

# Member Guide to Interconnected Distributed Resources (2 MW or less)

## OVERVIEW

Small generation resources interconnected with a power system are commonly referred to as a Distributed Resource, Distributed Generation, or an Interconnected Distributed Resource. Resources with a rated nameplate capacity of 2 MW or less can sometimes be installed on a distribution line and therefore resources with a rated capacity of 2 MW or less will be considered for connection to the distribution system.

Generation that is connected to the distribution system can have an impact on the safety, reliability, and quality of service of the distribution system. The potential impact is dictated by the type of device (“generator”) that is used to produce the electricity, the electrical capacity of the generator, the location of the installation, and the protection and control that is installed on the Interconnected Distributive Resource.

Choctawhatchee Electric Cooperative, Inc. (CHELCO) has provided this guide for Members that are considering installing generation to offset their energy consumption or sell energy back onto the electrical grid. Due to safety and reliability issues, it is important for the CHELCO to be aware of any energy source that connects to the electrical meter or electrical distribution system in any way. The step by step interconnection process is provided in the accompanying document entitled “Distributed Generation Interconnection Process.”

The process begins with an application to install the distributed resource. **The application shall be made and approval given prior to connecting the generator.** The following table describes the application fees.

Installation Type	Mode	Application Fee
Parallel Generation	Exporting	\$25
Parallel Generation	Non Exporting	\$25
Isolated Generation		\$25

\*\* Exporting – excess power to flow onto the distribution system

\*\* Non Exporting – no power flowing onto distribution system

\*\* **Isolated Generation still requires application for safety reasons**

## DEFINITIONS

This section provides some definitions that the Member may find helpful in preparing the application and reviewing the interconnection agreement.

**Aggregate:** In some situations, there may be multiple interconnected generators that are capable of producing electricity. The aggregate is the total nameplate rating of all generators in parallel with the distribution system at any time.

**Demand:** The demand is the maximum amount of electricity used or “demanded” during a time interval. Demand is different from energy because the demand is the rate at which the energy is used. For example, a Member may use significantly higher amounts of electricity during certain times, such as when everyone is at home, various appliances are running, and any Member owned generation is unavailable due to maintenance, environmental conditions, etc. (all electricity is being provided by the distribution system). Demand will be higher under these conditions since energy is being used at a higher rate. CHELCO must have the ability to provide all the electricity requirements of the member during these times (must be able to meet the demand for energy). A member with a generator may use a relatively small amount of energy that is purchased from CHELCO but cause a high demand to be placed on the distribution system when the generator is not running.

**Energy:** Energy is the term used for the amount of electricity that is used or generated. Energy is measured in kilowatt hours (kWh).

**Isolated Generation:** Isolated generation is not connected to the distribution system when it is generating electricity. Appropriate installation allows CHELCO’s verification of isolation from the distribution system through a “break before make” transfer switch installed on the load side of the meter (the disconnect contacts should be visible without requiring tools to remove covers, etc.).

**Momentarily Paralleled Generation:** Momentarily paralleled distribution generation system produces electricity while remaining attached to the distribution system for no longer than 100 milliseconds. Appropriate installation allows visual verification of isolation from the distribution system through a transfer switch installed on the load side of the meter (the disconnect contacts should be visible without requiring tools to remove covers, etc.).

**Parallel Generation:** Parallel generation produces electricity while remaining attached to the distribution system for longer than 100 milliseconds. Parallel generation must not be allowed to adversely affect the quality, reliability, or safety of the distribution system. Therefore, installation and operation requirements depend on many factors, including if the generation is exporting or non-exporting.

**Generation (Exporting Mode):** Exporting generation provides the load requirements of the Member and has excess power to flow onto the distribution system. The member may be compensated for the power that flows onto the distribution system. Therefore, bi-directional metering equipment that can measure power flow in two directions may be required by CHELCO.

**Generation (Non Export Mode):** Non-exporting generation provides only the load requirements (or part of the load requirements) of the Member and does not result in power flowing onto the distribution system. Even though the generation does not cause power to flow onto the distribution system, it is important that CHELCO be aware of the installation so that it can be sure that the quality, reliability, and safety of the distribution system are not adversely affected.

**Fast Track (Tier 1 only) Projects:** Fast Track projects require no System Facility study, and may be able to proceed at an accelerated rate. To qualify as a Fast Track Project, the proposed installation should have an aggregate capacity less than or equal to 10 kW, and the member should be able to clearly demonstrate that the proposed installation meets applicable technical standards (IEEE 1547).

**Facilities Study and deposit:** A Facilities Study identifies the specific upgrades/modifications to CHELCO’s distribution system that must be completed and the estimated cost associated therein. A deposit for study expenses is required prior to performing the Facilities Study, and this deposit varies with the capacity of the generation that is proposed. The member is required to pay all costs associated with the Facilities Study. The following table summarizes the deposit that is required to begin a Facilities Study.

<b>Installed Aggregate Capacity</b>	<b>Facility Study Deposit</b>
$\leq 10$ kW	Fast Track – No Study Deposit
> than 10 kW but $\leq 100$ kW	\$ 500
> 100 kW but $\leq 2$ MW	\$ 3500

**Note:** If the Facilities Study identifies substantial costs associated with a distribution interconnection, a transmission interconnection may be considered. Upon member request, the member will be referred to PowerSouth Energy Cooperative (transmission provider), who will provide all requirements and costs for a transmission interconnection (member will be responsible for costs of all necessary studies).

**Interconnection Agreement:** The interconnection agreement is the contract between CHELCO and the member that grants the member permission to operate the proposed generation resource in parallel to CHELCO’s distribution system. It identifies the terms and conditions under which the parallel operation is allowed. It is emphasized that the Interconnection Agreement only provides for the connection of the resource and does not

constitute of an agreement to purchase the energy from the resource.

**Purchase Power Agreement:** A purchase power agreement is a contract to purchase the energy that is exported to the distribution system from the generation resource. CHELCO may purchase the exported power from installations with an aggregate capacity less than 25 kW, and PowerSouth Energy Cooperative may purchase the exported power from installations with an aggregate capacity of 25 kW and greater. The Purchase Power Agreement identifies the Terms and Conditions of the agreement to buy the energy being exported such as the frequency at which payments for energy exported will be made. The sale of the energy to parties other than CHELCO or PowerSouth Energy Cooperative is neither authorized nor permitted.

### **Insurance Requirements:**

The Member is responsible for maintaining liability insurance that is acceptable to CHELCO. The amount of required insurance varies with the capacity of the generation proposed. The following table summarizes the insurance requirements.

<b>Installed Aggregate Capacity</b>	<b>Liability Insurance Requirements</b>
$\leq 10$ kW	Recommended (not required) \$100,000
$>$ than 10 kW but $\leq 100$ kW	1,000,000
$>$ than 100 kW but $\leq 2$ MW	\$2,000,000

### **COST**

The member is required to pay all costs associated with connecting the distributed generation resource to CHELCO's distribution system. A standard connection fee of \$50 is established to cover the cost of modifications to the meter, facilities inspection/testing, and other administrative and overhead expenses incurred by CHELCO for installations where the member plans to export energy. Should modifications be required on the distribution system, the member is required to pay all costs associated with the upgrades/modifications to CHELCO's distribution system. Additionally, on installations that are large (generally greater than 1,000 kW) modifications may be required by the transmission provider to accommodate the installation. The member is also required to pay those associated costs as well. The estimates for the modifications are identified in the Facility Study (if required).

### **RETAIL RATE**

In some instances, the installation of a distributed resource may result in the member being placed on an alternative rate or Member charge that allows CHELCO to recover the cost of the

infrastructure serving the member. A change in the retail rate or Member charge is dependent upon the capacity of the proposed distributed resource. Refer to CHELCO's residential or general service non-demand net metering riders for rates.

## **TECHNICAL REQUIREMENTS**

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power System is the recognized industry standard for distributed generation. All distributed resource installations must comply with IEEE 1547 in order to be allowed to interconnect with CHELCO's distribution system. On small installations, "pre-packaged" equipment may allow the installation to comply with the protection aspects of IEEE 1547. For example, inverter-based systems that are certified UL 1741 meet the protection requirements of IEEE 1547. The member should refer to IEEE 1547 for details regarding the specific technical requirements. CHELCO has developed a document Technical Requirements for Connecting Distributed Generation that provides an overview of the key aspects. All installations must be certified as IEEE 1547 compliant in writing either by the manufacturer, a recognized independent testing laboratory, or by a Registered Professional Engineer prior to connection. CHELCO reserves the right to verify compliance through inspection/testing.

A readily accessible, lockable, visible-break isolation switch device located between the resource and the distribution system may be required. CHELCO will provide specifications for the isolation switch. The member should gain approval for the proposed switch and the location prior to purchase and installation to assure that it is acceptable.