

## SWCE Distributed Generation Procedures

SWCE has adopted the *State of Minnesota Interconnection Process for Distributed Generation Systems* in Policy 2.037 Cogeneration. This procedure outlines the steps the Cooperative will take to evaluate and interconnect a distribution generation system to the distribution grid. Addition steps may also occur as outlined in *State of Minnesota Interconnection Process for Distributed Generation Systems*.

### **Interconnection Application**

To initiate any interconnection of a distributed generation system, SWCE requires the Interconnection Application to be completely filled out and returned to the coop along with the listed nonrefundable application fee. The application fees are listed in the *Minnesota Interconnection Process for Distributed Generation Systems* and are as follows:

**Generation Interconnection Application Fees**

<b>Interconnection Type</b>	<b>≤ 20kW</b>	<b>&gt;20kW &amp; ≤250kW</b>	<b>&gt;250kW &amp; ≤500kW</b>	<b>&gt; 500 kW &amp; ≤1000kW</b>	<b>&gt;1000 kW</b>
<b>Open Transfer</b>	\$0	\$0	\$0	\$100	\$100
<b>Quick Closed</b>	\$0	\$100	\$100	\$250	\$500
<b>Soft Loading</b>	\$100	\$250	\$500	\$500	\$1000
<b>Extended Parallel (Pre Certified System)</b>	\$0	\$250	\$1000	\$1000	\$1500
<b>Other Extended Parallel Systems</b>	\$100	\$500	\$1500	\$1500	\$1500

*\*Pre-certified distributed systems: A pre-certified system provides certification that a Distributed Generation system has been tested and listed by a nationally recognized testing and certification laboratory (NTRL) for compliance with applicable codes and standards. Currently the only pre-certified generation systems are inverter type system in which the entire renewable system has been recognized as UL 1741, not just the inverter. If only the component is UL listed then proof needs to be provided that the generator is compatible with the certified interfacing component and the parameters in which the system was tested.*

After SWCE received the interconnection application, the proposed distributed generation system will undergo a review by the Cooperative. If the system proposed is pre-certified and there is no need for additional engineering studies, a letter of approval will be sent to the distribution generation owner. The letter will include approval of the system and the next step of having an on-site meet to discuss costs and responsibilities.

### **Engineering Submittal**

Should the proposed distributed generation system not be pre-certified, the distributed generation system will still be reviewed for viability to interconnect to the distribution system. If the distribution generation system is preliminary viable, a letter will be sent to the Distributed Generation owner requesting the Engineering Submittal form will need to be filled out. The letter will also request that a Minnesota licensed Professional Engineer approve of the following items:

- NEC wiring compliance
- Proper Protection from energizing the utility
- Proper grounding parameters
- Proper fault clearing devices and setting
- Anti-islanding protection
- IEEE operating limits
- Design approval
- Installation approval
- Test Reports

After the engineering submittal form is returned to the Cooperative, the Cooperative will review the form and make a determination if the project has met or will meet the requirements to be interconnected to the distribution system and if additional engineering studies are required. If so, a letter will be sent to the Distributed Generation owner stating the project has been approved to be interconnected to the distribution system provided all requirements are met as stated in the engineering submittal.

### **Further Engineering Studies**

Addition studies may be needed and bore at the Distributed Generation owner's cost. The criteria to determine if additional studies are needed are listed as follows:

- 1) Generation System total Nameplate Capacity does not exceed 5% of the radial circuit expected peak load. The peak load is the total expected load on the radial circuit when the other generators on that same radial circuit are not in operation.
- 2) The aggregate generation's total Nameplate Capacity, including all existing and proposed generation, does not exceed 25% of the radial circuit peak load and that total is also less than the radial circuit minimum load.
- 3) Generation System does not exceed 15% of the Annual Peak Load for the Line Section, which it will interconnect with. A Line Section is defined as that section of the distribution system between two sectionalizing devices in the Area EPS.
- 4) Generation System does not contribute more than 10% to the distribution circuit's maximum fault current at the point at the nearest interconnection with the Area EPS's primary distribution voltage.
- 5) The proposed Generation System total Nameplate Capacity, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment to exceed 85 percent of the short circuit interrupting capability.
- 6) If the proposed Generation System is to be interconnected on a single-phase shared secondary, the aggregate generation Nameplate Capacity on the shared secondary, including the proposed generation, does not exceed 20kW.
- 7) Generation System will not be interconnected with a "networked" system

If additional specialized engineering studies are required for the proposed interconnection, the fee schedule and timeline listed in the *Minnesota Interconnection Process for Distributed Generation Systems* should be followed. The costs to the Distributed Generation owner for these studies shall be not exceeding the values shown in the following table for pre-certified equipment.

<b>Generation System Size</b>	<b>Engineering Study Maximum Costs</b>
<20kW	\$0
20kW – 100kW	\$500
100kW – 250kW	\$1000
>250kW or not pre-certified equipment	Actual costs

All other guidelines listed in the *Minnesota Interconnection Process for Distributed Generation Systems* shall be followed in regards to engineering studies including timelines of study durations. Distributed Generation owners will be notified in writing the following items in regards to the engineering study prior to the start of the engineering study.

- a) General scope of the engineering studies required.
- b) Estimated cost of the engineering studies.
- c) Estimated duration of the engineering studies.
- d) Additional information required to allow the completion of the engineering studies.
- e) Study authorization agreement.

### **Site Visits**

A site visit will be scheduled at the Distributed Generation owner's request once the interconnection of the distribution generation system has been approved by the Cooperative.

Persons required to be at this meet include:

- SWCE engineer
- SWCE metering lineman
- SWCE staking technician (optional)
- Distributed Generation owner
- Distributed Generation's preferred electrician
- Distributed Generation's Project Manager (optional)

During the site visit the following items will be determined if they apply:

- The need of a line extension
- The transformer location or the need to upgrade the transformer
- The meter location and metering requirements
- Estimated interconnection costs for the Distributed Generation owner
- Identifying installation timeline

### **Contracts**

Contracts may be reviewed and signed at the time of the site visits if the interconnection of the Distributed Generation system will interconnect to the distribution system within the near future. Contracts must be signed prior to any distribution systems changes performed by the Coop. The contracts to be signed by both the Distributed Generation owner and the Cooperative include the *State of Minnesota Contract for Cogeneration and Small Power*

*Production Facilities of Less than 40 KW and the State of Minnesota Interconnection Agreement For the Interconnection of Extended Parallel Distributed Generation Systems With Electric Utilities.* Prior to signing the contracts a SWCE employee will review the contracts with the member and clarify any contract questions the member may have.

### **System Improvements**

Prior to any system improvement performed by the Cooperative, the interconnection and money contracts need to be signed by the Cooperative and the Distributed Generation owner. At the request of the Distributed Generation owner, distribution system changes will be made to accommodate the proposed distributed generation system and the interconnection timeline. (This includes line extensions and transformer changes/additions.) For pre-certified distributed generation systems, the meters will not be set until final commissioning tests are scheduled. For non pre-certified distributed generation systems, meters will be set for the Minnesota licensed Professional Engineer to perform required IEEE 1547 tests however the distributed generation system will not be allowed to operate without testing personnel present. Before any meters are installed the wiring affidavit must be sent to the Cooperative.

### **Final Commissioning Tests**

All distributed generation systems will be put through SWCE's Final Commissioning Tests. These tests will confirm that the distributed generation system will stop operation when power is absent from the distribution system. The test will also confirm that the distributed generation system will not restart for 5 minutes, (per technical guidelines), after a power outage has occurred. Once the Final Commissioning tests have been performed with satisfactory results, the distributed generation system is allowed to operate on SWCE's distribution system.

### **Inactive Distributed Generation Projects**

The Cooperative may consider a proposed distributed generation system project inactive if for any of the following scenarios occur:

- One year has elapsed from the Cooperative's approval letter of the proposed distributed generation system and a site visit has not been done.
- One year has elapsed from the last Cooperative site visit in regards to the distributed generation system and interconnection contracts have not been signed.
- One year has elapsed from the Interconnection contracts were signed by both the Cooperative and the Distributed Generation system owner and the Cooperative has not been informed in writing the current status of the project, the reasons for the delay and the proposed interconnection completion date.

SWCE will notify the Distributed Generation owner when the proposed project is deemed inactive. The Distributed Generation owner will need to re-apply for interconnection if the project is considered inactive under the current Cooperatives policy and procedures. The new interconnection application will also require the current application fees.

### **Non Compliance with Net Metering**

All distributed generation system will be metered using SWCE AMI system. If a distributed generation system that qualified initially for net metering produce over 39.9 kW, that month's

excess production that reaches the distribution grid will be at the current year's blended avoided rate. All future excess production for that distribution system will continue to be at the blended avoided rate until the two items both occur:

- 1) A Minnesota licensed Professional Engineer signs off on the corrections to address the maximum demand of the distribution system.
- 2) The Cooperative receives a copy of the documentation stating the changes made to the distributed generation system to meet the net metering requirements.

Substantial changes to the distribution generation system controls may require the Final Commissioning test to be performed again by the Cooperative.