agreement for Cogeneration and Small Power Production Facilities (Uniform Contract) that may be applied to all qualifying new and existing interconnections between the Area EPS Operator and a DER system having capacity less than 40 kilowatts.

**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.

## 14 Certification of DER Equipment

Distributed Energy Resource (DER) equipment proposed for use in an interconnection system shall be considered certified for interconnected operation if the following criteria is met:

- 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 the Overview Process,
- 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.

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.

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.

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.

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.

An equipment package does not include equipment provided by the Area EPS.

## **15 Certification Codes and Standards**

The existing Minnesota Technical Requirements and the following standards shall be used in conjunction with the Interconnection Process. The process has started to update the Technical Requirements to meet IEEE 1547-2018. Once that process is completed, the updated DER Technical Interconnection and Interoperability Requirements will supersede this section.

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

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 (1000 V 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





*Owatonna Public Utility's 10 kW Demonstration Solar  
Owatonna, MN*

# INTERCONNECTION PROCESS

*Simplified Process*

## ABSTRACT

Information in addition to the “Process Overview” for interconnecting Distributed Energy Resources of up to 20 kilowatts in size to the utility distribution system.



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# **1 Applicability**

## **1.1. Capacity Limit**

The Simplified Process only is applicable to certified inverter-based Distributed Energy Resource (DER) systems with the capacity of 20 kW AC or less. The capacity is determined by the aggregated summation of the Nameplate Rating of the inverters that make up the DER system. Additional information regarding the capacity limits can be seen in Section 6 of the Process Overview document.

## **1.2. Certified Inverters**

A certified inverter will have certification of meeting the current version of the IEEE standard 1547. A common inverter certification is UL 1741. Note that certified inverters may still need to have a setting adjusted to meet the technical requirements of the Area EPS Operator. Additional information regarding certified equipment is found in Section 14 and Section 15 of the Process Overview document.

# **2 Application Submission**

## **2.1. Simplified Process Application**

The Interconnection Customer shall complete the Simplified Interconnection Application and submit it to the Area EPS Operator to initialize the Interconnection Process. A completed Simplified Interconnection Application will include the following:

- A completed Simplified Interconnection Application signed by the Interconnection Customer,
- A non-refundable processing fee of \$100,
- An aerial site layout drawing of the proposed DER system,
- A one-line diagram of the proposed DER system showing the point of common coupling, PCC, to the Area EPS Operator's Distribution System, and
- All certified equipment manufacturer specification sheets.

## **2.2. Battery Storage**

An inverter-based DER system may include battery storage. DER systems that include battery storage must also complete the Energy Storage Application with the Simplified Interconnection Application.

### 2.3. Site Control

By signing the Simplified Interconnection Application, the Interconnection Customer is indicating that the proposed DER system is being located where the Interconnection Customer has site control. Site control includes ownership of, a leasehold interest in, or a right to develop a site for the purpose of construction of a DER. Additional information regarding Site Control can be reviewed in the Process Overview document in Section 4.8.

## 3 Application Review

### 3.1. Timelines

The Interconnection Application shall be date- and time-stamped upon initial, and if necessary, resubmission receipt. The Interconnection Customer shall be notified of receipt by the Area EPS Operator within ten (10) Business Days of receipt of the Interconnection Application.

The Area EPS Operator shall notify the Interconnection Customer if the Interconnection Application is deemed incomplete within ten (10) Business Days and provide a written list detailing all information that must be provided to complete the Interconnection Application. The Interconnection Customer has five (5) Business Days to provide the missing information unless additional time is requested with valid reasons. Failure to submit the requested information within the stated timeline will deem the Interconnection Application withdrawn. The Area EPS Operator has an additional five (5) Business Days to review the additionally provided information for completeness.

An Interconnection Application will be deemed complete upon submission to the Area EPS Operator provided all documents, fees and information required with the Interconnection Application adhering to Minnesota Technical Requirements is included. The time- and date- stamp of the completed Interconnection Application shall be accepted as the qualifying date for the purpose of establishing a queue position as described in Section 4.7 of the Overview Process document.

The Area EPS Operator has a total of twenty (20) Business Days to complete the Interconnection Application review from the receipt of a completed Interconnection Application and submit notice back to the Interconnection Customer stating the proposed DER system may proceed with the interconnection process or the proposed DER system has been moved into a different process track. The time during which the Interconnection Customer provides missing information is not included in the Area EPS Operator's twenty (20) Business Days review timeline.

### 3.2. Initial Review Screens

The Area EPS Operator shall determine if the DER can be interconnected safely and reliably using Initial Review Screens and without the construction of facilities by the Area EPS Operator. The Initial Review screens include the following engineering screens:

- The proposed DER's PCC must be on a portion of the Area EPS Operator's Distribution System.
- 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 or 100% of the substation aggregated minimum load. 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.
- 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.<sup>1</sup>
- 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 PCC.
- 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 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.

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<sup>1</sup> Network protectors are protective devices used on secondary networks (spot and grid networks) to automatically disconnect their associated transformers when reverse power flow occurs. Secondary networks are most often used in densely populated downtown areas.

- 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.

<b>Primary Distribution Line Type</b>	<b>Type of Interconnection to Primary Distribution Line</b>	<b>Results</b>
Three-Phase, three wire	Three-phase or single-phase, phase-to-phase	Pass Screen
Three-phase, four wire	Effectively-grounded three-phase or single-phase, line-to-neutral	Pass Screen

- 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.
- 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.

The technical screens listed shall not preclude the Area EPS Operator from using tools that perform screening functions using different methodologies given the analysis is aimed at preventing the voltage, thermal and protection limitations as the listed screen.

### 3.3. Notification of Approval of Application

Provided the Simplified Interconnection Application passes the initial screens, or if the proposed interconnection fails the screens but the Area EPS Operator determines that the DER may never the less be interconnected consistent with safety, reliability and power quality standards, the Area EPS Operator shall provide notice to the Interconnection Customer that their Simplified Interconnection Application has been approved.

### 3.4. Failure of Review Screens

If the proposed interconnection fails the screens the Interconnection Customer will be notified by the Area EPS Operator that the Simplified Interconnection Application has



been moved to the Fast Track Process. The Area EPS Operator shall provide the Interconnection Customer the opportunity to attend a customer options meeting. Additional information regarding the customer options meeting is found in Section 3.5 of the Fast Track Process document. The Interconnection Customer will need to provide a completed Interconnection Application to the Area EPS Operator prior to, or at the customer options meeting.

The Area EPS Operator shall notify the Interconnection Customer of the determination and provide copies of all directly pertinent data and analyses underlying its conclusion, subjected to confidentiality provisions in Section 12.1 of the Overview Process document.

## **4 Interconnection Agreement**

### **4.1. Uniform Contract**

The Area EPS Operator shall provide the Interconnection Customer with an executable copy of the Area EPS Operator's Contract for Cogeneration and Small Power Production Facilities (Uniform Contract) within five (5) Business Days of notice of approval of the Simplified Interconnection Application.

### **4.2. Municipal Minnesota Interconnection Agreement**

The Interconnection Customer may request on the Simplified Interconnection Application an executable copy of the Area EPS Operator's Municipal Minnesota Interconnection Agreement (MMIA) in lieu of signing the Uniform Contract. If the MMIA is requested, the Area EPS Operator shall provide an executable copy of the MMIA within five (5) Business Days of notice of approval of the Simplified Interconnection Application.

### **4.3. Completion of Agreement**

The Interconnection Customer must return a signed Uniform Contract or MMIA at least thirty (30) Business Days prior to a requested in-service date of the propose DER. The Area EPS Operator shall sign and return a copy of the fully executed Uniform Contract or the MMIA back to the Interconnection Customer.

The Interconnection Customer may update the requested in-service date submitted on the Simplified Interconnection Application to a date thirty (30) Business Days or later from the date on which the Interconnection Customer submits a signed Uniform Contract or MMIA and payment, if required, unless the Area EPS Operator agrees to an earlier date.

Upon receipt of the signed Uniform Contract or MMIA, the Area EPS Operator may schedule appropriate metering replacements and construction of facilities, if necessary.

## **5 Insurance**

### **5.1. Insurance Requirements**

At minimum, the Interconnection Customer shall maintain, for the duration the DER system is interconnected to the Area EPS Operator's Distribution System, \$300,000 of general liability insurance from a qualified insurance agency with a B+ or better rating by "Best." 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. Evidence of the insurance shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance by the Area EPS Operator.

### **5.2. Self-Insurance**

The Interconnection Customer may choose to be self-insured provided there is an established record of self-insurance. The Interconnection Customer shall supply 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 in Section 5.1. 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.

### **5.3. Proof of Insurance**

Prior to initial operation of the DER, the Interconnection Customer shall furnish the Area EPS Operator with the Declarations page of the Homeowner's insurance policy documenting insurance of the DER, if applicable or other insurance certificates and endorsements documenting insurance. Thereafter, the Area EPS Operator shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance. Additionally, the Area EPS Operator may request to be additionally listed as an interested third party on the insurance certificates and endorsements to meet the right to periodically obtain a copy of the policy or policies of insurance.

## **6 Timeline Extensions**

### **6.1. Reasonable Efforts**

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.

### **6.2. Extensions**

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 circumstance.

## **7 Modifications to Application**

### **7.1. Procedures**

At any time after the Interconnection Application is deemed complete, the Interconnection Customer or the Area EPS Operator may identify modifications to the proposed DER system that may improve costs and benefits (including reliability) of the proposed DER system and the ability for the Area EPS Operator to accommodate the proposed DER system. The Interconnection Customer shall submit to the Area EPS Operator in writing all proposed modifications to any information provided in the Interconnection Application. The Area EPS Operator cannot unilaterally modify the Interconnection Application.

### **7.2. Timelines**

Within ten (10) Business Days of receipt of the proposed modification, the Area EPS Operator shall evaluate whether the proposed modification to the Interconnection Application constitutes a Material Modification. The definition in Section 13 Glossary of the Process Overview document includes examples of what does and does not constitute a Material Modification.

The Area EPS Operator shall notify the Interconnection Customer in writing of the final determination of the proposed modification. For proposed modifications that are

determined to be a Material Modification the Interconnection Customer may choose to either: 1) withdraw the proposed modification; or 2) proceed with a new Interconnection Application. 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. If the Interconnection Customer does not provide its determination within the timeline, the Interconnection Application shall be considered withdrawn.

If the proposed modification is not determined to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and the Interconnection Customer shall retain its eligibility for interconnection, including its place in the queue.

## **8 Interconnection**

### **8.1. Metering**

Any metering requirements necessitated by the use of the DER system shall be installed at the Interconnection Customer's expense. The metering requirement costs will be included in the final invoice of interconnection costs to the Interconnection Customer. The Interconnection Customer is also responsible for metering replacement 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.

### **8.2. Construction**

The Interconnection Customer may proceed to construct (including operational testing not to exceed two hours) the DER system when the Area EPS Operator has approved the Simplified Interconnection Application. Upon receipt of a signed Uniform Contract or MMIA 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 Certification of Completion. The Area EPS Operator will notify the Interconnection Customer when construction of the distribution facilities is completed.

### **8.3. Inspection, Testing and Commissioning**

Upon completing construction of the DER system, the Interconnection Customer will cause the DER system to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction. The Interconnection Customer shall then arrange for the inspection and testing of the DER system and the Customer's Interconnection Facilities prior to interconnection pursuant to Minnesota Technical Requirements. Commissioning test of the Interconnection Customer's installed

equipment shall be performed pursuant to applicable codes and standards of Minnesota's Technical Requirements. The Interconnection Customer shall provide the Area EPS Operator with a Certificate of Completion after completion of the DER installation.

Prior to parallel operation, the Area EPS Operator may inspect the DER for compliance with standards, which may include a witness test, and schedule appropriate metering replacements, if necessary. The Area EPS Operator shall send qualified personnel to the DER site to inspect the interconnection and witness the testing but bears no liability for the results of the test.

The Area EPS Operator is obligated to complete the witness test, if required, within ten (10) Business Days of receipt of the Certification of Completion. If the Area EPS Operator does not inspect within ten (10) Business Days, the witness test is deemed waived unless upon mutual agreement of both Parties to extend the timeline for the witness test.

Within three (3) Business Days of satisfactory inspection or waiver of inspection, the Area EPS Operator shall provide the Interconnection Customer written acknowledgment that the DER has permission to operate. 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.

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.

#### **8.4. Interconnection Costs**

The Interconnection Customer shall pay for the actual cost of the Interconnection Facilities and Distribution Upgrades along with the Area EPS Operator's cost to commission the proposed DER system. An estimate of the interconnection costs shall be stated in the Uniform Contract or MMIA. The Area EPS Operator shall render the final interconnection cost invoice to the Interconnection Customer within thirty (30) Business Days after the proposed DER system has been commissioned by the Area EPS Operator, or upon the commissioning being waived by the Area EPS Operator. The Interconnection Customer shall make payment to the Area EPS Operator within

twenty-one (21) Business Days of receipt, or as otherwise stated in the Uniform Contract.

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.

#### 8.5. Authorization for Parallel Operation

The Interconnection Customer shall not operate its DER system in parallel with the Area EPS Operator's Distribution System without prior written 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 the Certificate of Completion and notification the Interconnection Customer has complied with all applicable parallel operations requirements. Such authorization shall not be unreasonably withheld, conditioned or delayed.

#### 8.6. Continual Compliance

The Interconnection Customer shall be fully responsible for operating, maintaining, and repairing the DER as required to ensure that it complies at all times with the interconnection standards to which it has been certified. The Interconnection Customer shall also operate its DER system in compliance with the Area EPS Operator's technical requirements as referred to in the executed Uniform Contract or MMIA. The Area EPS Operator may periodically inspect, at its own expense, the operation of DER system as it relates to power quality, thermal limits and reliability. Failure by the Interconnection Customer to remain in compliance with the technical requirements will result in the DER system's disconnection from the Area EPS Operator's Distribution System.

#### 8.7. Disconnection of DER

The Area EPS Operator has the right to disconnect the DER in the event the Interconnection Customer:

- Does not continue to follow and maintain IEEE 1547 settings approved by the Area EPS Operator as indicated by the adopted technical requirements.
- Does not meet all the requirements of the Simplified Process.

- Refuses to sign either the Interconnection Agreement or the Area EPS Operator's Uniform Contract.

The Area EPS Operator may temporarily disconnect the DER upon the following conditions:

- For scheduled outages upon reasonable notice.
- For unscheduled outages or emergency conditions.
- If the DER does not operate in a manner consistent with the Simplified Process.

The Area EPS Operator shall inform the Interconnection Customer in advance of any scheduled disconnections, or as reasonable, after an unscheduled disconnection.



*St. Cloud Utility's 220 kW Wastewater Solar Array  
St. Cloud, MN*

# INTERCONNECTION PROCESS

*Fast Track Process*

## ABSTRACT

Information in addition to the "Process Overview" for interconnecting Distributed Energy Resources smaller than 4 megawatts in size that do not qualify for the "Simplified Process."





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# 1 Applicability

## 1.1. Capacity Limit

The Fast Track Process is available to an Interconnection Customer proposing to interconnect a Distributed Energy Resource (DER) with the Area EPS Operator's Distribution System if the DER capacity does not exceed the size limits in Table 1.1 and does not qualify for the Simplified Process. The capacity is determined by the aggregated summation of the Nameplate Rating of all components that make up the DER system. Additional information regarding the capacity limits can be seen in Section 6 of the Process Overview document.

*Table 1.1. Fast Track Eligibility for DER*

<b>Line Voltage</b>	<b>Fast Track Eligibility<sup>1</sup> Regardless of Location</b>	<b>Fast Track Eligibility for certified, inverter-based DER on a Mainline<sup>2</sup> and ≤ 2.5 Electrical Circuit Miles from Substation<sup>3</sup></b>
< 5 kV	≤ 500 kW	≤ 500 kW
≥ 5 kV and < 15 kV	≤ 1 MW	≤ 2 MW
≥ 15 kV and < 30 kV	≤ 3 MW	≤ 4 MW
≥ 30 kV and ≤ 69 kV	≤ 4 MW	≤ 5 MW

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. Fast Track eligibility does not imply or indicate that a DER will pass the engineering screens or be exempt from the proposed DER Interconnection being placed into the Study Process.

## 1.2. Codes, Standards and Certification Requirements

The Interconnection Customer's proposed DER must meet the codes, standards and certification requirements listed in Section 14 and Section 15 of the Overview Process document. The Area EPS Operator may allow DER systems that do not meet codes, standards and certification only if the DER system design is reviewed and tested and determined that it is safe to operate in parallel with the Distribution System.

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<sup>1</sup> Synchronous and induction machine eligibility is limited to no more than 2 MW even when line voltage is greater than 15 kV.

<sup>2</sup> 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.

<sup>3</sup> An Interconnection Customer can determine this information about its proposed interconnection location in advance by requesting a pre-application report described in the Overview Process document.

## 2 Application Submission

### 2.1. Fast Track Process Application

The Interconnection Customer shall complete the Standard Interconnection Application and submit it to the Area EPS Operator to initialize the Interconnection Process. A completed Interconnection Application will include the following:

- A completed Interconnection Application signed by the Interconnection Customer.
- A non-refundable processing fee indicated in Section 2.3.
- A site layout drawing of the proposed DER system.
- A one-line diagram of the proposed DER system showing the point of common coupling to the Area EPS Operator's Distribution System.
- All equipment manufacturer specification sheets.
- Documentation of site control indicated in Section 2.5.

### 2.2. Professional Licensed Engineer Signature

The one-line diagram submitted with the Interconnection Application will require a signature from a professional engineer licensed in the State of Minnesota certifying the DER was designed in conformance to the Minnesota Technical Requirements for the following conditions:

- Certified<sup>4</sup> equipment is greater than 250 kW.
- Non-certified equipment is greater than 20 kW.

### 2.3. Processing Fee

The processing fee will differ for a Fast Track Interconnection Application depending on the type of equipment utilized as seen in Table 2.1.

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<sup>4</sup> Additional information regarding certified equipment is found in Section 14 and Section 15 of the Process Overview document.

*Table 2.1. Interconnection Application Process Fee*

Equipment Type	Process Fee
Certified System	\$100 + \$1/kW
Non-Certified System	\$100 + \$2/kW

#### 2.4. Battery Storage

An inverter-based DER system may include battery storage. DER systems that include battery storage should complete the Energy Storage Application along with the Interconnection Application.

#### 2.5. Site Control

Documentation of site control must be submitted with the Interconnection Application. Site control may be demonstrated by any of the following:

- Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the DER system.
- An option to purchase or acquire a leasehold site for constructing the DER system.
- 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 constructing the DER system.

### 3 Application Review

#### 3.1. Timelines

The Interconnection Application shall be date- and time-stamped upon initial, and if necessary, resubmission receipt. The Interconnection Customer shall be notified of receipt by the Area EPS Operator within ten (10) Business Days of receipt of the Interconnection Application.

The Area EPS Operator shall notify the Interconnection Customer if the Interconnection Application is deemed incomplete within ten (10) Business Days and provide a written list detailing all information that must be provided to complete the Interconnection Application. The Interconnection Customer has ten (10) Business Days to provide the missing information unless additional time is requested with valid reasons. Failure to submit the requested information within the stated timeline will result in the Interconnection Application being deemed withdrawn. The Area EPS Operator has an

additional five (5) Business Days to review the additionally provided information for completeness.

An Interconnection Application will be deemed complete upon submission to the Area EPS Operator provided all documents, fees and information required with the Interconnection Application adhering to Minnesota Technical Requirements is included. The time- and date- stamp of the completed Interconnection Application shall be accepted as the qualifying date for the purpose of establishing a queue position as described in Section 4.7 in the Overview Process document.

The Area EPS Operator has a total of twenty-five (25) Business Days to complete the Interconnection Application review and submit notice back to the Interconnection Customer stating the proposed DER system may proceed with the interconnection process or a supplemental review offer is to be made or the proposed DER system has been moved into a different process track. The period of time when waiting for the Interconnection Customer to provide missing information is not included in the Area EPS Operator's twenty-five (25) Business Days review timeline.

### 3.2. Initial Review Screens

The Area EPS Operator shall determine if the DER can be interconnected safely and reliably without the construction of facilities by the Area EPS Operator by using a set of Initial Review Screens. The Initial Review screens include the following engineering screens:

- The proposed DER's Point of Common Coupling must be on a portion of the Area EPS Operator's Distribution System.
- 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 or 100% of the substation aggregated minimum load. 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.
- 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.<sup>5</sup>

- 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.
- 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 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.
- 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.

*Table 3.1. Type of Primary Distribution Line Interconnections*

<b>Primary Distribution Line Type</b>	<b>Type of Interconnection to Primary Distribution Line</b>	<b>Results</b>
Three-Phase, three wire	Three-phase or single-phase, phase-to-phase	Pass Screen
Three-phase, four wire	Effectively-grounded three-phase or single-phase, line-to-neutral	Pass Screen

- 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.
- 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

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



the two sides of the 240-volt service of more than 20% of the nameplate rating of the service transformer.

The technical screens listed shall not preclude the Area EPS Operator from using tools that perform screening functions using different methodologies provided the analysis is targeted to maintain the voltage, thermal and protection objectives as the listed screen.

### 3.3. Notification of Approval of Application

Provided the Interconnection Application passes the initial 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 Area EPS Operator shall provide notice to the Interconnection Customer that their Interconnection Application has been approved. The Area EPS Operator shall provide the Interconnection Customer with an Interconnection Agreement as outlined in Section 5.

### 3.4. Failure of Review Screens

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.

The Area EPS Operator shall notify the Interconnection Customer of the determination and provide copies of all directly pertinent data and analyses underlying its conclusion, subject to confidentiality provisions in Section 12.1 of the Overview Process document.

### 3.5. Customer Options Meeting

Within ten (10) Business Days of the Area EPS Operator's notification to the Interconnection Customer of the proposed interconnection's failure of the engineering screens, the Area EPS Operator and the Interconnection Customer shall schedule a customer options meeting to review possible facility modification, screen analysis and related results to determine what further steps are needed to permit the DER to be interconnected safely and reliably to the Distribution System. At the customer options meeting the Area EPS Operator shall:

- Offer to perform a supplemental review in accordance with Section 4 and provide a non-binding good faith estimate of the cost of such review; or

- Obtain the Interconnection Customer's agreement to continue evaluating the Interconnection Application under the Study Process track.

## **4 Supplemental Review**

### **4.1. Acceptance of Supplemental Review**

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 within fifteen (15) Business Days once the supplemental review offer is made by the Area EPS Operator. If the written agreement and deposit have not been received by the Area EPS Operator within that timeframe, the Interconnection Application can only continue being evaluated under the Study Process or it can be withdrawn by the Interconnection Customer.

The Interconnection Customer may specify within the written agreement the order in which the Area EPS Operator will complete the supplemental review screens listed in Section 4.4.

### **4.2. Supplemental Review Costs**

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.

### **4.3. Supplemental Review Timelines**

Within thirty (30) Business Days following the receipt of the deposit for a supplemental review, the Area EPS Operator shall:

- Perform the supplemental review using the screens in Section 4.4.
- Notify the Interconnection Customer of the results in writing.
- Include copies of the Area EPS Operator's analysis under the screens with the written notification.

Unless the Interconnection Customer provides instruction for how to respond to a failure of any of the supplemental review screens in the written acceptance of supplemental review, the Area EPS Operator shall notify the Interconnection Customer within two (2) Business Days if a supplemental review screen is failed or if the Area EPS Operator is unable to perform the supplemental review screen. The Area EPS Operator shall then obtain the Interconnection Customer's permission to either:

- Continue evaluating the proposed interconnection using the supplemental review screens in Section 4.4.
- Terminate the supplemental review and continue evaluating the Interconnection Application in the Study Process track.
- 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.

#### 4.4. Supplemental Review Screens

The three supplemental review screens are the Minimum Load screen, the Voltage and Power Quality screen and the Safety and Reliability screen.

##### 4.4.1. Minimum Load Screen

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 4.3. The line section minimum load data shall include onsite load but not station service load served by the proposed DER in this screen.

The type of generation used by the proposed DER will be considered when calculating, estimating, or determining circuit or line section minimum load relevant for the application of this screen. 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.

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.

The 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.

#### 4.4.2. Voltage and Power Quality Screen

In aggregate with existing generation on the line section the following conditions shall be met for the screen to be passed:

- The voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions.
- 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.
- The harmonic levels meet IEEE Standard 519 limits.

#### 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.

- Whether the line section has significant minimum loading levels dominated by a small number of customers (e.g., several large commercial customers).
- Whether the loading along the line section is uniform or even.
- 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.

- 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.
- 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.
- 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.

#### 4.5. Identification of Construction of Facilities

If the proposed interconnection requires the construction of any distribution or transmission facilities, the Area EPS Operator shall notify the Interconnection Customer of the requirement when it provides the supplemental review results. The Area EPS Operator may include a non-binding good faith estimate to construct the facilities included with the supplemental review results. In lieu of providing a non-binding good faith estimate to construct the necessary facilities, the Area EPS Operator may require the proposed interconnection to move to the Study Process for a facility study instead.

Upon being presented with either the non-binding good faith estimate or the requirement for a facility study, the Interconnection Customer has five (5) Business Days to inform the Area EPS Operator to proceed with the proposed interconnection or withdraw the Interconnection Application.

#### 4.6. Supplemental Review Results

If the proposed interconnection passes the supplemental review screens in Section 4.4 and does not require construction of distribution or transmission facilities by the Area EPS on its own system, the Area EPS Operator shall provide an executable Interconnection Agreement within five (5) Business Days after the supplemental review screens are completed. Information regarding the Interconnection Agreement is detailed in Section 5.

If the proposed interconnection passes the supplemental review screens in Section 4.4 and the Interconnection Customer agrees to the non-binding good faith estimate of construction of any distribution or transmission facilities by the Area EPS Operator, the Area EPS Operator shall provide an executable Interconnection Agreement within twenty (20) Business Days. Included with the Interconnection Agreement shall be non-

binding good faith estimate of construction costs and a construction schedule for the facilities. Information regarding the Interconnection Agreement is detailed in Section 5.

If the proposed interconnection does not pass the supplemental review screens in Section 4.4 the Area EPS Operator shall provide the Interconnection Customer with the option of commencing the Study Process. The Interconnection Customer shall notify the Area EPS Operator within fifteen (15) Business Days if they wish to proceed with the Study Process to retain their queue position or the Interconnection Application will be deemed withdrawn.

## **5 Interconnection Agreement**

### **5.1. Uniform Contracts**

For a proposed interconnection that meets the conditions of being classified as a qualifying facility less than 40 kW, the Area EPS Operator shall provide the Interconnection Customer with an executable copy of the Area EPS Operator's Uniform Contract for Cogeneration and Small Power Production Facilities (Uniform Contract).

### **5.2. Municipal Minnesota Interconnection Agreement**

For proposed interconnections that do not meet the conditions of being classified as a qualifying facility less than 40 kW or if requested by the Interconnection Customer in lieu of signing the Uniform Contract, the Area EPS Operator shall provide the Uniform Contract – 40 kW and Above or an executable copy of the Municipal Minnesota Interconnection Agreement (MMIA).

### **5.3. Completion of Agreement**

The Interconnection Customer must return a signed uniform contract or Interconnection Agreement at least thirty (30) Business Days prior to the requested in-service date of the purposed DER. The Area EPS Operator shall sign and return a copy of the fully executed uniform contract or Interconnection Agreement back to the Interconnection Customer.

The Interconnection Customer may update the requested in-service date submitted on the Interconnection Application to a date thirty (30) Business Days or later from the date on which the Interconnection Customer submits a signed uniform contract or Interconnection Agreement and payment if required unless the Area EPS Operator agrees to an earlier date.

Upon receipt of the signed uniform contract or Interconnection Agreement, the Area EPS Operator may schedule appropriate metering replacements and construction of facilities, if necessary.

## 6 Insurance

### 6.1. Insurance Requirements

At minimum, the Interconnection Customer shall maintain, for the duration the DER system is interconnected to the Area EPS Operator's Distribution System, general liability insurance from a qualified insurance agency with a B+ or better rating by "Best" with a combined single limit of not less than those described in Table 6.1. 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. Evidence of the insurance shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance by the Area EPS Operator.

*Table 6.1. Liability Insurance Requirements*

<b>DER System Size</b>	<b>Liability Insurance Requirement</b>
< 40 kW AC	\$300,000
≥ 40 kW AC and < 250 kW AC	\$1,000,000
≥ 250 kW AC and < 5 MW AC	\$2,000,000
≥ 5 MW AC	\$3,000,000

For all proposed DER systems, except those that are qualifying systems less than 40 kW AC, the general liability insurance shall, by endorsement to the policy or policies:

- Include the Area EPS Operator as additionally insured.
- Contain severability of interest clause or cross-liability clause.
- Provide that the Area EPS Operator shall not by reason incur liability to the insurance carrier for the payment of premiums for such insurance if the Area EPS Operator is included as an additionally insured.

### 6.2. Self-Insurance

The Interconnection Customer may choose to be self-insured provided there is an established record of self-insurance. The Interconnection Customer shall supply the Area EPS Operator at least 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 in Section 6.1. 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.

### **6.3. Proof of Insurance**

The Interconnection Customer shall furnish the required insurance certificates and endorsements to the Area EPS Operator prior to the initial operation of the DER. A copy of the Declaration page of the Homeowner's insurance policy is a common example of an insurance certificate. Thereafter, the Area EPS Operator shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance. Additionally, the Area EPS Operator may request to be additionally listed as an interested third party on the insurance certificates and endorsements for qualifying facilities less than 40 kW AC to meet the right to periodically obtain a copy of the policy or policies of insurance.

## **7 Timeline Extensions**

### **7.1. Reasonable Efforts**

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.

### **7.2. Extensions**

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 circumstance.

## **8 Modifications to Application**

### **8.1. Procedures**

At any time after the Interconnection Application is deemed complete, the Interconnection Customer or the Area EPS Operator may identify modifications to the proposed DER system that may improve costs and benefits (including reliability) of the proposed DER system and the ability for the Area EPS Operator to accommodate the



proposed DER system. The Interconnection Customer shall submit to the Area EPS Operator in writing all proposed modifications to any information provided in the Interconnection Application. The Area EPS Operator cannot unilaterally modify the Interconnection Application.

## **8.2. Timelines**

Within ten (10) Business Days of receipt of the proposed modification, the Area EPS Operator shall evaluate whether the proposed modification to the Interconnection Application constitutes a Material Modification. The definition in the Section 13 Glossary of the Process Overview document includes examples of what does and does not constitute a Material Modification.

The Area EPS Operator shall notify the Interconnection Customer in writing of the final determination of the proposed modification. For proposed modifications that are determined to be a Material Modification the Interconnection Customer may choose to either: 1) withdraw the proposed modification; or 2) proceed with a new Interconnection Application. 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. If the Interconnection Customer does not provide its determination within the timeline, the Interconnection Application shall be considered withdrawn.

If the proposed modification is not determined to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and the Interconnection Customer shall retain its eligibility for interconnection, including its place in the queue.

# **9 Interconnection**

## **9.1. Interconnection Milestones**

For DER systems that are not a qualifying facility less than 40 kW AC, the Interconnection Customer and the Area EPS Operator shall agree on milestones for which each Party is responsible and list them in Attachment IV of the MMIA. To the greatest extent possible, the Parties will identify all design, procurement, installation and construction requirements associated with the project, and clear associated timelines, at the beginning of the design, procurement, installation and construction phase, or as early within the process as possible.

A Party's obligation 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, propose the earliest reasonable alternative date in which this and future milestones will be met, and request appropriate amendments to the MMIA and its attachments. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless:

- The Party will suffer significant uncompensated economic or operational harm from the delay, or
- Attainment of the same milestone has previously been delayed, or
- The Party has reason to believe the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstance 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 as described in the Overview Process document.

## 9.2. Metering

Any metering requirements necessitated by the use of the DER system shall be installed at the Interconnection Customer's expense. The metering requirement costs will be included in the final invoice of interconnection costs to the Interconnection Customer. The Interconnection Customer is also responsible for metering replacement 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.

## 9.3. Construction

The Interconnection Customer may proceed to construct (including operational testing not to exceed two hours) the DER system when the Area EPS Operator has approved the Interconnection Application. Upon receipt of a signed Uniform Contract or Interconnection Agreement the Area EPS Operator shall schedule and execute appropriate construction of facilities.

## 9.4. Inspection, Testing and Commissioning

Upon completing construction of the DER system, the Interconnection Customer will cause the DER system to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction. The Interconnection Customer shall then arrange for the inspection and testing of the DER system 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 of Minnesota's Technical Requirements and Section 15 in the Overview Process.

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. The Interconnection Customer shall provide to the Area EPS Operator a testing procedure that will be followed on the day of testing and inspection no fewer than ten (10) Business Days prior to the testing and inspection date. The testing procedure should include tests and/or inspections to confirm the DER system will meet the technical requirements of interconnection. The Area EPS Operator shall review the testing procedure for completeness and shall notify the Interconnection Customer if the testing procedure fails to address components of the technical requirements for interconnection.

The Area EPS Operator shall send qualified personnel to the DER site to inspect the interconnection and witness the testing. Testing and inspection shall occur on a Business Day at a mutually agreed upon date and time. The Area EPS Operator may waive the right to witness the testing.

## 9.5. Interconnection Costs

### 9.4.1 Estimation of Interconnection Costs

The Interconnection Customer shall pay for the actual cost of the Interconnection Facilities and Distribution Upgrades along with the Area EPS Operator's cost to commission the proposed DER system. An estimate of the interconnection costs shall be stated in the Uniform Contract or in the MMIA in Attachment II as a detailed itemization of such costs. 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 agreements.

### 9.4.2 Progressive Payment of Interconnection Costs

The Area EPS Operator shall bill the Interconnection Customer for the design, engineering, construction and procurement costs of the Interconnection Facilities and Upgrades described in the MMIA Attachment II on a monthly basis or other basis agreed upon by both Parties in the MMIA or Uniform Contract. The Interconnection Customer shall pay each bill within twenty-one (21) Business Days or as agreed to in the MMIA or Uniform Contract.

#### 9.4.3 Final Accounting of Interconnection Facilities and Upgrade Costs

If distribution or transmission facilities required upgrades to accommodate the proposed DER system, the Area EPS Operator shall render the final interconnection cost invoice to the Interconnection Customer within eighty (80) Business Days (approximately four calendar months) of completing the construction and installation of the Area EPS Operator's Interconnection Facility and Upgrades. The Area EPS Operator shall provide the Interconnection Customer with a final accounting report identifying the difference between the actual Interconnection Customer's cost responsibility and the Interconnection Customer's previous aggregate payments to the Area EPS Operator for the specific DER system interconnection. Upon the final accounting submitted to the Interconnection Customer, the balance between the actual cost and previously aggregated payments shall be paid to the Area EPS Operator within twenty (20) Business Days. If the balance between the actual cost and previously aggregated payments is a credit, the Area EPS Operator shall refund the Interconnection Customer within twenty (20) Business Days.

#### 9.4.4 Final Interconnection Costs without Facilities and Upgrades Needed

Within thirty (30) Business Days the final invoice for the interconnection costs shall be rendered to the Interconnection Customer once the proposed DER system has been commissioned by the Area EPS Operator, or upon the commissioning being waived by the Area EPS Operator. The Interconnection Customer shall make payment to the Area EPS Operator within twenty-one (21) Business Days of receipt, or as otherwise stated in the Uniform Contract or MMIA.

### 9.6. Security of Payment

At the option of the Area EPS Operator, either the "Traditional Security" or the "Modified Security" method shall be used for assurance of payment of interconnection cost.

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. The letter of credit shall also include procedures for the unpaid balance of the estimated amount shown in the 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:

- 1/3 of estimated costs shall be due no later than when the Interconnection Customer signs the Interconnection Agreement.
- An additional 1/3 of estimated costs shall be due prior to initial energization of the DER with the Area EPS Operator.
- Remainder of actual costs, incurred by Area EPS Operator, shall be due within thirty (30) Business Days from the date the bill is mailed by the Area EPS Operator after project completion.

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 guaranty, 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.

The guaranty 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.

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 Section 9.5

## 9.7. Non-Warranty

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. The Area EPS Operator does not guarantee uninterrupted power supply to the DER and

will operate the Distribution System with the same reliability standards for the entire customer base.

#### 9.8. Authorization for Parallel Operation

The Interconnection Customer shall not operate its DER system in parallel with the Area EPS Operator's Distribution System without prior written 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 operations requirements and commissioning has been successfully completed. Such authorization shall not be unreasonably withheld, conditioned or delayed.

#### 9.9. Continual Compliance

The Interconnection Customer shall be fully responsible to operate, maintain, and repair the DER as required to ensure that it complies at all times with the interconnection standards to which it has been certified. The Interconnection Customer shall also operate its DER system in compliance with the Area EPS Operator's technical requirements referred to in the executed Interconnection Agreement. The Area EPS Operator may periodically inspect, at its own expense, the operation of the DER system as it relates to power quality, thermal limits and reliability. Failure by the Interconnection Customer to remain in compliance with the technical requirements will result in the disconnection of the DER system from the Area EPS Operator's Distribution System.

#### 9.10. Disconnection of DER

The Area EPS Operator has the right to disconnect the DER in the event of the following:

- Does not continue to follow and maintain IEEE 1547 settings approved by the Area EPS Operator as indicated by the adopted technical requirements.
- Does not meet all the requirements of the Fast Track Process.
- Refuses to sign either the MMIA or the Area EPS Operator's Uniform Contract.

The Area EPS Operator may temporarily disconnect the DER upon the following conditions:

- For scheduled outages upon reasonable notice.
- For unscheduled outages or emergency conditions.

- If the DER does not operate in the manner consistent with the Fast Track Process.

The Area EPS Operator shall inform the Interconnection Customer in advance of any scheduled disconnections, or as reasonable, after an unscheduled disconnection.



*Southern Minnesota Municipal Power Agency's  
5 MW Lemond Solar Station  
Owatonna, MN*

# INTERCONNECTION PROCESS

## *Study Process*

### ABSTRACT

Information in addition to the “Process Overview” for interconnecting to the utility distribution system Distributed Energy Resources larger than 4 megawatts in size or in need of additional studies.





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# **1 Applicability**

## **1.1. Applicability**

The Study Process is applicable to an Interconnection Customer proposing to interconnect a Distributed Energy Resource (DER) with the Area Electrical Power System (Area EPS) Operator's Distribution System, if the DER capacity is larger than 4 MW or is identified through the engineering screening process to need additional studies.

The majority of proposed DER interconnections will initially apply for interconnection under the Simplified or Fast Track Processes. Initial and supplemental screening results are to be considered throughout the Study Process.

## **1.2. Codes, Standards and Certification Requirements**

The Interconnection Customer's proposed DER must meet the codes, standards and certification requirements listed in Section 13, 14 and Section 15 of the Process Overview document. The Area EPS Operator may allow DER systems that do not meet codes, standards and certification only if the DER system design is reviewed, tested and determined to be safe to operate in parallel with the Distribution System.

# **2 Application Submission**

## **2.1. Initial Interconnection Application for the Study Process**

For proposed DER interconnections that are not initially applied for under the Fast Track Process, the Interconnection Customer shall complete the Standard Interconnection Application and submit it to the Area EPS Operator to initiate the Interconnection Process. A completed Interconnection Application will include the following:

- A completed Interconnection Application signed by the Interconnection Customer.
- A process fee not to exceed \$1,000, plus \$2.00 per kW, toward the deposit of the study(s) indicated in Section 4.
- A site layout drawing of the proposed DER system.
- A one-line diagram of the proposed DER system showing the Point of Common Coupling to the Area EPS Operator's Distribution System.
- All equipment manufacturer specification sheets.
- Documentation of site control as indicated in Section 2.4.

## 2.2. Professional Licensed Engineer Signature

The one-line diagram submitted with the Interconnection Application will require a signature from a professional engineer licensed in the State of Minnesota certifying the DER was designed in conformance to the Minnesota Technical Requirements for the following conditions:

- Certified<sup>1</sup> equipment is greater than 250 kW.
- Non-certified equipment is greater than 20 kW.

## 2.3. Battery Storage

An inverter-based DER system may include battery storage. DER systems that include battery storage should complete the Energy Storage Application along with the Interconnection Application.

## 2.4. Site Control

Documentation of site control must be submitted with the Interconnection Application. Site control may be demonstrated by any of the following:

- Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the DER system;
- An option to purchase or lease a site for constructing the DER system;
- 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 constructing the DER system.

## 2.5. Interconnection Applications from Other Processes

Some Interconnection Applications submitted under the Fast Track Process may be moved into the Study Process due to issues with the DER interconnection identified by engineering screens. An Area EPS Operator cannot request a new Interconnection Application submission if the Interconnection Application has already been submitted through the Fast Track Process. The Interconnection Customer who had already paid a processing fee for the Fast Track Process is still responsible to make a deposit toward the applicable studies address in Section 4, 5 and 6, but does not need to submit an additional processing fee.

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<sup>1</sup> Additional information regarding certified equipment is found in Sections 14 and 15 of the Process Overview document.

### **3 Initial Steps**

#### **3.1. Completeness Review and Queue Position**

The Interconnection Application originally submitted under the Study Process shall be date- and time-stamped upon initial receipt, and if necessary, resubmission receipt. The Interconnection Customer shall be notified of receipt by the Area EPS Operator within ten (10) Business Days after receipt.

The Area EPS Operator shall notify the Interconnection Customer, within ten (10) Business Days, if the Interconnection Application is deemed incomplete, and provide a written list detailing all information that must be provided to complete the Interconnection Application. The Interconnection Customer has ten (10) Business Days, to provide the missing information, unless additional time is requested with a valid reason. Failure to submit the requested information, within the stated timeline, will result in the Interconnection Application being deemed withdrawn. The Area EPS Operator has an additional five (5) Business Days to review the additionally provided information for completeness.

An Interconnection Application will be deemed complete upon submission to the Area EPS Operator, provided all documents, fees and information required with the Interconnection Application, adhering to Minnesota Technical Requirements, is included. The date- and time-stamp of the completed Interconnection Application shall be accepted as the qualifying date for the purpose of establishing a queue position, as described in Section 4.7 of the Overview Process document.

Interconnection Applications already screened in the Simplified Process or Fast Track Process shall retain their original queue position in the Study Process provided all applicable timelines were met.

#### **3.2. Scoping Meeting**

A scoping meeting shall be held within ten (10) Business Days after the Interconnection Application submitted under the Study Process is deemed complete. For Interconnection Applications that were submitted under or put through the Fast Track Process, the scoping meeting will occur within ten (10) Business Days after the Interconnection Customer has elected to continue with the Study Process. The scoping meeting timeline may be extended upon mutual agreement of both Parties. The scoping meeting may also be omitted by mutual agreement.

The purpose of the scoping meeting is to discuss the Interconnection Application and review existing study results 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.

## **4 System Impact Study**

### **4.1. Electric System Impacts**

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. The System Impact Study is also to study the potential impacts, including but not limited to, those identified in the scoping meeting. A System Impact Study shall evaluate the impacts of the proposed interconnection on the reliability of the electric system.

### **4.2. System Impact Study Agreement**

If the Parties agree at the scoping meeting that a System Impact Study should be performed, the Area EPS Operator shall provide the Interconnection Customer a System Impact Study Agreement, not later than five (5) Business Days after the scoping meeting. If the scoping meeting was omitted by mutual agreement, the Area EPS Operator shall provide the Interconnection Customer a System Impact Study Agreement within ten (10) Business Days after the Interconnection Customer waives the scoping meeting.

The System Impact Study Agreement 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 System Impact Study Agreement shall list any additional and reasonable technical data on the DER needed to perform the study. The scope and cost responsibilities are to be described in the System Impact Study Agreement.

### **4.3. System Impact Study Costs**

A deposit of the good faith estimated cost for each System Impact Study shall be provided by the Interconnection Customer with the return of a signed System Impact Study Agreement.

### **4.4. System Impact Study Timelines**

Both the Area EPS Operator and the Interconnection Customer has timeline responsibilities under the System Impact Study.

#### 4.4.1. Interconnection Customer Timelines

In order to remain in consideration for interconnection, an Interconnection Customer who has requested a System Impact Study shall meet the following conditions within twenty (20) Business Days of being provided a System Impact Study Agreement:

- Return a signed System Impact Study Agreement.
- Provide to the Area EPS Operator any requested additional and reasonable technical data on the DER needed to perform the System Impact Study.
- Pay the required study deposit.

Upon the Interconnection Customer's request, the Area EPS Operator shall grant a time frame extension as described in Section 9.2, if additional technical data is requested.

#### 4.4.2 Area EPS Operator Timelines

A System Impact Study shall be completed within thirty (30) Business Days after the System Impact Study Agreement has been signed by both Parties and delivered with the deposit and requested technical information to the Area EPS Operator. The results of the System Impact Study 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 the Interconnection Customer supporting documentation developed in the preparation of the System Impact Study, subjected to confidentiality arrangements consistent with Section 12.1 of the Overview Process and terms of the System Impact Study Agreement.

## 5 Transmission System Impact Study

### 5.1. Transmission System Impacts

In instances where the System Impact Study shows potential for Transmission System adverse system impacts, the Area EPS Operator shall contact the appropriate Transmission Provider within five (5) Business Days following the identification of such impacts. The Area EPS Operator shall coordinate with the Area EPS Operator's Transmission Provider to have the necessary studies to determine if the DER causes any adverse transmission impacts. The appropriate Transmission Provider shall provide a Transmission System Impact Study Agreement for the Interconnection Customer. Included in the Transmission System Impact Study Agreement will be a non-binding,



good faith estimate of cost for the study, along with a scope outline of the study and any additional technical data required to complete the Transmission System Impact Study.

## **5.2. Transmission System Impact Study Timelines**

In order to remain in consideration for interconnection, an Interconnection Customer must return the executed Transmission System Impact Study Agreement, along with the study deposit, within fifteen (15) Business Days. The Transmission System Impact Study shall be completed and the results provided 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.

## **5.3. Regional Transmission Operator Jurisdiction**

In certain circumstances the Transmission Provider may not be able to study a proposed DER system if there is a possible affect to the bulk Transmission System. In these situations, the Area EPS Operator will coordinate with the Transmission Provider to inform the Interconnection Customer that the proposed DER system will need to follow the Regional Transmission Operator's interconnection process. For most of Minnesota, the Regional Transmission Operator is Midcontinent Independent System Operator (MISO).

# **6 Facilities Study**

## **6.1. Construction of Facilities**

If construction of facilities is required, a Facility Study may be necessary to specify and estimate the cost of the equipment, engineering, procurement and construction work. A Facility Study is identified by an 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. At the determination of the Area EPS Operator, Interconnection Applications reviewed in the Simplified Process or the Fast Track Process that require construction of facilities may forgo a Facilities Study.

## **6.2. Facilities Study Agreement**

The Area EPS Operator shall provide the Interconnection Customer a Facilities Study Agreement either:

- in tandem with the results of the Interconnection Customer's System Impact Study, or
- in tandem with a Transmission System Impact Study, or
- if no System Impact Study is required, within five (5) Business Days after the scoping meeting, or
- within ten (10) Business Days after the Interconnection Application is deemed complete and approved through the Simplified Process or Fast Track Process.

The Facilities Study Agreement 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 to be described in the Facilities Study Agreement. A deposit of the good faith estimated costs for the Facilities Study shall be provided by the Interconnection Customer at the time it returns the Facilities Study Agreement.

### 6.3. Facilities Study Timeline

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.

### 6.4. Identification of Construction of Facilities

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(-ies). Design for any required Interconnection Facilities and/or Upgrades shall be performed under the Facilities Study Agreement unless the Facilities Study Agreement was deemed unnecessary by the Area EPS Operator. However, in the event that the Interconnection Customer did not provide 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 provides 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(s) 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(s) may be provided to the Area EPS Operator, with the confidential information being clearly marked and subjected to Confidentiality provisions in the Overview Process document Section 12.1.

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. 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.

#### 6.5. Facilities Study Report Timeline

In cases where Upgrades are required, the Facilities Study must be completed within forty-five (45) Business Days of the receipt of the executed Facilities Study Agreement and deposit. 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.

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 the Interconnection Customer supporting documentation developed in the preparation of the Interconnection Facilities Study, subject to confidentiality arrangements consistent with these procedures and the Facilities Study Agreement.

Within ten (10) Business Days of providing a draft Facilities Study Report to the Interconnection Customer, the Area EPS Operator and Interconnection Customer shall meet to discuss the results of the Facilities Study. This meeting may be omitted by mutual agreement. The 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.

The Area EPS Operator shall issue the final Facilities Study Report within fifteen (15) Business Days of receiving the Interconnection Customer's comments, or promptly upon receiving the Interconnection Customer's statement that they 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.

## **7 Interconnection Agreement**

### **7.1. Uniform Contract**

For a proposed interconnection that meets the conditions of being classified as a qualifying facility less than 40 kW, the Area EPS Operator shall provide the Interconnection Customer with an executable copy of the Area EPS Operator's Uniform Contract for Cogeneration and Small Power Production Facilities (Uniform Contract), within five (5) Business Days after the completion of the applicable study(-ies).

### **7.2. Municipal Minnesota Interconnection Agreement**

For proposed interconnections that do not meet the conditions of being classified as a qualifying facility less than 40 kW or if requested by the Interconnection Customer in lieu of signing the Uniform Contract, the Area EPS Operator shall provide the Interconnection Customer an executable Municipal Minnesota Interconnection Agreement (MMIA) within five (5) Business Days after the completion of the applicable study(-ies).

### **7.3. Completion of Agreement**

The Interconnection Customer must return a signed Interconnection Agreement at least thirty (30) Business Days prior to the requested in-service date of the propose DER. The Area EPS Operator shall sign and return a copy of the fully executed Interconnection Agreement, back to the Interconnection Customer.

The Interconnection Customer may update the requested in-service date submitted on the Interconnection Application to a date thirty (30) Business Days or later from the date on which the Interconnection Customer submits a signed Interconnection Agreement and payment if required unless the Area EPS Operator agrees to an earlier date.

Upon receipt of the signed Interconnection Agreement, the Area EPS Operator may schedule appropriate metering replacements and construction of facilities, if necessary.

## 8 Insurance

### 8.1. Insurance Requirements

At minimum, the Interconnection Customer shall maintain, for the duration the DER system is interconnected to the Area EPS Operator's Distribution System, general liability insurance from a qualified insurance agency with a B+ or better rating by "Best," with a combined single limit of not less than those described in Table 8.1. 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. Evidence of the insurance shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance by the Area EPS Operator.

*Table 8.1 Liability Insurance Requirements*

DER System Size	Liability Insurance Requirement
< 40 kW AC	\$300,000
≥ 40 kW AC and < 250 kW AC	\$1,000,000
≥ 250 kW AC and < 5 MW AC	\$2,000,000
≥ 5 MW AC	\$3,000,000

For all proposed DER systems, except those that are qualifying systems less than 40 kW AC, the general liability insurance shall, by endorsement to the policy or policies:

- Include the Area EPS Operator as additionally insured.
- Contain severability of interest clause or cross-liability clause.
- Provide that the Area EPS Operator shall not by reason incur liability to the insurance carrier for the payment of premiums for such insurance if the Area EPS Operator is included as an additionally insured.

### 8.2. Self-Insurance

The Interconnection Customer may choose to be self-insured provided there is an established record of self-insurance. The Interconnection Customer shall supply the Area EPS Operator at least twenty (20) Business 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 in Section 8.1. 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.

### **8.3. Proof of Insurance**

The Interconnection Customer shall furnish the required insurance certificates and endorsements to the Area EPS Operator prior to the initial operation of the DER. A copy of the Declaration page of the homeowner's insurance policy is a common example of an insurance certificate. Thereafter, the Area EPS Operator shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance. Additionally, the Area EPS Operator may request to be additionally listed as an interested third party on the insurance certificates and endorsements for qualifying facilities less than 40 kW AC, to meet the right to periodically obtain a copy of the policy or policies of insurance.

## **9 Timeline Extensions**

### **9.1. Reasonable Efforts**

The Area EPS Operator shall make Reasonable Efforts to meet all the 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, explaining the reason for the failure to meet the deadline and providing an estimated time by which it will complete the applicable interconnection procedure in the process.

### **9.2. Extensions**

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 circumstance.

## **10 Modifications to Application**

### **10.1. Procedures**

At any time after the Interconnection Application is deemed complete, the Interconnection Customer or the Area EPS Operator may identify modifications to the proposed DER system that may improve costs and benefits. This includes reliability of the proposed DER system and the ability for the Area EPS Operator to accommodate the proposed DER system. The Interconnection Customer shall submit to the Area EPS Operator, in writing, all proposed modifications to any information provided in the Interconnection Application. The Area EPS Operator cannot unilaterally modify the Interconnection Application.

## 10.2. Timelines

Within ten (10) Business Days of receipt of the proposed modification, the Area EPS Operator shall evaluate whether the proposed modification to the Interconnection Application constitutes a Material Modification. The definition in the Section 13 Glossary of the Process Overview document includes examples of what does and does not constitute a Material Modification.

The Area EPS Operator shall notify the Interconnection Customer in writing of the final determination of the proposed modification. For proposed modifications that are determined to be a Material Modification the Interconnection Customer may choose to either: 1) withdraw the proposed modification; or 2) proceed with a new Interconnection Application. The Interconnection Customer shall provide its choice in writing to the Area EPS Operator within ten (10) Business Days after being provided the Material Modification determination. If the Interconnection Customer does not provide its choice within the timeline, the Interconnection Application shall be considered withdrawn.

If the proposed modification is not determined to be a Material Modification, then the Area EPS Operator shall notify the Interconnection Customer in writing that the modification has been accepted and the Interconnection Customer shall retain its eligibility for interconnection, including its position in the queue.

## 11 Interconnection

### 11.1. Interconnection Milestones

For DER systems that are not a qualifying facility less than 40 kW AC, the Interconnection Customer and the Area EPS Operator shall agree on milestones for which each Party is responsible and list them in Attachment IV in the Interconnection Agreement. To the greatest extent possible, the Parties will identify all design, procurement, installation and construction requirements associated with the project while also clearly identifying associated timelines, at the beginning, or as early within the process as possible, of the design, procurement, installation and construction phase.

A Party's obligation under this provision may be extended by agreement. If a Party anticipates that they will be unable to meet a milestone for any reason other than a Force Majeure Event, they shall immediately notify the other Party of the reason(s) for not meeting the milestone, then propose the earliest reasonable alternative date in which this and future milestones will be met and 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:

- The Party will suffer significant uncompensated economic or operational harm from the delay, or
- Attainment of the same milestone has previously been delayed, or
- The Party has reason to believe the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstance 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 as described in the Overview Process document.

### 11.2. Metering

Any metering requirements necessitated by the use of the DER system shall be installed at the Interconnection Customer's expense. The metering-related costs will be included in the final invoice of interconnection costs to the Interconnection Customer. The Interconnection Customer is also responsible for metering replacement 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.

### 11.3. Inspection, Testing and Commissioning

Upon completing construction of the DER system, the Interconnection Customer will cause the DER system to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction. The Interconnection Customer shall then arrange for the inspection and testing of the DER system and the Customer's Interconnection Facilities prior to interconnection pursuant to Minnesota Technical Requirements. Commissioning tests of the Interconnection Customer's installed equipment shall be performed pursuant to applicable codes and standards of Minnesota's Technical Requirements and Section 15 in the Overview Process.

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. The Interconnection Customer shall provide to the Area EPS Operator a testing procedure that will be followed on the day of testing and inspection no fewer than ten (10) Business Days prior to the testing and inspection date. The testing procedure should include tests and/or inspections to confirm the DER system will meet the technical requirements of interconnection. The Area EPS Operator shall review the testing procedure for completeness and notify the Interconnection Customer if the



testing procedure fails to address components of the technical requirements for interconnection.

The Area EPS Operator shall send qualified personnel to the DER site to inspect the interconnection and witness the testing. Testing and inspection shall occur on a Business Day at a mutually agreed upon date and time. The Area EPS Operator may waive the right to witness the testing.

## **11.4. Interconnection Costs**

### **11.4.1 Estimation of Interconnection Costs**

The Interconnection Customer shall pay for the actual cost of the Interconnection Facilities and Distribution Upgrades along with the Area EPS Operator's cost to commission the proposed DER system. An estimate of the interconnection costs shall be stated in the Uniform Contract or in the MMIA in Attachment II, Interconnection Facilities and Upgrades, as a detailed itemization of such costs. 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 agreements.

### **11.4.2 Progressive Payment of Interconnection Costs**

The Area EPS Operator shall invoice the Interconnection Customer for the design, engineering, construction and procurement costs of the Interconnection Facilities and Upgrades described in the MMIA Attachment II, on a monthly basis, or other manner agreed upon by both Parties in the MMIA, or as described in the Uniform Contract. The Interconnection Customer shall pay each invoice within twenty-one (21) Business Days or as agreed to in the MMIA or Uniform Contract.

### **11.4.3 Final Accounting of Interconnection Facilities and Upgrade Costs**

If distribution or transmission facilities required upgrades to accommodate the proposed DER system, the Area EPS Operator shall render the final interconnection cost invoice to the Interconnection Customer within eighty (80) Business Days (approximately four calendar months) of completing the construction and installation of the Area EPS Operator's Interconnection Facility and Upgrades. The Area EPS Operator shall provide the Interconnection Customer with a final accounting report identifying the difference between the actual Interconnection Customer's cost responsibility and the Interconnection Customer's previous aggregate payments to the Area EPS Operator for the specific DER system interconnection. Upon the final accounting submitted to the Interconnection Customer, the balance between the actual cost and previously

aggregated payments shall be paid to the Area EPS Operator within twenty (20) Business Days. If the balance between the actual cost and previously aggregated payments is a credit, the Area EPS Operator shall refund the Interconnection Customer within twenty (20) Business Days.

#### 11.4.4 Final Interconnection Costs without Facilities and Upgrades Needed

Within thirty (30) Business Days the final invoice for the interconnection costs shall be rendered to the Interconnection Customer once the proposed DER system has been commissioned by the Area EPS Operator, or upon the commissioning being waived by the Area EPS Operator. The Interconnection Customer shall make payment to the Area EPS Operator within twenty-one (21) Business Days of receipt, or as otherwise stated in the Uniform Contract or MMIA.

### 11.5. Security of Payment

At the option of the Area EPS Operator, either the “Traditional Security” or the “Modified Security” method shall be used for assurance of payment of interconnection cost.

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. The letter of credit shall also include procedures for the unpaid balance of the estimated amount shown in the 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:

- One-third of estimated costs, shall be due no later than when the Interconnection Customer signs the Interconnection Agreement.
- An additional one-third of estimated costs, shall be due prior to initial energization of the DER with the Area EPS Operator.
- After the project completion, the remainder of actual costs, incurred by Area EPS Operator, shall be due within thirty (30) Business Days from the date the invoice is mailed.

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 guaranty, 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.

The guaranty 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.

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 invoice described in Section 11.4.

#### **11.6. Non-Warranty**

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. The Area EPS Operator does not guarantee uninterrupted power supply to the DER and will operate the Distribution System with the same reliability standards for the entire customer base.

#### **11.7. Authorization for Parallel Operation**

The Interconnection Customer shall not operate its DER system in parallel with the Area EPS Operator's Distribution System without prior written 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 operations requirements and commissioning has been successfully completed. Such authorization shall not be unreasonably withheld, conditioned or delayed.

### 11.8. Continual Compliance

The Interconnection Customer shall operate its DER system in compliance with the Area EPS Operator's technical requirements referred to in the executed Interconnection Agreement. The Area EPS Operator may periodically inspect, at its own expense, the operation of DER system as it relates to power quality, thermal limits and reliability. Failure by the Interconnection Customer to remain in compliance with the technical requirements will result in the disconnection of the DER system from the Area EPS Operator's Distribution System.

### 11.9. Disconnection of DER

The Area EPS Operator has the right to disconnect the DER in the event of the following:

- Does not continue to follow and maintain IEEE 1547 settings approved by the Area EPS Operator as indicated by the adopted technical requirements.
- Does not meet all the requirements of the Study Process.
- Refuses to sign either the Interconnection Agreement or the Area EPS Operator's Uniform Contract.

The Area EPS Operator may temporarily disconnect the DER upon the following conditions:

- For scheduled outages upon reasonable notice.
- For unscheduled outages or emergency conditions.
- If the DER does not operate in the manner consistent with the Study Process.

The Area EPS Operator shall inform the Interconnection Customer in advance of any scheduled disconnections, or as reasonable, after an unscheduled disconnection.