



# **MICROGRID INTERCONNECTION GUIDELINES**

D0512420 Revision 4  
Adopted March 7, 2023

# Microgrid Interconnection Guidelines (Customer-Owned Generation)

## 1.1 Introduction

These guidelines have been prepared by Imperial Irrigation District (IID) and are available to interested parties for information, planning design, and construction of customer microgrids. For purposes of these guidelines, the “customer” shall include the owner and operator, or combination of both, of the “Microgrid,” as defined herein.

A Microgrid is for purposes of these guidelines shall be defined as “an interconnected system of loads and energy resources, including, but not limited to, distributed energy resources, energy storage, demand response tools, or other management, forecasting, and analytical tools, appropriately sized to meet customer needs, **within a clearly defined electrical boundary that can act as a single, controllable entity**, and can connect to, disconnect from, or run in parallel with, larger portions of the electrical grid, or can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure.” See California Public Utility Code Section 8370(d)).

These guidelines, in conjunction with IID Regulation 21, Rules for Interconnection of Distributed Generation Facilities, as well as applicable IID, county, state and federal rules and regulations form the minimum requirements to which all new interconnecting Microgrid facilities within the IID, shall conform.

## 1.2 Policy on Customer Microgrids

IID has a policy of allowing customers to operate Microgrids. IID shall permit a customer to operate a Microgrid, as defined above in parallel with the electric system whenever this can be done without causing adverse effects to the general public, or to IID equipment or personnel. Certain protective devices or equipment may include, but are not limited to, relays, circuit breakers, and switches, as may be specified by IID, and such devices and equipment must be installed or upgraded at customer’s expense at any location where a customer desires to operate generation in parallel with the IID system. The purpose of these devices is to promptly disconnect the customer’s generating equipment from the IID system whenever faults, abnormal, or unsafe operations occur. Other modifications to electrical system configuration or protective relays may be required in order to accommodate parallel generation.

IID will not assume any responsibility for protection of the customer’s generator(s), or of any other portion of the customer’s electrical equipment. The customer is fully responsible for protecting their equipment in such a manner that faults or other disturbances on the IID system do not cause damage to the customer’s equipment, or adversely affect the customer in any way.

## 1.3 Generation Sources for Microgrids

The customer may elect to use a variety of energy sources including solar, wind, battery storage or other types of sources, in addition to conventional fossil fuels on

its Microgrid provided such energy sources comply with the emission standards adopted by the California State Air Resources Board pursuant to the distributed generation certification program requirements of Section 94203 of Title 17 of the California Code of Regulations. (See Public Utility Code Section 8370(b)). The end conversion of the connection to the utility system must be into 60 Hz alternating current.

**1.4 Interconnection Options**

As identified in the Application for Interconnection of Distributed Generation Facility (Customer-Owned Generation), the customer must apply for interconnection and choose from one of the following operating modes:

1. **Parallel Operation:** The Generating Facility will interconnect and operate “in parallel” with IID’s Distribution System for more than one (1) second.
2. **Momentary Parallel (MP) Operation:** The Generating Facility will interconnect and operate on a “momentary parallel” basis with IID’s Distribution system for a duration of one (1) second or less through transfer switches or operating schemes specifically designed and engineered for such operation.
3. **Isolated (I) Operation:** The Generating Facility will be “isolated” and prevented from becoming interconnected with IID’s Distribution System through a transfer switch or operating scheme specifically designed and engineered for such operation.

**1.5 Application Process for Microgrid Interconnection to the IID System**

All applicants shall complete and file an Application for Interconnection of Distributed Generation Facility and supply to IID any relevant additional information requested by IID in accordance with Regulation No. 21, Rules for Interconnection of Distributed Generation Facilities and the application. When applicable, the Initial Engineering Review fee shall be included with the Application.

Per the Application for Interconnection of Distributed Generation Facility and Rules for Interconnection of Distributed Generation Facilities, **the fees and estimated timelines for IID review are as follows:**

Up to 500kW	\$2500	20 business days for IID Review
500kW to 1000kW	\$15,000	30 business days for IID Review
>1000kW to 5 MW	\$50,000	30 business days for IID Review
>5MW	This fee/review time will be evaluated on a case by case basis	

**2.0 General Design and Installation Requirements**

The customer’s design and installation of the Microgrid must meet the requirements of IID Regulation No. 21 and all applicable national, state and local construction and safety codes.

- a. Major equipment that is not included on the California Energy Commission's eligible equipment lists shall be evaluated for compliance with these interconnection guidelines.
- b. Customer's design and installation of the Microgrid shall comply with the latest requirements of the following standards:
  - ANSI/IEEE 1547 Standards for Interconnecting Distributed Resources with Electric Power Systems
  - IEEE 1547.1 Standards for Conformance Tests Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems
  - UL 1741 and UL 1741-SA Standards for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources
  - NFPA 70 National Electrical Code (NEC) Standards for the Safe Installation of Electrical Wiring and Equipment
  - National Electrical Safety Code (NESC®) Safety Standards for Overhead and Underground Electric Utility and Communications Utility Installations
    - Section 9 Grounding Methods for Electric Supply and Communications Facilities
    - Section 11 Protective Arrangements in Electric Supply Station

### **3.0 Generator Facility Design, Installation, and Operating Requirements**

The customer's design, installation, and operation of the Generating Facility ("GF") that is interconnected to the Microgrid must meet the requirements of IID Regulation No. 21 and all applicable national, state and local construction and safety codes. The Protective Functions and requirements of the Rules for Interconnection of Distributed Generation Facilities are designed to protect IID's Distribution System and not the GF. The customer shall be responsible for the requirements of the Producer in IID Regulation No. 21, and if the Producer and customer are separate entities, the Producer and customer each shall be jointly and severally responsible for the requirements of the Producer in IID Regulation No. 21. Customer/Producer shall be responsible for providing adequate protection for the GF and/or Interconnection Facility. Customer's/Producer's Protective Functions may not impact the operation of other Protective Functions utilized on IID's Distribution System in a manner that would affect IID's capability of providing reliable service to other IID Customers.

The costs for Interconnection Facilities and Distribution System modifications shall be paid by Customer and/or Producer pursuant to the provisions contained in the Interconnection Agreement. Where the type and extent of the Interconnection Facilities or Distribution System modifications or additions warrant additional detail, Customer and/or Producer and IID shall execute separate agreement(s) to more fully describe and allocate the parties' responsibilities for installing, owning, operating and maintaining the Interconnection Facilities and Distribution System modifications. Based on the interconnection option of the Distributed Generation Facilities, IID will apply the applicable rates and interconnection agreement required based on IID Rules

and Regulations.

#### **4.0 Microgrid and Generator Facility Approval and Operating Authorization**

After the application for the customer's Microgrid has been approved, the facility must demonstrate approved operation as designed for 24 hours with IID monitoring. Once this has been completed, a notification of authorization for operation of the Microgrid, including any GF interconnected thereto, will be issued by the IID Energy Department. Upon issuance of the authorization to operate, at this time the Microgrid may begin operation.