GUAM POWER AUTHORITY Authority Policy	No.: AP-072	Issued: 05/11/2020
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Title: **NET METERING PROGRAM INTERCONNECTION POLICY**	Concurred By: John J. Cruz, P.E. AGMETS	
	Approved By: J.M. BENAVENTE, P.E. General Manager	
Effective Date: 6/4/2020	Supersedes No. AP-072 Dated 2/28/2017	Page 1 of 9

*1.0 PURPOSE

The purpose of this document is to establish criteria and requirements for the safe and reliable operation of qualifying interconnected customer-owned generating facilities, as part of the Guam Power Authority's Net Metering Program in accordance with *Article 5, Chapter 8, Title 12 of the Guam Code Annotated.* GPA reserves the right to modify the net metering program requirements based on additional analysis and studies.

2.0 SCOPE

2.1 Customers are allowed to interconnect customer-owned generating facilities provided such customer-owned facilities are in compliance with this policy and do not exceed twenty-five (25) kW for GPA residential class customers and one-hundred (100) kW for GPA non-residential class customers.

2.2 The interconnected generating facility's primary purpose shall be to generate energy to serve all or a part of an individual customer's load. The generating facility shall be located on the customer's single contiguous property and shall not serve loads outside of the customer's single contiguous property.

*2.3 A Net Metering Customer must comply with this policy, execute a "Standard Interconnection Agreement for Net Metering Facilities" with GPA, obtain all required Department of Public Works Permits, obtain GPA Engineering approval, and submit a GPA Inspection Report signed by an authorized Department of Public Works (DPW) Inspector before Parallel Operation of a Generating Facility with GPA's Distribution System.

2.4 The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the Customer Facility on GPA equipment and personnel and on other GPA customers. This policy is not intended to address protection of the Customer Facility itself or its internal load. The Net Metering Customer is responsible for complying with the requirements of all applicable standards, codes, statutes and authorities to protect itself and its loads.

3.0 DEFINITIONS

3.1 **Net Metering:** Measuring the difference between the electricity supplied by a utility and the electricity generated by a qualifying customer-generator, which is fed back to the utility over the applicable billing period.

3.2 **Qualifying Capacity:** A qualifying customer generator is limited to the following, provided the rated capacity of the renewable generator does not exceed the customer-generator service entrance capacity, and

A. does not exceed twenty-five (25) kW for GPA customers under Rate Schedule "R"; and

B. does not exceed one-hundred (100) kW for non-residential class GPA customers.

3.3 **Application:** The notice provided by the Customer to GPA, which initiates the interconnection process.

3.4 **GPA Inspection Report**: Form provided by GPA and completed by the authorized Department of Public Works (DPW) Electrical Inspector having jurisdiction over the installation, indicating acceptance of construction.

3.5 **Net Metering Customer (Customer):** The person who owns and/or operates the customer generating facility interconnected to the GPA distribution system via a GPA meter.

3.6 **Qualifying Customer Generator:** A non-GPA owned equipment for producing electricity that uses fuel cells, microturbines, wind, biomass, hydroelectric, solar energy or a hybrid system consisting of these facilities, as its primary source of fuel.

3.7 **GPA Distribution System:** All GPA power facilities rated 15 kV and below by which GPA provides power service to customers.

3.8 **Net Metering/Customer Facility:** A qualifying customer generator located on the Customer's premises along with all facilities ancillary and appurtenant thereto, including interconnection equipment, which the Customer requests to interconnect to the GPA Distribution System.

3.9 **Island; Islanding:** A condition on GPA's Distribution System in which one or more Customer Generating Facilities deliver power to customers using a portion of GPA's Distribution System that is electrically isolated from the remainder of GPA's Distribution System.

3.10 **In-Service Date:** The date on which the Customer Facility is complete, inspection approval is received from DPW and the facility is ready for service, even if the facility is not placed in service on or by that date.

3.11 **Standard Interconnection Agreement for Net Metering Facilities:** An agreement

for interconnection service, between the Net Metering Customer and GPA. The agreement also includes any amendments or supplements thereto entered into by the Net Metering Customer and GPA.

3.12 **Point of Common Coupling (PCC):** The point where the Net Metering Customer's local electric power system connects to the GPA distribution system. For overhead systems, the PCC is the weather head. For underground or hybrid installations, the PCC is the nearest GPA handhole or pad mounted transformer.

3.13 **Utility:** Guam Power Authority (GPA).

4.0 APPLICABLE CODES AND STANDARDS

The following codes and standards shall form a part of this policy, including the latest revisions with respect to material, design and tests.

*4.1 IEEE 1547-2018 Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces

4.2 UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems - Equipment must be UL listed.

4.3 IEEE Standard 929-2000, IEEE Recommended Practice for Interface of Photovoltaic (PV) Systems.

4.4 ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.

*4.5 ANSI C84.1-2016 American National Standard for Electric Power Systems and Equipment—Voltage Ratings (60 Hz)

4.6 Equipment covered by this specification shall conform to all applicable industry standards including the National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), Underwriters Laboratories (UL) standards, ASTM, and ICEA.

4.7 All safety and operating procedures for joint use equipment shall be in compliance with the Occupational Safety and Health Administration (OSHA) Standard 29, CFR 1910.269 and equipment manufacturer's safety and operating manuals.

*4.8 IEEE Standard 519-2014 IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems

#4.9 Guam Power Authority System Improvement Plan for Renewables - Final Report June 6, 2018 Prepared by Electric Power Systems Consulting Engineers.

#4.10 Renewable Energy Interconnection Strategy – Final Report September 29, 2015 Prepared by TG Engineers, PC.

4.11 All local and federal building codes.

5.0 GENERAL REQUIREMENTS

5.1 Any GPA Customer wishing to install a qualifying customer facility under this net metering program must first make application at any GPA Customer Services Office during normal business hours.

5.2 Any Net Metering Facility desiring to interconnect with the GPA Distribution System or modify an existing interconnection must meet all general requirements, in their most current approved version at the time of interconnection. GPA reserves the right to require the customer, at the customer's expense, to provide corrective action or additions to existing electrical facilities in the event that GPA or other Government Regulations are modified.

5.3 Opt-out customers are ineligible to participate in the net-metering program in accordance with the GPA Smart Meter opt Out Program Application Agreement.

5.4 The specifications and requirements listed herein shall apply generally to the Qualifying Customer Generator throughout the period encompassing the Net Metering Customer's installation, testing, commissioning, operation, maintenance, decommissioning and removal of said equipment. GPA may verify compliance at any time.

*5.5 The Customer shall submit the site and electrical plans (minimum size 11" x 17") to GPA Engineering for review and approval.

*5.6 All interconnection equipment must be approved by GPA prior to being connected to the GPA Distribution System and before parallel operation is allowed. Accordingly, the Customer shall submit equipment data sheets, electrical plans, a site plan, a completed Generator Qualifications sheet, and other technical information as may be requested by GPA Engineering for review and approval.

*5.7 The Customer shall be responsible to obtain all required construction and operating permits for the installation of equipment on his property. The net-metering facility shall be approved and placed in-service only after all required documentation, permits, and Inspection Report have been received.

*5.8 GPA shall install, own, and maintain a kilowatt-hour smart meter. The method of accounting for the electricity under net metering is with a single, bi-directional smart meter capable of measuring current and energy flow in two directions. The customer shall be responsible for providing the meter socket, conductors, and appurtenances in

accordance with GPA Service Rules and Regulations.

5.9 Common labeling approved by GPA and in accordance with NEC requirements must be posted on the meter base, disconnects, and other pertinent equipment stating that generation is operating at or is located on the premises. Labeling shall include a sign, 4" wide by 2" tall, and black letters on a red background adjacent to or on the meter enclosure as directed by GPA Engineering stating that the facility is a "NET METERING CUSTOMER."

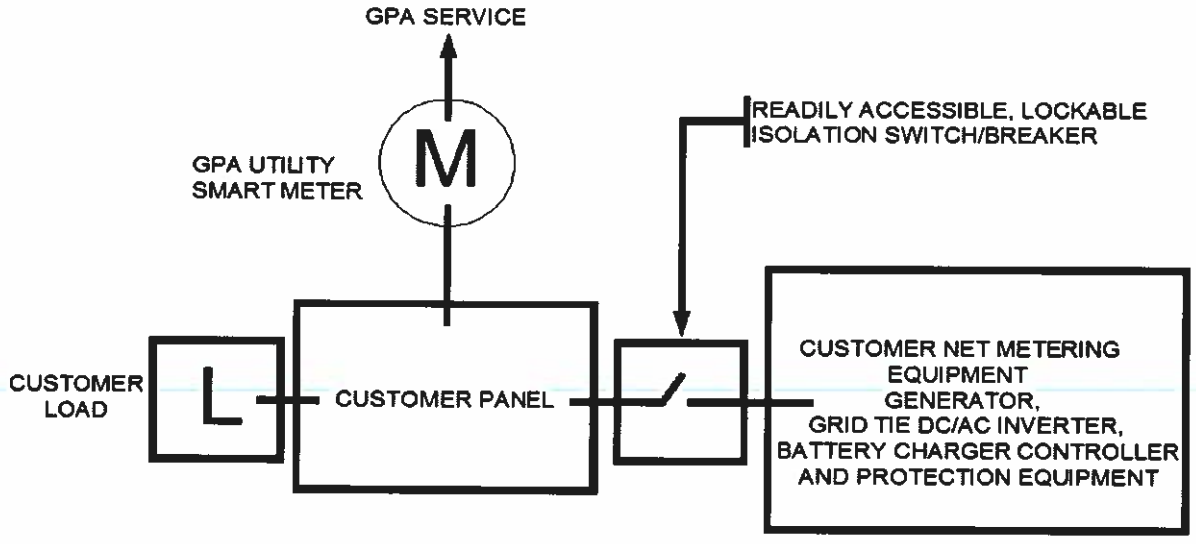
*5.10 At its discretion, GPA will reprogram or replace the smart meter, and provide inspections and approvals of the net metering facility.

5.11 GPA will interconnect the facility at the Point Of Common Coupling (PCC) after an authorized DPW Electrical Inspector signs the GPA Inspection Report indicating acceptance of construction on the customer premises.

#5.12 GPA's representative(s) shall have full and free access to the customer's premises at all reasonable times for the purposes of reading meters, inspections and repairs, installations or removal of the Authority's property, or for any other purpose incident to providing service.

5.13 All GPA costs including labor, equipment, and materials associated with interconnecting a net metering customer to the GPA Distribution system shall be borne by the customer. This includes costs for construction or upgrades of GPA's system as required to accommodate the Customer Facility. Additional charges incurred by GPA shall be determined by GPA and paid by the customer.

6.0 INTERCONNECTION REQUIREMENTS



TYPICAL ONE-LINE DIAGRAM

6.1 Inverter

The Customer shall connect the load and generating equipment to the GPA source via a grid tie DC/AC inverter in accordance with applicable codes as illustrated in the Typical One-Line Diagram.

6.2 Non-Inverter Based Interconnection Requirements

The Application for such Interconnection requires more detailed GPA analysis, review, testing, and approval of the equipment proposed to be installed to ensure compliance with applicable standards. Customers proposing such interconnection may also be required to submit a power factor mitigation plan for GPA review and approval.

*6.3 Isolation Switch

The Customer shall furnish and install on the Customer's side of the meter a UL approved safety disconnect switch/breaker which shall be capable of fully isolating the Customer's generator from the GPA electric system. The disconnect switch shall be located adjacent to GPA's meter or at a location approved by the GPA inspector and shall be provided with sealing provisions. The disconnect switch shall be accessible to GPA personnel at all times.

6.4 GPA shall have the right to disconnect the Customer Facility from GPA's system at the disconnect switch:

6.4.1 To maintain safe electrical operating conditions; or

6.4.2 in the event the Customer Facility does not meet required standards; or

6.4.3 if the Facility at any time adversely affects GPA's operation of its electrical system or the quality of GPA's service to GPA customers.

6.5 Voltage and Phasing

The nominal voltage and phase configuration of the Customer's generation must be compatible with GPA's system at the Point of Common Coupling (PCC).

6.6 In the event of a utility power outage, the net metering facility must be able to automatically disconnect from utility power to ensure power is not fed back into the GPA power grid. This is extremely important during restoration/ repair situations where power fed into the GPA grid poses a safety hazard to distribution crews working on the system and the community who may come in contact with downed lines and equipment.

6.7 Protection Requirements

6.7.1 The protective functions and requirements of this policy are specifically designed to protect GPA's Distribution System and not necessarily the customer facility or loads connected to the customer facility. The customer shall be solely responsible for providing adequate protection for its facility.

6.7.2 The customer's protective devices shall not adversely impact the operation of other protective devices utilized on GPA's Distribution System.

6.7.3 A customer facility operating in parallel with GPA's Distribution System shall be equipped with the following protective features:

a. Over and under voltage and frequency trip functions with the following ride-through settings; and

Description	Setpoints		
	Voltage (PU)	Frequency (HZ)	Trip Time (Seconds)
Voltage			
Under	V < 0.88		2.00
Over	> 1.20		0.16
	1.10 < V < 1.20		2.00
Frequency			
Under		F < 57.0	0.16
Over		F > 63.0	0.16

Ride Through Settings

b. Voltage and frequency sensing and time-delay functions - Preventing the customer generator from energizing a de-energized GPA Distribution System and preventing the generator from reconnecting unless GPA's service voltage and frequency is within the range specified by ANSI C84.1-1995 Table 1 Range B (Voltage Range of 106 V to 127 V on a 120 V basis, inclusive, and a frequency range of 59.3 Hz to 60.5 Hz, inclusive, and is stable for at least 60 seconds); and

c. A function to prevent the customer facility from contributing to the formation of an unintended Island, and ceasing to energize the GPA Distribution System within two (2) seconds of the formation of an unintended Island; and

d. A function to automatically disconnect the customer facility from the GPA Distribution System for sustained faults on GPA's Distribution System.

6.8 Interference

6.8.1 The Customer shall not operate a generating facility in parallel with GPA that superimposes a voltage or current upon GPA's Distribution System interfering with GPA operations, with service to GPA customers, or with communication facilities.

6.8.2 To eliminate undesirable interference, each Generating Facility shall meet the following criteria:

a. Voltage Regulation. The Generating Facility shall not actively regulate the voltage at the PCC while in parallel with GPA's Distribution System.
b. The Generating Facility shall not cause the service voltage at other customers to deviate outside the requirements of ANSI C84.1-1995, Range A (IEEE 1547-4.1.1).

6.8.3 If such interference occurs, the Customer must take corrective action at its own expense after being given notice and reasonable time to do so by GPA. If the Customer does not take corrective action in the time provided by GPA, or continues to operate the facility causing interference without restriction or limit, GPA may, without liability, disconnect the Customer Facility from GPA's Distribution System.

7.0 INTERCONNECTION STUDY

Upon receipt of an application for a Net Metering facility, GPA shall inform the customer if an interconnection study is required to determine whether or not the installation of the Customer Facility will have a significant impact on GPA's Distribution System. Interconnection studies may include, but are not limited to, service studies, coordination studies and utility system impact studies.

7.4 GPA will advise the customer of the estimated additional cost of performing such study.

7.5 Upon payment by the customer of the estimated study costs, GPA will proceed with the interconnection study.

7.6 The Customer will not be allowed to interconnect to the GPA Distribution System until the findings of the study indicate interconnection will not be detrimental to the GPA system or mitigation measures are undertaken.

8.0 BILLING

8.4 In accordance with the Interim Net Metering Rider as adopted by the PUC under Docket 08-10, net metering customers shall be billed on a monthly basis energy charges applicable under the currently effective standard rate schedule and any appropriate rider schedules including the Levelized Energy Adjustment Clause and other clauses as well as surcharges. No excess energy credits shall reduce any fixed

monthly customer charges, if any.

8.5 Monthly charges for energy to serve the customer's net or total load shall be determined according to GPA's standard service tariff under which the customer would otherwise be served, absent the customer electric generating facility. Energy charges under the customer's standard tariff shall be applied to the customer's net energy for the billing period to the extent that the net energy exceeds zero.

8.6 If the customer's net energy is zero or negative during the billing period, the customer shall pay only the non-energy charge portions of the standard tariff bill. If the customer's net energy is negative during a billing period, the customer shall be credited in the next billing period for the kWh difference. When the customer elects no longer to take service under this Net Metering Program, any unused credit shall revert to GPA. Excess electricity credits are not transferable between customers or locations.

*8.7 In no event shall the excess credit from a single month be carried forward beyond 12 months as a credit against the current monthly bill. At the end of each calendar year, or in the event of termination of service, any excess kWh credits, if any, will be granted by the customer to GPA without compensation to the customer, effective January 1, 2021 per GPA Docket 20-06 to the PUC.

8.8 These methods are subject to modifications in order to comply with the latest rates established by the PUC.