

TO: GCSB Board of Directors

FROM: Peter Kampa, General Manager

DATE: January 9, 2024

SUBJECT: Agenda Item 6B: Consideration of a Potential Partnership with the Yosemite Highway 120 Chamber of Commerce Related to an Application to PG&E for the Installation of an Electrical Microgrid

RECOMMENDED ACTION:

Staff recommends the following action:

I move to authorize the General Manager to meet with the Yosemite Highway 120 Chamber of Commerce and PG&E for the purpose of determining the feasibility, risks, benefits and role of the District in funding, installation and operation of facilities related to an electrical Microgrid(s)

BACKGROUND:

The board of directors have held several recent meetings where we have discussed the unreliable electrical power supply provided by PG&E to District facilities, community residents and businesses. The impetus for these discussions was the recent implementation of PG&E's EPSS that allows for immediate shutdown of the electrical grid, which resulted in a multi-day power outage over the 4th of July weekend last year. In these recent meetings, the board directed staff to work with PG&E and possibly the California Public Utilities Commission to seek a solution to the lack of reliable electric service locally.

We received no direct response or feedback from PG&E on the concerns we raised. Further we attended the community meetings put on by PG&E and monitored the communications back and forth between PG&E and the county. Based upon the PG&E reaction to many clearly articulated concerns, it is obvious that solutions are going to be long in coming.

The purpose of this discussion today is to receive input from your board regarding whether the district should be involved in conversations with PG&E related to the potential for development of a microgrid to serve an area or areas within the GCSB boundaries. As discussed in the informational materials included with this agenda item, a microgrid could provide electrical power to an identified area both when the local grid is powered up by PG&E, and during power outages where the microgrid can be isolated and receive power from a different source of electricity. The alternate sources of electricity include solar

panels, battery storage devices and potentially diesel powered generators. We believe that this system of a microgrid or microgrids could provide extremely reliable electrical service to the specified areas during a power outage.

We were recently contacted by the Yosemite Highway 120 Chamber of Commerce requesting that we participate in discussions with them related to a potential application for funding for a local microgrid through PG&E's Microgrid Incentive Program (MIP). Initially, the Chamber has submitted the request for PG&E consultation as the project applicant and it appears they are eligible to do so.

The MIP can provide up to a total of \$18 million to plan and implement a local microgrid project. Please find attached to this document several pages of the PG&E MIP handbook, which provide a general overview of what a microgrid is, how it functions, how the MIP funding works, funding eligibility and the initial consultation process with PG&E. The initial consultation has been scheduled for January 9th in the afternoon after this meeting. We have also included, by hyperlink only due to document size, helpful informational materials including the [MIP handbook](#) and a [slide document](#) covering the materials presented by PG&E at an October 24th webinar workshop.

Also included with this agenda is a list of items for discussion and consideration between the district and Chamber of Commerce as well as between us collectively and PG&E in our initial consultation.

The District is the logical partner or participant in this project with the Chamber as it owns 280 acres directly adjacent to an existing underground PG&E microgrid. The simplest location to power up using a microgrid could be the area that was recently isolated by electrical equipment installed by PG&E on district property by the park. This existing underground system provides power to the properties abutting Hwy. 120 from the pharmacy on the west to the park on the east. This existing underground system was also to be extended by PG&E up Powderhouse Road to serve the clinic and ambulance building. We believe it may be possible to install a large solar array on the south facing slopes adjacent to the park and connect it to the existing PG&E switch gear. The solar system would charge batteries that maintain power production there is no sun. Power generated from this system would power the microgrid during power outages and available for sale to the local power market.

There may be opportunity to potentially expand the microgrid or install separate microgrids to serve into Big Oak Flat and/or Pine Mountain Lake if determined feasible physically and financially. Technical engineering evaluation would need to be completed first to

determine the feasibility, locations and extent of the microgrid system. The MIP program has funding for the technical studies as well up to \$25,000 to cover the cost of preparation of the funding application. GCSD management has laid out several questions to be asked of PG&E during the initial consultation if appropriate, which are included in these agenda materials. At the initial consultation, we are also asked to provide our community resilience needs and goals, as well as potential solutions to meet community needs. A first draft of needs and solutions has been prepared by GCSD but has not been reviewed with the Chamber or PG&E. This agenda item is an opportunity for the Board to provide input on the resilience needs and potential opportunities.

If so authorized and directed by the Board, staff will participate in the initial consultation and continue the discussion with the Chamber to address questions and prepare a recommendation to the Board at a future meeting regarding the District's role in an MIP application and microgrid development, if any, as well as the role and nature of the Chamber and District relationship in the project. District staff is not prepared at this meeting to make any form of final recommendation regarding a role in the microgrid.

FINANCIAL IMPACT

No impact at this time.

ATTACHMENTS:

1. Microgrid overview informational slides
2. MIP Initial Discussions and Considerations Document, including draft goals and solutions
3. [PG&E Microgrid Handbook](#) (Hyperlink only)
4. [PG&E Microgrid Webinar Slides](#) (Hyperlink only)

PG&E MICROGRID INCENTIVE PROGRAM INITIAL DISCUSSIONS AND CONSIDERATIONS

Hwy 120 Yosemite Chamber of Commerce Input for Discussion in Advance of Initial Consultation

- Current and desired Microgrid boundaries - defining our desired scope of the proposed project
- Community Microgrid components - defining our desired roles on this project
- Funding - basic understanding of the elements of grant funding
- Eligibility - ticking all the boxes, plus a basic understanding of the scoring system
- Initial Consultation - what to expect at Tuesday's meeting

GCSO questions for Initial Consultation

- Microgrid Island Study first, or both study and AIR application development?
- Should the application include generators and solar/battery or only one option
- What condition/location criteria does PG&E use in allowing overhead lines vs underground in the Island? Can the system be hardened to allow?
- How is community income determined for the purpose of meeting program objectives?
- Is serving a downtown commercial corridor an advantage or disadvantage in application ranking?
- How is Blue Sky and Island Mode revenue potential calculated, and will the technical evaluation evaluate the financial feasibility as well?

GCSO Draft Input for Initial Consultation

Identify Resilience Needs and Goals

- Significantly reduce the negative impacts of power outages on the residents, economy and visitor experience in our downtown communities
- Serve as a power-independent, environmentally sensitive model among rural California communities having tourism driven economies
- Provide facilities that support community economic growth and resilience
- Provide reliable power in all seasons and weather conditions that can be counted on by travelers as the gateway to Yosemite National Park
- Provide reliable power in support of critical public facilities and services including fire, water, wastewater, ambulance and medical, especially in emergencies, while allowing PG&E to fully deploy its EPSS and PPS to avoid wildfire risks
- Reduce the cost and operational impacts of PPS and EPSS on critical water, wastewater, government facilities and services
- Improve reliability of communications systems, especially in emergencies by providing reliable power to internet and cellular facilities

Solutions to meet community needs (Draft GCSO Input)

- Identify generation locations and needed facilities to provide redundancy and allow for operation of multiple islands as determined necessary to serve downtown Groveland, Big Oak Flat and PML

- Plan and install a solar and battery storage system sized to meet 100% the power needs of the existing PG&E Groveland microgrid and proposed expansion area to Big Oak Flat and PML
- Harden existing PG&E infrastructure serving along Hwy 120 to Big Oak Flat, and feasible portions of PML to allow for expansion of the existing microgrid
- Install permanent, backup generators to provide emergency power in the event of solar or battery failure, or battery storage capacity exceedance
- Provide interpretive and educational opportunities along the Hetch Hetchy Railroad Trail to showcase our public/private partnership, environmental awareness, commitment to economic resilience and excellence in public services

MICROGRIDS

What is a Microgrid?

A microgrid is an interconnected, self-sufficient energy system within a clearly defined electrical boundary that can act as a single, controllable entity. It can connect to, disconnect from, or run in parallel with larger portions of the electric grid, and can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure.

Microgrids provide energy resilience by disconnecting from the larger electric grid during outages and providing power to customers within the boundary of the microgrid, utilizing local energy-generating resources such as solar panels, batteries, generators, etc.

The MIP provides funding specifically for Community Microgrids. These are distinguished by a few key features:

- They serve multiple customers connected by utility distribution infrastructure.
- They utilize grid-forming generation resources and/or batteries located on the utility-controlled side of the electric meters (often referred to as located “in front of the meter”). These resources may be owned by the community or its partners.
- They involve a partnership between the 3rd party owner of one or more Distributed Energy Resources (DERs), a Community Microgrid Aggregator (CMG Aggregator), as the operator of the grid-forming resources, and the utility, as the grid owner and operator. Together, we partner in the development and operation of the microgrid.

How Does a Microgrid Work?

When necessary, microgrids can become isolated energy sources and independently provide electricity when an outage of the larger grid occurs. Outages can be planned or unplanned and happen for a variety of reasons including severe weather, wildfires, a Public Safety Power Shutoff (PSPS), or for other safety or reliability reasons. When a microgrid disconnects from the larger grid during an outage, it is designed to remain energized.¹ This is called Island Mode. However, most of the time, microgrids operate in Blue Sky Mode. This is when the larger electric grid is functioning under normal conditions, and resources within the microgrid boundary may, if they have authorization to interconnect to the grid during Blue Sky conditions, generate and store energy in parallel to the grid, and participate in regional energy markets.

Sample Microgrid Layout

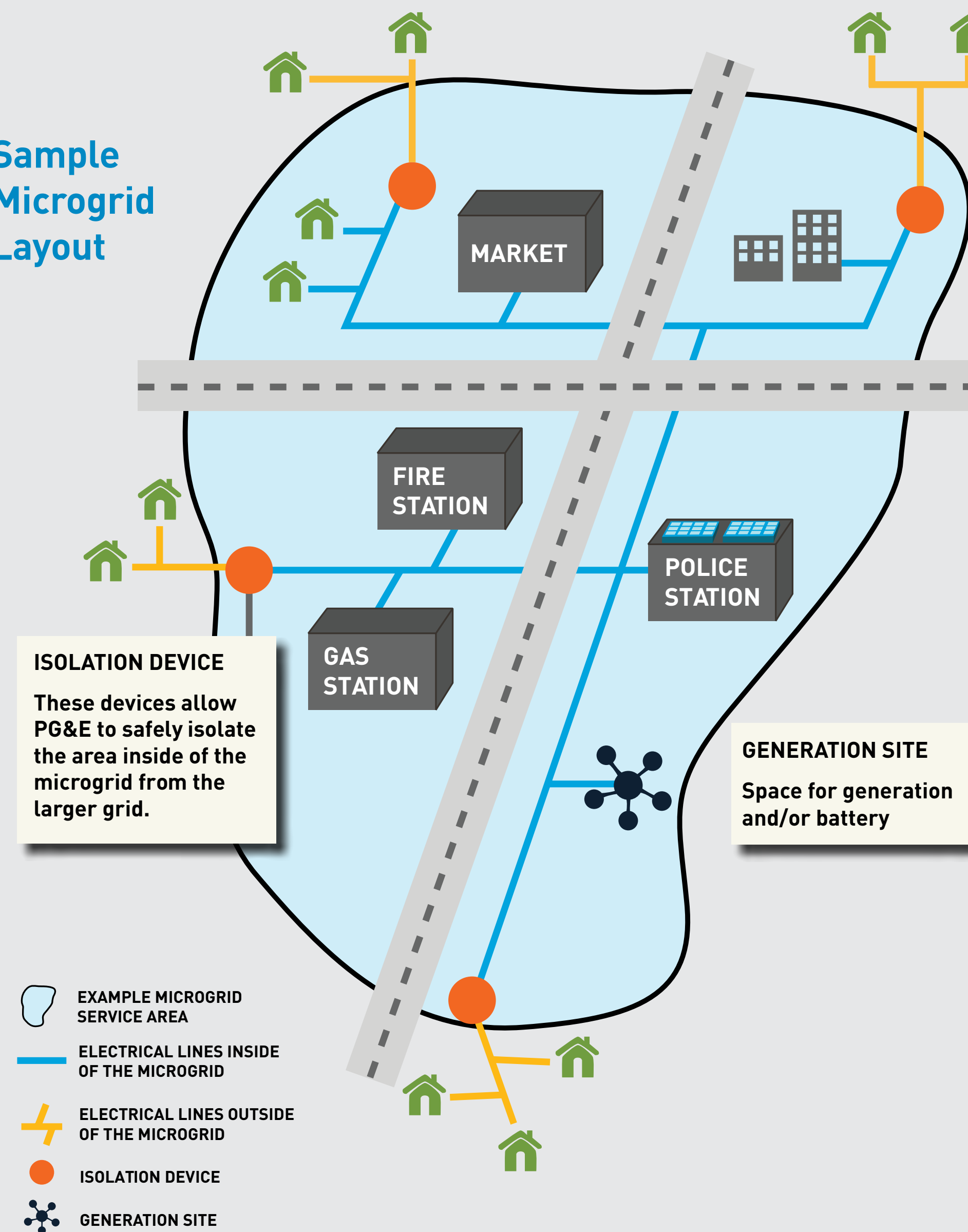


TABLE OF CONTENTS

OVERVIEW

MICROGRIDS: THE BASICS

FUNDING

ELIGIBILITY

MIP PROJECT LIFECYCLE STAGES

GLOSSARY

FOOTNOTES



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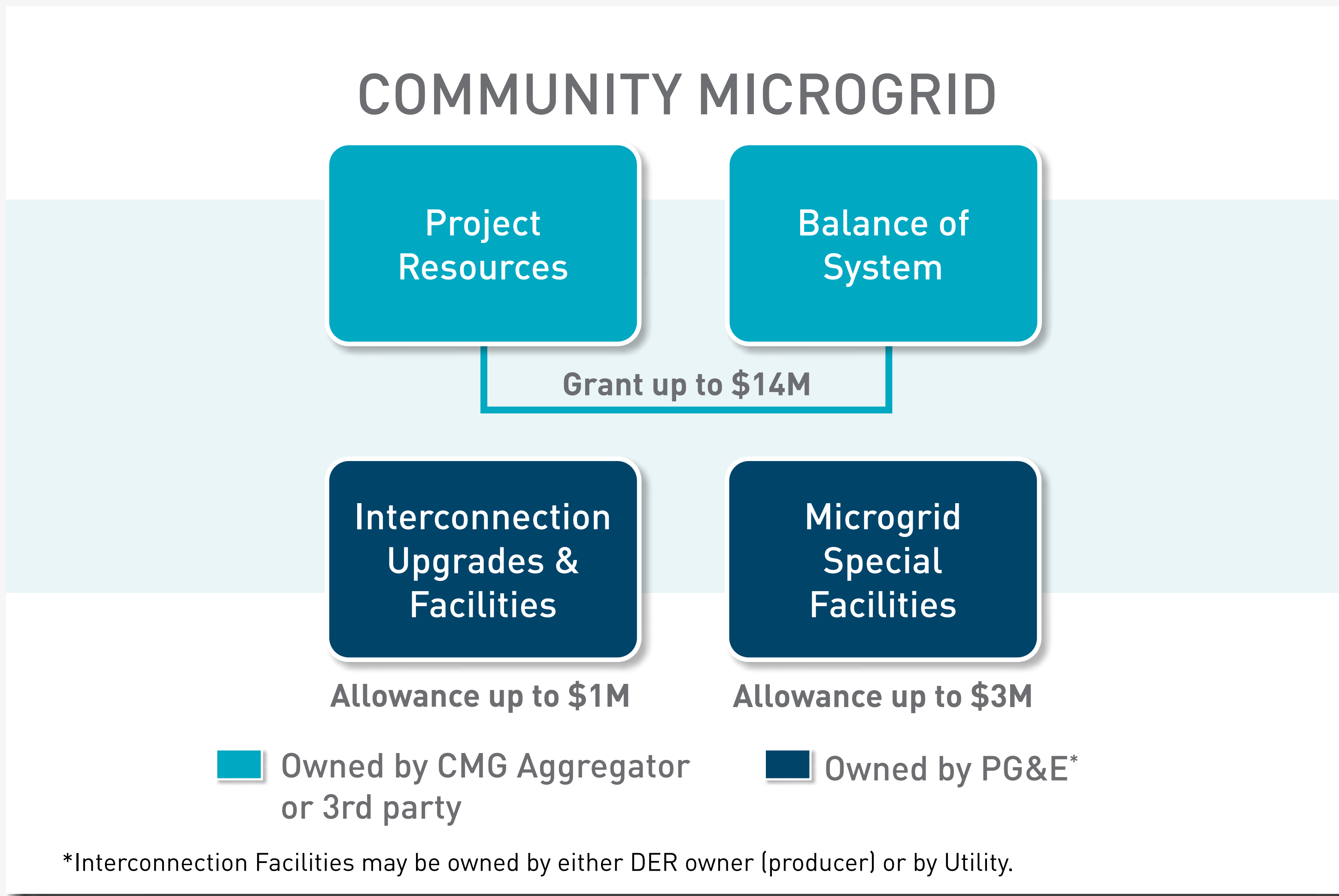
Main Menu

BACK

Microgrids Main Menu

NEXT

What Are the Components of a MIP-funded Community Microgrid?



- TABLE OF CONTENTS
- OVERVIEW
- MICROGRIDS: THE BASICS**
- FUNDING
- ELIGIBILITY
- MIP PROJECT LIFECYCLE STAGES
- GLOSSARY
- FOOTNOTES

Project Resource²: In-front-of-the-meter (IFOM) electric generation and/or storage technology that is used to form a utility-operated microgrid. At least one Project Resource must have sufficient grid-forming capability to maintain acceptable frequency and voltage during Island Mode operation. A Project Resource is controlled by the CMG Aggregator but may be owned by another party.

Balance of System: Assets, facilities and equipment, other than the Project Resources, owned or controlled by the CMG Aggregator necessary to meet the requirements of the project and any applicable tariff or agreements.

Interconnection-Related Upgrades & Facilities: Distribution Upgrades and Interconnection Facilities necessary to enable the interconnection of a DER; Distribution Upgrades are utility-owned; Interconnection Facilities may be owned by DER owner (producer) or utility.

Microgrid Special Facilities: Utility-owned and operated equipment that enables the safe islanding and operation of the microgrid (e.g. microgrid controller that communicates with Project Resources' controllers, isolation and fault protection devices).

What Does the MIP Pay For?

The MIP pays for the costs to design and develop a Community Microgrid. The funding falls in several categories as described below.

MIP Funding

Up to
\$14M
per project

Application Incentive Request (AIR)

For eligible **project engineering and development costs**, such as:

- IFOM batteries and generation resources
- Engineering and project management costs
- Property purchase or lease costs

Also includes the Application Development Grant of up to \$25,000.

Up to
\$3M
per project

Microgrid Special Facilities Allowance

For **utility equipment and services** that would otherwise be the cost responsibility of the Applicant, to enable the safe islanding of a Community Microgrid, such as:

- Microgrid Island Study (MIS)
- Equipment to enable safe transition and operation in Island Mode, which may include:
 - Isolation devices
 - Fault protection devices
 - Utility microgrid controller
 - System hardening

Up to
\$1M
per project

MIP Interconnection Allowance

For eligible **Interconnection Studies and equipment** that would otherwise be the cost responsibility of the Applicant, such as:

- Interconnection Study costs for eligible IFOM Project Resources
- Interconnection Facilities and Distribution Upgrades identified in the Interconnection Study

Eligibility

TABLE OF CONTENTS

OVERVIEW

MICROGRIDS: THE BASICS

FUNDING

ELIGIBILITY

MIP PROJECT LIFECYCLE STAGES

GLOSSARY

FOOTNOTES

To be eligible for MIP, a proposed project must:

- Meet at least one requirement in **section A**
- Meet at least one requirement in **section B**
- Meet all technical requirements in **section C**

Eligible communities are encouraged to apply either on their own or through a designated representative. The MIP application process is competitive and eligibility does not guarantee funding.

Speak to a PG&E Resilience Coordinator at communitymicrogrids@pge.com for assistance in determining if your community meets these criteria.

A

Vulnerable to Outages

Project must be located in one of the following areas:

- Tier 2 or 3 High Fire-Threat District
- Area that experienced prior PSPS outage(s)
- Elevated earthquake risk zone
- Locations with lower historical reliability

Local or tribal government leadership may be able to justify other forms of vulnerability.

B

Disadvantaged and Vulnerable Community

Project must be located in a DVC (one of four criteria below), or power a critical community facility that primarily serves a DVC.

- Census tracts with median household incomes less than 60% of state median
- California Native American Tribal Community
- Community with highest risk per CalEnviroScreen
- A rural area⁴

C

Technical Eligibility

Project must:

- Meet the eligibility requirements of the [Community Microgrid Enablement Tariff \(CMET\)](#)
- Be able to serve a minimum of 24 consecutive hours of energy in Island Mode as determined by a typical load profile within the Microgrid Boundary

Project Resources must:

- Interconnect on a distribution line that is at 50kV or below
- Comply with the emissions standards adopted by the State Air Resources Board pursuant to the distributed generation certification program requirements of Section 94203 of Title 17 of the California Code of Regulations, or any successor regulation
- Have aggregate emissions, along with Non-Project Resources, no greater than equivalent grid power when operating in Island Mode
 - Energy storage that is charged with grid power will be deemed to have the emissions equivalent of the average system emissions for the Utility.

STAGE 1: Consultation

Initial Resilience Consultation

The initial resilience consultation and the subsequent technical consultation are important steps toward the submittal of a MIP application. The initial consultation is the first opportunity to share your community's specific goals and energy needs with PG&E, and to discuss potential resilience solutions. The consultation will take place by phone or video call.

During the initial resilience consultation, PG&E will work with you to evaluate whether a MIP-eligible Community Microgrid is the best option to meet the community's resilience objectives. Options to be explored may include:

- ✓ **A MIP-eligible, Community Microgrid involving⁵:**
 - IFOM resources
 - A combination of both IFOM and BTM resources
- ✓ **Other resiliency options that are ineligible for MIP funding may include:**
 - Single-customer microgrids using BTM solutions
 - Modification of existing utility facilities such as undergrounding overhead distribution facilities, pursuant to a Special Facilities Agreement

During this consultation, PG&E will also ensure you understand the criteria for MIP eligibility (please refer to the [Eligibility section](#) of this handbook). Tribal government applicants should be sure to discuss the issues pertaining to contract enforceability, and the likely need for a limited waiver of sovereign immunity.

The initial resilience consultation may also cover the following:

- Incentive application and scoring procedures
- Overview of microgrid study and development process, including relevant agreements
- Overview of utility transmission and distribution system characteristics in the identified Community Microgrid area
- Known technical issues related to the interconnection of new resources and/or microgrid configuration
- Information about the capacity of the proposed distribution facilities within the boundary of the microgrid
- Relevant information about PG&E's past and planned PSPS mitigation activities
- Community Microgrid information, including potential grid isolation points that could establish the boundary of the microgrid (i.e., the Microgrid Islanding Point(s))

TABLE OF CONTENTS

OVERVIEW

MICROGRIDS: THE BASICS

FUNDING

ELIGIBILITY

MIP PROJECT LIFECYCLE STAGES

STAGE 1: CONSULTATION

STAGE 2: APPLICATION

STAGE 3: STUDIES

STAGE 4: CONTRACTING & DEVELOPMENT

STAGE 5: OPERATIONS

GLOSSARY

FOOTNOTES

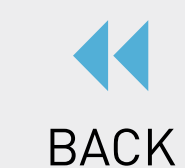
If the proposed microgrid is likely eligible⁶ and you wish to pursue incentive funding, you may proceed to the Microgrid Technical Consultation. From this point in the MIP process onwards, PG&E requires you to partner with an engineering firm with the qualifications to design the technical elements of the microgrid. As part of the initial resilience consultation, PG&E can help you identify characteristics of a competent technical partner.

Microgrid Technical Consultation: see next page >



October 2023

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Stage 1
Main Menu

