

# Fort Collins Utilities Generating Facility Application



## I. Introduction and Overview

- A. **Applicability:** This application is required to request the interconnection of a generating facility (GF) to the City of Fort Collins electrical distribution system. Refer to the City's Electric Service Rules and Regulations for specific interconnection requirements. Except as noted in the next paragraph, this application may be used for any GF to be operated by or for a customer to supplement or serve the customer's electric service requirements that would otherwise be served by the City, including "distributed" generation, "cogeneration," emergency backup and standby generation. While customers operating an isolated GF are not obligated to enter into an Interconnection Agreement with the City, information about the GF is required by the City for operational and safety purposes. Customers wanting to install a photovoltaic (PV) system at their residence should use the Fort Collins Utilities Generating Facility Application for Residential Photovoltaic Systems in place of this general application.

This application may not be used to apply for interconnecting a generating facility used to participate in transactions where all or a portion of the electrical output of the GF is scheduled with any other entity other than the City. Such transactions are subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC) and require approval and a contractual agreement with Platte River Power Authority.

- B. **Guidelines and Steps for Interconnection:** All completed GF applications submitted to the City must be accompanied by the supporting documentation listed in section 1C. An application fee and/or service fee may be charged depending upon the size and complexity of the proposed installation (please contact the City for fee details). Upon receipt of the application, the City will contact the customer to initiate the GF plan review. This document is only an application. Upon design approval, the City will prepare an Interconnection Agreement for execution by the City and the party that will be responsible for the GF. The City will require the inspection and testing of the GF and any related interconnection equipment prior to issuing a Permit to Operate (PTO). Unauthorized parallel GF interconnections will be required to disconnect from the City's electric distribution system. Refusal to disconnect may result in discontinuance of electric service.

Please note, other approvals may need to be acquired and/or other agreements may need to be formed with regulatory agencies, such as the EPA, homeowner associations, and other local governmental building and planning commissions prior to operating a generating facility. The City's authorization to operate the GF does not satisfy the need for an applicant to obtain such other approvals.

- C. **Required Documents:** Two (2) copies of this Application and each of the following documents shall be submitted with a GF application. Drawings must conform to accepted engineering standards and must be legible. 11"x17" drawings are preferred.
1. A **Single-line and Three-line drawing** showing the electrical relationship and descriptions of the significant electrical components such as the primary switchgear, secondary switchboard, protective relays, transformers, generators, circuit breakers, with operating voltages, capacities, and protective functions of the Generating Facility, the customer's loads and the interconnection with the City's distribution system, which is typically the City's transformer.
  2. **Site plans and diagrams** showing the physical layout of the Generating Facility and the location of associated structures and infrastructure such as buildings, streets, driveways, water ways, fences, the customer's generating equipment and the City's associated distribution system equipment.
  3. **Equipment data sheets** issued by the manufacturer for all major components to be installed such as switchgear, secondary switchboard, protective relays, transformers, generators, circuit breakers, inverters, disconnect switches, transfer switches, battery banks, turbines, motors, with operating voltages, capacities, and protective functions.
  4. **Customer-owned transformers**, if used, to interconnect the Generating Facility with the City's distribution system, please provide transformer nameplate information (voltages, capacity, winding arrangements, connections, impedance, et cetera).
  5. **Transfer switches** or schemes used to interconnect the Generating Facility with the City's distribution system, please provide component descriptions, capacity ratings, and a technical description of how the transfer scheme is intended to operate.
  6. **Protective relays or elements** used to control and protect the interconnection. Please provide protection diagrams and control schematics showing relay wiring and connections, proposed relay settings and a description of how the protection scheme is intended to function.
  7. **Certified test reports** issued by the manufacturer that demonstrate the generator meets applicable standards may be required for certain applications. Contact the City to determine if test reports are needed.
- D. **Completed Application and Assistance:** Completed applications should be submitted, along with the required attachments to:

City of Fort Collins Utilities  
Electric System Design & IT Division  
Attention: Distributed Generation Administrator  
P.O. Box 580  
700 Wood Street  
Fort Collins, Colorado 80521  
Phone: (970)221-6700; e-mail: [utilities@fcgov.com](mailto:utilities@fcgov.com)

You are encouraged to contact the equipment manufacture and/or supplier for assistance in providing electric data.

## II. Customer Information

### A. **Customer Generating Facility Information** - Where will the Generating Facility be located/installed?

- Name on the City of Fort Collins Utilities Electric account: \_\_\_\_\_
- Street Address: \_\_\_\_\_  
Fort Collins, Colorado
- Zip: \_\_\_\_\_

For City use only:

- Electric Account number: \_\_\_\_\_
- Meter Number: \_\_\_\_\_

### B. **Customer Contact Information** - Who should be contacted for additional information, if necessary?

- Customer Contact Person: \_\_\_\_\_
- Company Name: \_\_\_\_\_
- Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- E-mail: \_\_\_\_\_
- Mailing Address: \_\_\_\_\_
- City: \_\_\_\_\_
- State: \_\_\_\_\_ Zip: \_\_\_\_\_

Customer Contractor/Engineer Contact Person (optional)

- Company Name: \_\_\_\_\_
- Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- E-mail: \_\_\_\_\_
- Mailing Address: \_\_\_\_\_
- City: \_\_\_\_\_
- State: \_\_\_\_\_ Zip: \_\_\_\_\_

### C. **Proposed GF Start-Up Date:** \_\_\_\_\_

### III. Generating Facility Information

#### A. Indicate how this Generating Facility will interface with the City's distribution system. (Choose one)

- 1. Parallel Operation:** The Generating Facility will interconnect and operate "in parallel" with the City's distribution system continuously.
- 2. Momentary Parallel Operation:** The Generating Facility will interconnect and operate on a "momentary parallel" basis with the City's distribution system for a duration of one (1) second or less through switches or circuit breakers specifically designed and engineered for such operation.
- 3. Isolated Operation:** The Generating Facility will be "isolated" and prevented from becoming interconnected with the City's distribution system through a transfer switch or operating scheme specifically designed and engineered for such operation.

---

If the answer is **option 1, "parallel operation,"** please supply all of the information requested for the Generating Facility. Be sure to supply adequate information including diagrams and written descriptions regarding the protective relays that will be used to detect faults or abnormal operating conditions on the City's distribution system.

If the answer is **option 2, "momentary parallel operation,"** please supply adequate information including diagrams and written descriptions regarding the switching device or scheme that will be used to limit the parallel operation period to one second or less as well as the back up or protective controls that will ensure the Generating Facility will trip.

If the answer is **option 3, "Isolated Operation,"** please supply adequate information including diagrams and written descriptions regarding the isolating switching device or scheme that will be used to prevent the Generating Facility from operating in parallel with the City's distribution system.

---

#### B. Indicate the type of interconnection agreement that is being requested (Choose one)

(Note: For option 2 or 3 of section 3A please skip to section 3E. )

- 1. A Residential Generating Facility Interconnection Agreement** that provides for parallel operation of the Generating Facility at the customers residence with the standard Utility demand rate.
- 2. A Commercial Generating Facility Interconnection Agreement** that provides for parallel operation of the Generating Facility at the customers commercial facility or business.
- 3. A Residential Parallel Distributed Generation Agreement (Pilot Program)** that provides for parallel operation of the Generating Facility at the customers residence with the City crediting the customer for energy exported. This option is available for a limited number of customers and expires 12/31/2009. See the City's Residential Parallel Distributed Generation Pilot Program Web page ([www.fcgov.com/utilities/es-802pg.php](http://www.fcgov.com/utilities/es-802pg.php)) for more details.

#### C. Provide the maximum 3-phase fault current that will be contributed by the proposed GF to a 3-phase fault at the Point of Common Coupling (PCC).

If the Generating Facility is single phase in design, please provide the contribution for a line-to-line fault. Consult an electrical engineer or the equipment supplier if assistance is needed in answering this question, and please describe the assumptions used in calculating the maximum fault current contribution value.

- Maximum fault current: \_\_\_\_\_ Amps
- Service panel short circuit rating: \_\_\_\_\_ Amps
- Existing transformer size for the facility: \_\_\_\_\_ KVA

#### D. Please indicate how this Generating Facility will be operated. (Select all options that may apply)

- 1. Combined Heat and Power or Cogeneration** – Where the operation of the Generating Facility will produce thermal energy for a process other than generating electricity.
- 2. Peak Shaving/Demand Management** – Where the Generating Facility will be operated primarily to reduce electrical demands of the Customer facility during electrical peak periods.
- 3. Primary Power Source** – Where the Generating Facility will be used as the primary source of electric power and that supplied by the City to the Customer's loads will be required for supplemental, standby or backup power purposes only.
- 4. Standby (Emergency or Backup)**– Where the Generating Facility will normally be operated only when the City's electric service is not available.
- 5. Residential Parallel Distributed Generation** – Where the Generating Facility qualifies and receives service under the City's Residential Parallel Distributed Generation pilot program.

## Generator Data

### E. Enter the generator information requested in the tables provided.

Generator Item		Description/Data
1	Manufacturer (Name)	
2	Model (Name/Number)	
3	Software Version (Number)	
4	Gross Nameplate Rating - KVA	
5	Gross Nameplate Rating - KW	
6	Net Nameplate Rating - KW	
7	Operating Voltage - V	
8	Maximum Short Circuit Current - A	
9	Power Factor Rating - %	
10	Power Factor Adjustment (min.) -%	
11	Power Factor Adjustment (max.) -%	

### F. Has the Generator/Inverter been certified by a Nationally Recognized Testing Laboratory (NRTL) and tested to IEEE 1547.1?

- Yes  
 No

### G. Generator Design

- Synchronous  
 Induction  
 Inverter

### H. Wiring Configuration

- Single-Phase  
 Three-Phase

### I. 3-Phase Winding Configuration

- 3-Wire Delta  
 3-Wire Wye  
 4-Wire Wye

### J. Neutral Grounding System Used

- Un-Grounded  
 Solidly Grounded  
 Ground Resistor \_\_\_\_\_ Ohms

### K. For Synchronous Generators Only:

Generator Item		Mfgr. Data
1	% Synchronous Reactance (Xd)	
2	% Transient Reactance (X'd)	
3	% Subtransient Reactance (X''d)	

### L. For Induction Generators Only:

Generator Item		Mfgr. Data
1	Locked Rotor Current (Amps)	
2	Stator Resistance (%)	
3	Stator Leakage Reactance (%)	
4	Rotor Resistance (%)	
5	Rotor Leakage Reactance (%)	

**M. For generators that are started as a "Motor" Only**

Generator Item		Mfgr. Data
1	In-Rush Current (Amps)	
2	Main Panel Continuous Current Rating (Amps)	

**N. Prime Mover Type**

- Internal Combustion Engine
- Microturbine
- Combustion Turbine
- Turbine
- Fuel Cell
- Photovoltaic
- Other

**O. Fuel Type**

- Natural Gas
- Propane
- Diesel
- Steam
- Hydro/Water
- Wind
- Photoactive/Sun light
- Thermal
- Coal
- Other

The applicant hereby certifies that the above information, along with the attached plans and project descriptions, are correct. The applicant agrees to comply with the provisions of the City of Fort Collins Electrical Service Rules and Regulations, Interconnection Standards for Generating Facilities, Building Code, all other applicable sections of City Code, and all other laws and ordinances affecting the construction, installation and operation of the proposed generating facility.

Signature of Applicant: \_\_\_\_\_ Date: \_\_\_\_\_

---

---

**Administrative Use Only**

Date Complete Application Submitted: \_\_\_\_\_

Application Reviewed By: \_\_\_\_\_ Application Approved or Denied: \_\_\_\_\_

Notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_