

Section 25 COGENERATION AND SMALL POWER PRODUCTION

Cooperative is a member of Central Iowa Power Cooperative (CIPCO), a generation and transmission cooperative ("G&T") and obtains all of its wholesale power from the G&T. Accordingly, any qualifying facility seeking services pursuant to this tariff should coordinate their efforts with the Cooperative, which will then coordinate with the G&T if necessary.

25.1 Availability

This section shall apply to any member-consumer within the Cooperative's assigned service area owning or leasing a qualifying facility who meets the definitions under the rules of the Public Utility Regulatory Policies Act of 1978, as a qualifying alternate energy production facility, or a qualifying small hydro facility ("QF" or "qualifying Facility"). A member-consumer owning or leasing electric generating equipment shall not connect it in parallel with the Cooperative or G&T's system without the prior written consent of the Cooperative or G&T. Any third-party wishing to locate a qualifying facility on the member-consumer's premise who wishes to sell the output of said facility to the member-consumer, shall not operate the facility in parallel with the Cooperative or G&T's system without the prior written consent of the Cooperative or G&T. Failure of the member-consumer or third-party to comply with the Cooperative or G&T's requirements for parallel generation shall be justification for discontinuance of such parallel operation in such a manner as to least inconvenience the member-consumer until such time as full compliance has been accomplished. Each of these types of facilities shall comply with all of the Cooperative or G&T requirements and general rules for electric service, as well as the specific provisions of this section. For purposes of interconnecting a qualifying facility owned by a third-party to the Cooperative or G&T's system, the third-party shall be responsible for complying with the interconnection requirements and shall submit an application to the Cooperative on the applicable forms. Said third-party shall be deemed the interconnection member-consumer for the purpose of this tariff.

A member-consumer with a QF facility shall not participate in the Cooperative's electric heat rate program.

25.2 Definitions

Unless otherwise defined herein, terms used shall have the same meaning as defined in 199 IAC 45.1.

"Avoided Costs" means the incremental costs to the Cooperative/G&T of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, the Cooperative/G&T would generate itself or purchase from another source. The Cooperative purchases all of its power requirements from its wholesale

power supplier, CIPCO. Cooperative's avoided costs shall equal those of G&T and G&T shall be responsible for calculating the Cooperative's Avoided Costs.

25.3 Requirements for Interconnection

All facilities shall meet certain requirements to be eligible for interconnection pursuant to the terms and conditions of this section. The Cooperative shall assist the applicant in determining the appropriate level of review process required for the interconnection. The Cooperative has developed 4 levels of review process. The appropriate level generally depends upon the size and type of generator and the type of interconnection requested. The levels of review are described in the Attached Appendix A.

25.3.1 Application for Interconnection

The applicant shall submit an application and any associated fees to the Cooperative, using the application form provided by the Cooperative (Level 1 or Level 2-4). The applicant shall contact the Cooperative with any questions regarding interconnection.

25.3.2 Acceptable Interconnection Standards

Permission to interconnect with the Cooperative or G&T electric system is contingent upon the following conditions:

- A. The member-consumer shall comply with acceptable standards for interconnection, safety, and operating reliability. Acceptable standards include the most current revisions of the following, as adopted in the Iowa Administrative Code section 199-15.10(1) in order to be eligible for interconnection to the Cooperative or G&T electric system:
1. Standards for Interconnecting Distributed Resources with Electric Power Systems, ANSI/IEEE Standard 1547-2003. For guidance in applying IEEE Standard 1547, the Cooperative may refer to:
 - 1) IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems - IEEE Standard 519-2014; and,
 - 2) IEC/TR3 61000-3-7 Assessment of emission limits for fluctuating loads in MV and HV power systems.
 2. Iowa Electrical Safety Code, as defined in 199—Chapter 25.
 3. National Electrical Code, ANSI/NFPA 70-2014.
- B. The member-consumer facility shall meet the standards for interconnection as set forth in the Cooperative's Interconnection Agreements and the

attachments thereto. Said Agreements are available by contacting the Cooperative.

- C. The member-consumer shall agree to indemnify and defend the Cooperative and G&T and their representatives against liability for any injuries or damages caused by the operation of the member-consumer's equipment or by any failure of the member-consumer to maintain such equipment in satisfactory or safe operating condition. The member-consumer will arrange for and maintain liability insurance with limits of not less than those set forth in the Interconnection Agreements, with the insurance requirements varying depending upon the size of the interconnecting generator. Failure to maintain required insurance or proof of financial responsibility shall be cause for disconnection. The Cooperative and G&T shall be named as additional insureds, to the extent specified in the Interconnection Agreements.
- D. The member-consumer shall reimburse the Cooperative or G&T for costs incurred by the Cooperative or G&T for all costs of connection, switching, metering, transmission, distribution, safety provisions and administrative costs incurred by the Cooperative or G&T directly related to the installation and maintenance of the physical facilities necessary to permit interconnected operations with a qualifying facility (or qualifying alternate energy production facilities, or qualifying small hydro facilities), to the extent the costs are in excess of the corresponding costs which the Cooperative or G&T would have incurred if it had not engaged in interconnected operations, but instead generated an equivalent amount of electric energy itself or purchased an equivalent amount of electric energy or capacity from other sources. Interconnection costs do not include any costs included in the calculation of avoided costs.
- E. The member-consumer shall agree to discontinue sales to Cooperative/G&T when, due to operational circumstances, purchases from the member-consumer will result in G&T costs greater than those which G&T would incur if it did not make such purchases, but instead generated an equivalent amount of energy, provided, however, that G&T shall notify the member-consumer within a reasonable amount of time to allow the member-consumer to cease the delivery of energy.
- F. The applicant and the Cooperative shall execute the applicable Interconnection Agreement prior to interconnection. In the event the applicant desires to sell any excess output from its facility to the Cooperative and/or G&T, a separate power purchase agreement shall be required for all interconnections except Level 1. For Level 1 interconnections, the terms of purchase are set out on Attachment 2 to the Level 1 Application Form and Interconnection Agreement.

- G. The member-consumer shall permit Cooperative or G&T representatives to enter upon member-consumer's property at any reasonable time for the purpose of inspecting or testing member-consumer's equipment, facilities or apparatus and the accuracy of the Cooperative or G&T's metering equipment, but such inspections shall not relieve the member-consumer of the obligation to maintain the member-consumer's facilities in satisfactory operating conditions. The Cooperative or G&T may charge the direct expense of such inspecting or testing of the member-consumer's equipment, facilities, or apparatus to the member-consumer, unless the member-consumer can demonstrate the inspecting and testing was not necessary. The member-consumer shall adopt a program of inspection of the generator and its appurtenances and the interconnection equipment in order to determine necessity for replacement and repair.
- H. The member-consumer shall be responsible for the costs of installation and maintenance of any necessary power factor correction capacitors. Member-consumers with a distributed generation facility larger than or equal to 1 MW shall design their distributed generation facilities to maintain a power factor at the point of interconnection between .98 lagging and .98 leading at all times. Member-consumers with a distributed generation facility smaller than 1 MW shall design their distributed generation facility to maintain a power factor at the point of interconnection between .95 lagging and .95 leading at all times.
- I. The member-consumer's electric generating equipment shall be designed, operated, and maintained in such a manner that it does not adversely affect the Cooperative's or G&T's system or their service to their other members.
- J. A distributed generation facility placed in service after July 1, 2015, is required to have installed a disconnection device. The disconnection device shall be installed, owned, and maintained by the owner of the distributed generation facility and shall be easily visible and adjacent to an interconnection member-consumer's electric meter at the facility. Disconnection devices are considered easily visible and adjacent: for a home or business, up to ten feet away from the meter and within the line of sight of the meter, at a height of 30 inches to 72 inches above the final grade; or for large areas with multiple buildings that require electric service, up to 30 feet away from the meter and within the line of sight of the meter, at a height of 30 inches to 72 inches above final grade. The disconnection device shall be labeled with a permanently attached sign with clearly visible letters that give procedures/directions for disconnecting the distributed generation facility.
1. If an interconnection member-consumer with distributed generation facilities installed prior to July 1, 2015, adds generation capacity to its

existing system that does not require upgrades to the electric meter or electrical service, a disconnection device is required. The member-consumer must notify the Cooperative before the generation capacity is added to the existing system, which may require a new/amended application form and interconnection agreement.

2. If an interconnection member-consumer with distributed generation facilities installed prior to July 1, 2015, upgrades or changes its electric service, the new or modified electric service must meet all current Cooperative service rule requirements.
- K. For all distributed generation installations, the member-consumer shall be required to provide and place a permanent placard no more than ten feet away from the electric meter. The placard must be visible from the electric meter. The placard must clearly identify the presence and location of the disconnection device for the distributed generation facilities on the property. The placard must be made of material that is suitable for the environment and must be designed to last for the duration of the anticipated operating life of the distributed generation facility. If no disconnection device is present, the placard shall state "no disconnection device". If the distributed generation facility is not installed near the electric meter, an additional placard must be placed at the electric meter to provide specific information regarding the distributed generation facility and the disconnection device.
- L. The interconnection shall include overcurrent devices on the facility to automatically disconnect the facility at all currents that exceed the full-load current rating of the facility.
- M. Distributed generation facilities with a design capacity of 100 kVA or less must be equipped with automatic disconnection upon loss of Cooperative-supplied voltage.
- N. Distributed generation facilities that produce a terminal voltage prior to the closure of the interconnection shall be provided with synchronism-check devices to prevent closure of the interconnection under conditions other than a reasonable degree of synchronization between the voltages on each side of the interconnection switch.
- O. The operator of the distributed generation facility shall adopt a program of inspection and testing of the generator and its appurtenances and the interconnection facilities in order to determine necessity for replacement and repair. Such a program shall include all periodic tests and maintenance prescribed by the manufacturer. If the periodic testing of interconnection-related protective functions is not specified by the manufacturer, periodic

testing shall occur at least once every five years. All interconnection-related protective functions shall be periodically tested, and a system that depends upon a battery for trip power shall be checked and logged. The operator shall maintain test reports and shall make them available upon request by the Cooperative. Representatives of the Cooperative shall have access at all reasonable hours to the interconnection equipment specified in 199 IAC 45.3(2) for inspection and testing with reasonable prior notice to the applicant.

- P. When the distributed generation facility is placed in service, owners of interconnected distributed generation facilities are required to notify local fire departments via U.S. mail of the location of distributed generation facilities and the associated disconnection device(s). The owner is required to provide any information related to the distributed generation facility as reasonably required by that local fire department including but not limited to:
1. A site map showing property address; service point from the Cooperative; distributed generation facility and disconnect location(s); location of rapid shutdown and battery disconnect(s), if applicable; property owner's or owner's representative's emergency contact information; Cooperative's emergency telephone number; and size of the distributed generation facility.
 2. Information to access the disconnection device.
 3. A statement from the owner verifying that the distributed generation facility was installed in accordance with the current state-adopted National Electrical Code.

25.4 Prices

25.4.1 Prices for purchases by the member-consumer from the Cooperative

See applicable rate schedule.

The member-consumer shall purchase electric power and energy from the Cooperative at the Cooperative's applicable price or rate, depending upon the member-consumer's operations and requirements. The Cooperative does not currently have a separate price or rate schedule for co-generators, but reserves the right to create a separate price or rate based upon the unique characteristics of such member-consumers.

25.4.2 Prices for purchases from member-consumer

QFs with design capacity of 100 kW or less

Payment for purchases from the member-consumer pursuant to this tariff provision shall be as follows:

The price(s) for purchases from qualifying facility (as defined above) and with a design capacity of 100 kilowatts or less are available by contacting the Cooperative. These prices will be consistent with 18 CFR 292.304.

QFs greater than 100 kW

The price(s) for purchases from qualifying facilities (as defined above) and with a design capacity above 100 kilowatts are available on a negotiated case-by-case basis with the Cooperative/G&T.

25.4.3 Wheeling Charges

Cooperative/G&T may provide a wheeling service to a facility interconnected to its electric delivery system. Any charges for the wheeling of power will be determined by the Cooperative/G&T and in accordance with any applicable regulations. In addition, Cooperative/G&T reserve(s) the right to refuse to wheel power where its existing facilities do not have adequate capacity and the member-consumer refuses to pay the costs to upgrade those facilities. If a qualifying facility agrees, the Cooperative/G&T which would otherwise be obligated to purchase electricity from such facility may transmit the electricity to any other electric utility. Any electric utility to which such electricity is transmitted shall purchase such electricity as if the facility were supplying electricity directly to such electric utility. The price for purchase by the electric utility to which such electricity is transmitted shall be adjusted downward according to the mutual agreement of the transmitting and receiving utilities, to reflect any wheeling line losses and shall not include any charges for transmission.

25.5 Levels of Review

Level 1

Level 1 Application and Agreement shall be used for all interconnection requests to connect a distributed generation facility when:

- a. The applicant has filed a Level 1 application; and
- b. The distributed generation facility has a nameplate capacity rating of 20 kW or less; and
- c. The distributed generation facility is inverter-based; and
- d. The member-consumer interconnection equipment proposed for the distributed generation facility is lab-certified; and
- e. No construction of facilities by the cooperative or G&T shall be required to accommodate the distributed generation facility.

To remain in Level 1, the following screens must be met:

- For interconnection to a radial distribution circuit, the total of all DG connected may not exceed 15% of the maximum load normally supplied by the circuit.
- For interconnection on a single-phase shared secondary line, the aggregate generation capacity on the line will not exceed 20 kW.
- When the DG facility is single-phase and proposes to interconnect on a center tap neutral of a 240-volt service, its addition may not create an imbalance between the 2 sides of the 240-volt service of more than 20% of nameplate rating of the service transformer.
- Utility shall not be required to construct any facilities on its own system to accommodate the DG facility's interconnection.
- For interconnection to a spot network, DG will use protective equipment to ensure power imported from utility to the network will remain above 1% of the network's maximum load over the last year.

Level 2

Level 2 Application and Agreement shall be used for evaluating interconnection requests when:

- a. The applicant has filed a Level 2 application; and
- b. The nameplate capacity rating is 150 kW or less; and
- c. The interconnection equipment proposed for the distributed generation facility is lab-certified; and
- d. The proposed interconnection is to a radial distribution circuit or a spot network limited to serving one member-consumer; and
- e. No construction of facilities by the cooperative or G&T shall be required to accommodate the distributed generation facility, other than minor modifications permitted by the Cooperative.

To remain in Level 2, the following screens must be met:

- For interconnection to a radial distribution circuit, the total of all DG connected may not exceed 15% of the maximum load normally supplied by the circuit.
- The proposed DG, in aggregation with other DG on the distribution circuit, may not contribute more than 10% to the circuit's maximum fault current at the point on the primary line nearest the point of interconnection.
- The proposed DG, in aggregation with other DG on the circuit, shall not cause any electric utility distribution devices to be exposed to fault currents exceeding 90% of their short-circuit interrupting capability.
- When a DG facility is to be connected to a 3-phase, 3 wire primary line, a 3-phase or single-phase generator shall be connected phase-to-phase.
- When a DG facility is to be connected to a 3-phase, 4 wire primary line, a 3-phase or single-phase generator shall be connected line-to-neutral and shall be grounded.
- For interconnection on a single-phase shared secondary line, the aggregate generation capacity on the line will not exceed 20 kW.
- When the DG facility is single-phase and proposes to interconnect on a center tap neutral of a 240-volt service, its addition may not create an imbalance between the 2 sides of the 240-volt service of more than 20% of nameplate rating of the service transformer.
- A DG facility, in aggregate with other DG facilities interconnected to the distribution side of a substation transformer feeding the circuit where the facility proposed to interconnect, may not exceed 10 MW in an area where there are transient stability limitations.
- Utility shall not be required to construct any facilities on its own system to accommodate the DG facility's interconnection, except minor modifications following agreed upon additional review.
- For interconnection to a spot network, DG will use protective equipment to ensure power imported from utility to the network will remain above 1% of the network's maximum load over the last year.

Level 3

Level 3 Application and Agreement shall be used for evaluating interconnection requests to area networks and radial distribution circuits where power will not be exported based on the following criteria.

- a. For interconnection requests to the load side of an area network, the following criteria shall be satisfied to qualify for a Level 3 expedited review:
 - (1) The applicant has filed a Level 3 application; and
 - (2) The nameplate capacity rating of the distributed generation facility is 50 kW or less; and

- (3) The proposed distributed generation facility uses a lab-certified inverter-based equipment package; and
 - (4) The distributed generation facility will use reverse power relays or other protection functions that prevent the export of power into the area network; and
 - (5) The aggregate of all generation on the area network does not exceed the lower of 5 percent of an area network's maximum load or 50 kW; and
 - (6) No construction of facilities by the cooperative or G&T shall be required to accommodate the distributed generation facility.
- b. For interconnection requests to a radial distribution circuit, the following criteria shall be satisfied to qualify for a Level 3 expedited review:
- (1) The applicant has filed a Level 3 application; and
 - (2) The aggregated total of the nameplate capacity ratings of all of the generators on the circuit, including the proposed distributed generation facility, is less than 150 kW; and
 - (3) The distributed generation facility will use reverse power relays or other protection functions that prevent power flow onto the electric distribution system; and
 - (4) The distributed generation facility is not served by a shared transformer; and
 - (5) No construction of facilities by the cooperative or G&T on their own systems shall be required to accommodate the distributed generation facility.

To remain in Level 3, the following screens must be met:

- Utilize the same screens as are applicable for level 2 interconnections; except for the one prohibiting the total DG connected to a radial distribution circuit from exceeding 15% of the maximum load normally supplied by the circuit

Level 4

Level 4 Application and Agreement shall be used for evaluating interconnection requests when:

- a. The applicant has filed a Level 4 application; and
- b. The nameplate capacity rating of the small generation facility is 10 MW or less; and
- c. Not all of the interconnection equipment or distributed generation facilities being used for the application are lab-certified, or
- d. Applicant is unable to comply with level 1 through 3 screens.

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