



- I. INTRODUCTION ..... 1
- II. GENERAL INFORMATION ..... 1
  - A. Definitions..... 2
  - B. Central Electric Cooperative, Inc. Generation Interconnection Contacts ..... 3
  - C. Engineering Studies..... 3
  - D. Scoping Meeting ..... 4
  - E. Insurance ..... 5
  - F. Non-Warranty..... 6
  - G. Required Documents ..... 6
- III. PROCESS FOR INTERCONNECTION ..... 6
  - A. Step 1 Application (By Interconnection Member) ..... 6
  - B. Step 2 Preliminary Review (By Central Electric Cooperative, Inc.) ..... 7
  - C. Step 3 Go/No-Go Decision for Engineering Studies (By Interconnection Member) ..... 8
  - D. Step 4 Engineering Studies (By Central Electric Cooperative, Inc.) ..... 8
  - E. Step 5 Study Results and Construction Estimates (By Central Electric Cooperative, Inc.) ..... 8
  - F. Step 6 Final Go/No-Go Decision (By Interconnection Member) ..... 9
  - G. Step 7 Final Design Review (By Central Electric Cooperative, Inc.) ..... 10
  - H. Step 8 Order Equipment and Construction (By Central Electric Cooperative, Inc. /Interconnection Member) .... 10
  - I. Step 9 Final Tests (By Central Electric Cooperative, Inc. / Interconnection Member) ..... 11
  - J. Step 10 (By Central Electric Cooperative, Inc.) ..... 12
  - K. Step 11 (By Interconnection Member) ..... 12
- IV. ATTACHMENTS ..... 12

**I. INTRODUCTION**

This document has been prepared to explain the process to interconnect a Generation System with Central Electric Cooperative, Inc. (CEC). This document covers the interconnection process for all types of Generation Systems which meet the following criteria:

- A. Rated more than 200-kW and less than 10 MW of total generation Nameplate Capacity
- B. Planned for interconnection with the CEC Distribution or Transmission System
- C. Confirmation that Interconnection Member is in BPA’s Interconnection Request Queue (see Appendix B, Application for Interconnection of Generation System-Wheeling).

This document does not discuss the interconnection Technical Requirements, which are covered in the “Central Electric Interconnection Requirements for Generation Systems/Wheeling” document. This document and the requirements document also provide definitions and explanations of the terms utilized throughout this process and the documents pertaining to it.

To interconnect a Generation System with CEC, there are several steps that must be followed. This document outlines those steps (see Section III.) and the Parties’ responsibilities. At any point in the process, if there are questions, please contact CEC.

**II. GENERAL INFORMATION**

## A. Definitions

1. **Area EPS:** an electric power system (EPS) that serves Local EPS's. Note: Typically, an Area EPS has primary access to public rights-of-way, priority crossing of property boundaries, etc.
2. **Area EPS Operator:** the entity that operates the Area EPS.
3. **Closed Transition Transfer:** Method of transferring the local loads between CEC's system and the generator such that the generator and CEC's system are interconnected for a short time (100 msec. or less).
4. **Dedicated Facilities:** the equipment that is installed due to the interconnection of the Generation System and not required to serve other Area EPS Members.
5. **EPS:** (Electric Power System) facilities that deliver electric power to a load. Note: This may include generation units.
6. **Extended Parallel:** The Generation System is designed to remain connected with CEC for an extended period of time.
7. **Generation:** any device producing electrical energy, i.e., rotating generators driven by wind, steam turbines, internal combustion engines, hydraulic turbines, solar, fuel cells, etc.; or any other electric producing device, including energy storage technologies.
8. **Generation Interconnection Coordinator:** the person or persons designated by CEC to provide a single point of coordination with the Interconnection Member for the generation interconnection process.
9. **Generation System:** the interconnected generator(s), controls, relays, switches, breakers, transformers, inverters and associated wiring and cables, up to the Point of Common Coupling.
10. **Interconnection Member:** the party or parties who will own/operate the Generation System and are responsible for meeting the requirements of the agreements and Technical Requirements. This could be the Generation System applicant, installer, owner, designer, or operator.
11. **Local EPS:** an electric power system (EPS) contained entirely within a single premises or group of premises.
12. **Open Transition Transfer:** Method of transferring the local loads between CEC's system and the generator such that the generator and CEC's system are never interconnected.

13. **Nameplate Capacity:** the total nameplate capacity rating of all the Generation included in the Generation System. For this definition the “standby” and/or maximum rated KW capacity on the nameplate shall be used.
14. **Point of Common Coupling:** the point where the Local EPS is connected to an Area EPS
15. **Point of Delivery:** the point where the energy changes possession from one party to the other. Typically this will be where the metering is installed but it is not required that the Point of Delivery is the same as where the energy is metered
16. **Soft Loading Transfer:** Method of transferring the local loads between CEC’s system and the generator such that the generator and CEC’s system are interconnected for a limited amount of time (generally less than three minutes). If the interconnection extends beyond three minutes, the interconnection is then defined as extended parallel.
17. **Technical Requirements:** Central Electric Cooperative, Inc. “Interconnection Requirements for Generation Systems”; see Appendix F.

#### B. Central Electric Generation Interconnection Contacts

Questions that arise during the planning, design, and installation process of interconnecting generation to CEC’s system should be directed to one of two areas depending on the nature of the question.

Questions that involve energy rates should be directed to CEC’s marketing personnel. Technical questions involving the design, installation, interconnection, or operation of the Dedicated Facilities with the Generation Systems should be directed to CEC’s operations and engineering personnel.

Both groups may be reached at the following address and phone number:

Central Electric Cooperative, Inc.  
P O Box 846  
2098 N Hwy 97  
Redmond Or. 97756  
(541) 548-2144

#### C. Engineering Studies

During the process of designing an interconnection between a Generation System and CEC, there are several studies which may need to be undertaken. On the Local EPS (Customers side of the interconnection) the addition of a Generation System may increase the fault current levels. The Interconnection Member may need to conduct a fault current analysis of the Local EPS in conjunction with adding the Generation System. The addition of the Generation System may also affect CEC and special engineering studies may need to be

undertaken analyzing the CEC grid with the Generation System included. Appendix D lists some of the issues that may need to receive further analysis for the Generation System interconnection.

While it is not a straight forward process to identify which engineering studies are required, certain criteria can help to identify which Generation Systems may require further analysis. The following is the basic screening criteria to be used for this interconnection process.

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 or transmission system between two sectionalizing devices in the CEC grid.
4. Generation System does not contribute more than 10% to the distribution or transmission circuit's maximum fault current at the point nearest the interconnection with CEC's grid..
5. The proposed Generation System total Nameplate Capacity, in aggregate with other generation on the distribution or transmission circuit, will not cause any protective devices and equipment to exceed 85 percent of the short circuit interrupting capability.

#### D. Scoping Meeting

During Step 2 of this process, the Interconnection Member or CEC has the option to request a scoping meeting. The purpose of the scoping meeting shall be to discuss the Interconnection Member's interconnection request and review the application filed. This scoping meeting is to be held so that each Party can gain a better understanding of the issues involved with the requested interconnection.

CEC and the Interconnection Member shall bring to the meeting personnel, including system engineers, and other resources as may be reasonably required, to accomplish the purpose of the meeting. The Interconnection Member shall not expect CEC to complete the preliminary review of the proposed Generation System at the scoping meeting. If a scoping meeting is requested, CEC shall schedule the scoping meeting within the 20 business day review period allowed for in Step 2.

CEC shall then have an additional 10 days, after the completion of the scoping meeting to complete the formal response required in Step 2. The Application fee shall cover CEC's costs for this scoping meeting. There shall be no additional charges imposed by CEC for this initial scoping meeting

## E. Insurance

1. In connection with the Interconnection Member's performance of its duties and obligations under this Agreement, the Interconnection Member shall maintain, during the term of the Agreement, general liability insurance, from a qualified insurance agency with a B+ or better rating by "Best" and with a combined single limit of not less than:
  - a. Two million dollars (\$2,000,000) for each occurrence if the Gross Nameplate Rating of the Generation System is greater than 200-kW.
  - b. Such general liability insurance shall include coverage against claims for damages resulting from:
    - i. bodily injury, including wrongful death
    - ii. property damage arising out of the Interconnection Member's ownership and/or operating of the Generation System under this agreement
2. The general liability insurance required shall, by endorsement to the policy or policies:
  - a. Include CEC as an additional insured
  - b. Contain a severability of interest clause or cross-liability clause
  - c. Provide that CEC shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for the payment of premium for such insurance
  - d. Provide for thirty (30) calendar days' written notice to CEC prior to cancellation, termination, alteration, or material change of such insurance.
3. The Interconnection Member shall furnish the required insurance certificates and endorsements to CEC prior to the initial operation of the Generation System. Thereafter, CEC shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance.
4. Evidence of the insurance required in Section E.1. shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by CEC.
5. If the Interconnection Member is self-insured with an established record of self-insurance, the Interconnection Member may comply with the following in lieu of Section E.1 – 5:
  - a. Interconnection Member shall provide to CEC, at least thirty (30) days prior to the date of initial operation, evidence of an acceptable plan to self-insure to a level of coverage equivalent to that required under section E.1
  - b. If Interconnection Member ceases to self-insure to the level required hereunder, or if the Interconnection Member is unable to provide continuing evidence of its ability to

self-insure, the Interconnection Member agrees to immediately obtain the coverage required under section E.1

- c. Failure of the Interconnection Member or CEC to enforce the minimum levels of insurance does not relieve the Interconnection Member from maintaining such levels of insurance or relieve the Interconnection Member of any liability

**F. Non-Warranty**

Neither by inspection, if any, or non-rejection, nor in any other way, does CEC give any warranty, expressed or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or devices owned, installed or maintained by the Interconnection Member or leased by the Interconnection Member from third parties, including without limitation the Generation System and any structures, equipment, wires, appliances or devices pertinent thereto.

**G. Required Documents**

The following chart lists the CEC documents required for each type of generation system transfer method proposed for use in conjunction with CEC’s system. By following the steps outlined in this process document and the subsequent documents listed for each type of generation connection transfer type, the Interconnecting Member will be assured of keeping within CEC’s policy as it relates to the use of a generator in conjunction with receiving electric service from CEC.

<b>Open Transition</b>	<b>Closed Transition</b>	<b>Soft Loading</b>	<b>Extended Parallel</b>
Central Electric Interconnection Process.....			
Central Electric Interconnection Requirements for Generation System.....			
	Central Electric Application for Interconnection of Generation System.....		
	Central Electric Engineering Data Submittal.....		
	Central Electric Interconnection Agreement.....		
	Central Electric Operating Agreement for Interconnected Generation Systems.....		
	Central Electric Maintenance Agreement for Interconnected Generation Systems.....		
			Electric Service Agreement

**III. PROCESS FOR INTERCONNECTION**

**A. Step 1 Application (By Interconnection Member)**

Once a decision has been made by the Interconnection Member that they would like to interconnect a Generation System with CEC, the Interconnection Member shall supply CEC with the following information:

1. Completed Generation Interconnection Application (Appendix B), including:
  - a. One-line diagram showing the Point of Common Coupling (PCC).
  - b. Site plan of the proposed installation
  - c. Proposed schedule of the installation
2. Payment of the \$1,000 application fee. This application fee is to partially offset CEC's labor costs for administration, review of the design concept, and preliminary engineering screening for the proposed Generation System interconnection.
3. Confirmation that Interconnection Member is in BPA's Interconnection Request Queue.
4. Completed Engineering Data Submittal (Appendix C) (if applicable), including:
  - a. One-line diagram of the generation system showing:
    - i. The generator installation
    - ii. Transfer switch/switchgear
    - iii. Service Entrance
    - iv. Lockable and visible disconnect
    - v. Protection and metering CTs and VTs
    - vi. Protective relaying and generator control system
  - b. Detailed information on the proposed equipment, including:
    - i. Wiring Diagrams
    - ii. Models and Types
  - c. Proposed relay settings for all interconnection required relays
  - d. Detailed site plan of the Generation System
5. Proof on insurance (if applicable):
  - a. See Appendix E: XI. Insurance, for detailed requirements

**B. Step 2 Preliminary Review (By CEC)**

Within 20 business days of receipt of all the information listed in Step 1, CEC shall respond to the Interconnection Member with the information listed below. (If the information required in Step 1 is not complete, the Interconnection Member will be notified within 10 business days of what is missing and no further review will be completed until the missing information is submitted. The 20-day clock will restart with the new submittal).

1. Contact names with CEC for this project
2. Approval or rejection of the generation interconnection request
  - a. Rejection – CEC shall supply the technical reasons, with supporting information, for rejection of the interconnection Application

- b. Approval - An approved Application is valid for 6 months from the date of the approval. CEC may extend this time if requested by the Interconnection Member
  - c. The need for special engineering studies will be determined.
3. If additional specialized engineering studies are required for the proposed interconnection, the following information will be provided to the Interconnection Member. Typical Engineering Studies are outlined in Appendix D.
- 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

C. Step 3 Go/No-Go Decision for Engineering Studies (By Interconnection Member)

In this step, the Interconnection Member will decide whether or not to proceed with the required engineering studies for the proposed generation interconnection. If no specialized engineering studies are required by CEC, this step will be skipped.

If the Interconnection Member decides NOT to proceed with the engineering studies, the Interconnection Member shall notify the CEC Generation Interconnection Coordinator, so other generation interconnection requests in the queue are not adversely impacted. Should the Interconnection Member decide to proceed, the Interconnection Member shall provide the following to CEC:

- 1. Payment required by CEC for the specialized engineering studies
- 2. Additional information requested by CEC to allow completion of the engineering studies

D. Step 4 Engineering Studies (By CEC)

In this step, CEC will be completing the specialized engineering studies for the proposed generation interconnection, as outlined in Step 2. These studies should be completed in the time frame provided in Step 2 by CEC. If additional time is required to complete the engineering studies, CEC shall notify the Interconnection Member and provide the reasons for the time extension.

If CEC determines that the actual costs for the engineering studies will exceed the original fee, the Interconnection Member shall be notified. CEC shall provide the reason(s) for the studies needing to exceed the original estimated amount and provide an updated estimate of the total cost for the engineering studies. The Interconnection Member shall be given the option of either withdrawing the application, or paying the additional estimated amount to complete the engineering studies.

E. Step 5 Study Results and Construction Estimates (By CEC)

Upon completion of the specialized engineering studies, or if none were necessary, the following information will be provided to the Interconnection Member:

1. Results of the engineering studies
2. Monitoring & control requirements for the proposed generation
3. Special protection requirements for the Generation System interconnection
4. Comments on the schedule proposed by the Interconnection Member
5. Interconnection Agreement (if applicable).
6. Cost estimate and payment schedule for required CEC work, including, but not limited to:
  - a. Labor and overhead costs related to the final design review
  - b. Labor & expense costs for attending meetings
  - c. Required dedicated facilities and other CEC modification(s)
  - d. Final acceptance testing costs

F. Step 6 Final Go/No-Go Decision (By Interconnection Member)

In this step, the Interconnection Member shall again have the opportunity to indicate whether or not they want to proceed with the proposed generation interconnection. If the decision is NOT to proceed, the Interconnection Member will notify CEC so that other generation interconnections in the queue are not adversely impacted. Should the Interconnection Member decide to proceed, a more detailed design, if not already completed by the Interconnection Member, must be done, and the following information is to be supplied to CEC:

1. Applicable up-front payment required by CEC per Payment Schedule provided in Step 5 (if applicable)
2. Signed Interconnection Agreement (if applicable)
3. Final proposed schedule incorporating the CEC comments. The schedule of the project should include such milestones as foundations poured, equipment delivery dates, all conduit installed, CEC work, relays set and tested, preliminary vendor testing, final CEC acceptance testing, cutover (energizing of the new switchgear/transfer switch) and any other major milestones.
4. Detailed one-line diagram of the Generation System, including the generator, transfer switch/switchgear, service entrance, lockable and visible disconnect, metering, protection and metering CTs / VTs, protective relaying and generator control system.
5. Detailed information on the proposed equipment, including wiring diagrams, models and types.
6. Proposed relay settings for all interconnection required relays
7. Detailed site plan of the Generation System

8. If applicable, drawing(s) showing the monitoring system as specified by CEC including a drawing which shows the interface terminal block with the CEC monitoring system
9. Proposed testing schedule and initial procedure, including:
  - a. Time of day (after-hours testing may be required)
  - b. Days required
  - c. Testing steps proposed

G. Step 7 Final Design Review (By CEC)

Within 20 business days of receipt of the information required in Step 6, CEC will provide the Interconnection Member with an estimated time table for final review. If the information required in Step 6 is not complete, the Interconnection Member will be notified within 10 business days what information is missing. No further review may be completed until the missing information is submitted. The 20 business day clock will restart with the new submittal. This final design review shall not take longer than 20 additional business days to complete, for a total of 40 business days.

During this step, CEC shall complete the review of the final Generation System design. If the final design has significant changes from the Generation System proposed on the original Application which invalidate the engineering studies or the preliminary engineering screening, the Application for Interconnection of the Generation System request may be rejected by CEC and the Interconnection Member may be requested to reapply with the revised design.

Upon completion of this step, CEC shall supply the following information to the Interconnection Member.

1. Requested modifications or corrections of the detailed drawings provided by the Interconnection Member.
2. Approval of and agreement with the Project Schedule. (This may need to be interactively discussed between the Parties during this Step)
3. Initial testing procedure review comments. (Additional work on the testing process will occur during Step 8, once the actual equipment is identified)

H. Step 8 Order Equipment and Begin Construction (By CEC /Interconnection Member)

The following activities shall be completed during this step. For larger installations this step will involve much interaction between the Parties. It is typical for approval drawings to be supplied by the Interconnection Member to CEC for review and comments. It is also typical for CEC to require review and approval of the drawings which cover the interconnection equipment and interconnection protection system. If remote control and/or monitoring are also required by CEC, those drawings are also exchanged for review and comment.

1. By the Interconnection Member's personnel
  - a. Ordering of Generation System equipment
  - b. Installing Generation System
  - c. Submit approval drawings for interconnection equipment and protection systems, as required by CEC
  - d. Provide final relay settings provided to CEC
  - e. Submit Completed and signed Engineering Data Submittal form (Appendix C)
  - f. Submit proof of insurance as required by CEC interconnection agreements
  - g. Submit required State of Oregon electrical inspection forms filed with CEC
  - h. Inspecting and functional testing Generation System components
  - i. Work with CEC personnel and equipment vendor(s) to finalize the installation testing procedure
  
2. By CEC personnel
  - a. Ordering any necessary CEC equipment
  - b. Installing and testing any required equipment
    - i. Monitoring facilities
    - ii. Dedicated Equipment
  - c. Assisting Interconnection Member's personnel with interconnection installation coordination issues
  - d. Providing review and input for testing procedures

I. Step 9 Final Tests and Commissioning (By CEC / Interconnection Member)

(Due to equipment lead times and construction, a significant amount of time may take place between the execution of Step 8 and Step 9.) During this time the final test steps are developed and the construction of the facilities are completed. Final acceptance testing will commence when all equipment has been installed, all contractor preliminary testing has been accomplished and all CEC preliminary testing of the monitoring and dedicated equipment is completed. One to three weeks prior to the start of the acceptance testing of the generation interconnection the Interconnection Member shall provide a report stating:

- ✓ That the Generation System meets all interconnection requirements
- ✓ All contractor preliminary testing has been completed
- ✓ The protective systems are functionally tested and ready
- ✓ A proposed date that the Generation System will be ready to be energized, acceptance tested and commissioned.

For smaller systems, scheduling of this testing may be more flexible as less testing time is required than for larger systems. In some cases this testing may be done after hours to ensure no typical business-hour load is disturbed. If acceptance testing occurs after hours, CEC's labor will be billed at overtime wages. During this testing CEC will typically run three different tests. These tests can differ depending on which type of communication/monitoring system(s) CEC decides to install at the site. For problems created by CEC or any CEC equipment that arise during testing, CEC will fix the problem as soon as reasonably possible.

If problems arise during testing which are caused by the Interconnection Member or Interconnection Member's vendor or any vendor supplied or installed equipment, CEC will leave the project until the problem is resolved. The resumption of testing will then be subject to CEC personnel time and availability.

J. Step 10 (By CEC)

After all CEC's acceptance testing has been accomplished and all requirements are met, CEC shall provide written approval for normal operation of the Generation System interconnection, within 5 business days of successful completion of the acceptance tests.

K. Step 11 (By Interconnection Member)

Within two (2) months of interconnection, the Interconnection Member shall provide CEC with updated drawings and prints showing the Generation System as it was when approved for normal operation by CEC. The drawings shall include all changes which were made during construction and the testing process.

#### IV. ATTACHMENTS

Attached are several documents which may be required for the interconnection process. They are as follows:

Appendix A: Flow chart showing summary of the interconnection process

Appendix B: Generation Interconnection Application Form

Appendix C: Engineering Data Submittal Form

Appendix D: Engineering Studies: Brief description of the types of possible Engineering Studies which may be required for the review of the Generation System interconnection

Appendix E: Central Electric Interconnection Agreement for Generation Systems

Appendix F: Central Electric Interconnection Requirements for Generation Systems