



*Arrowhead Electric Cooperative, Inc's 40 kW Community  
Solar and Great River Energy's 20 kW Solar System  
Lutsen, MN*

# INTERCONNECTION PROCESS

*Fast Track Process*

## ABSTRACT

Interconnection Process for Distributed Energy Resources less than 4 MW and meeting the screening process to be interconnected to the Distribution System of a Cooperative in the State of Minnesota.



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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 determine 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 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 dependent 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*

<b>Equipment Type</b>	<b>Process Fee</b>
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 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 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 duration period 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 and 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 its associated transformer 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 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 Interconnection Application has been approved. The Area EPS Operator shall provide the Interconnection Customer with an interconnection agreement as outline 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, subjected 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.

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 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).

### **5.2. Cooperative 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 an executable copy of the Cooperative Interconnection Agreement (Interconnection Agreement).

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

The Interconnection Customer must return a signed Uniform Contract or Interconnection Agreement 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 Uniform Contract or the 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 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 part 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 Interconnection Agreement. 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 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

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.

## 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 is to notified the Interconnection Customer if the testing procedure is fails to address components of the technical requirement 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 Interconnection Agreement 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 Interconnection Agreement Attachment II on a monthly basis or otherwise agreed upon manner by both Parties in the Interconnection Agreement or as listed in the Uniform Contract. The Interconnection Customer shall pay each bill within twenty-one (21) Business Days or as agreed to in the Interconnection Agreement 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 Interconnection Agreement.

## 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 Generation System with the Area EPS Operator.
- Remainder of actual costs, incurred by Area EPS Operator, shall be due within 30 days from the date the bill is mailed by the Area EPS Operator after project completion.

Under the Modified Security method, at least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Area EPS Operator's Interconnection Facilities and Upgrades, the Interconnection Customer shall provide the Area EPS Operator, at the Interconnection Customer's option, a guarantee, letter of credit or other form of security that is reasonably acceptable to the Area EPS Operator and is consistent with the Minnesota Uniform Commercial Code. Such security for payment shall be in an amount sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Area EPS Operator's Interconnection Facilities and Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to the Area EPS Operator under the Interconnection Agreement during its term.

The guarantee must be made by an entity that meets the creditworthiness requirements of the Area EPS Operator and contain terms and conditions that guarantee payment of any amount that may be due from the Interconnection Customer, up to an agreed-to maximum amount.

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 membership 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 version listed in the executed Uniform Contract or 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.

## 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 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 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.