Hawaiian Electric

Microgrid Services Tariff (MST) Phase 2: Working Group Meeting #6

Docket No. 2018-0163

August 30, 2022

Agenda

10:00 – 10:05	Review of Objectives & Ground Rules
10:05 – 10:55	Guest Speakers: Jessica Tse & Joyce Steingass, California Public Utilities Commission
10:55 – 11:00	BREAK
11:00 – 11:50	Third-Party Operated Hybrid Microgrid Case Study: Calistoga Community Microgrid
11:50 – 12:00	Review Work Plan and Confirm Next Meeting
1:00 – 2:00	*Hawaii State Energy Office Webinar Re: IIJA Funding (Identifying a variety of funding mechanisms for microgrid development)*

MST Phase 2 Objectives

PUC Phase 2 Objectives:

1. Continue development of the Tariff
   - ❖ Promote self-sufficiency and resiliency among microgrid project operators
   - ❖ Streamline MST
2. Enhance Tariff to support broader use of microgrids in non-emergency situations
   - ❖ At minimum, enable voluntary islanding
3. Further explore opportunities to support resilience through microgrid development
   - ❖ Encourage development of microgrids that can provide power to remote communities and critical facilities such as schools, shelters, and hospitals
4. Identify grid services that can be provided by microgrids
   - ❖ Explore ways related exchanges between the utilities and microgrid operators could happen

Working Group Objectives:

1. Coordinate and align with other Dockets to leverage resources and streamline efforts
2. Focus on resiliency
   - ❖ Microgrids and/or other tools/programs
   - ❖ “Low-hanging” fruit, with such considerations as Act 200 goals, practical implementation, “real-world” goals, technical, costs, etc.
3. Understand how the tariff could support microgrid operations in non-emergency situations
   - ❖ Existing microgrid operations
4. Keep costs to all customers in mind (cost equity)
   - ❖ Compensation (e.g., rates, standby rates, exit fees, etc.)
5. Encourage development of grid services

Meeting Objectives

- Understand how California is approaching microgrid compensation and funding through the Microgrid Incentive Program (MIP) and discuss takeaways that can be applied to Hawaii

- Evaluate the Calistoga Community Microgrid as a case study for a third-party operated Hybrid Microgrid and answer open questions

- Review and confirm topics and presentations for subsequent Working Group meetings

Ground Rules

- Members will maintain an open mind and be respectful of all views
- Members will review meeting agenda in advance and complete any pre-reads prior to the meeting
- Discussion will be kept on agenda topic

Guest Speakers:

Jessica Tse & Joyce Steingass

California Public Utilities Commission

Topic: Microgrid Compensation and Grid Services; Utility Compensation

Microgrid Incentive Program and Rules & Tariffs

Grid Resiliency and Microgrids Team, Energy Division

Joyce Steingass, Senior Utilities Engineer

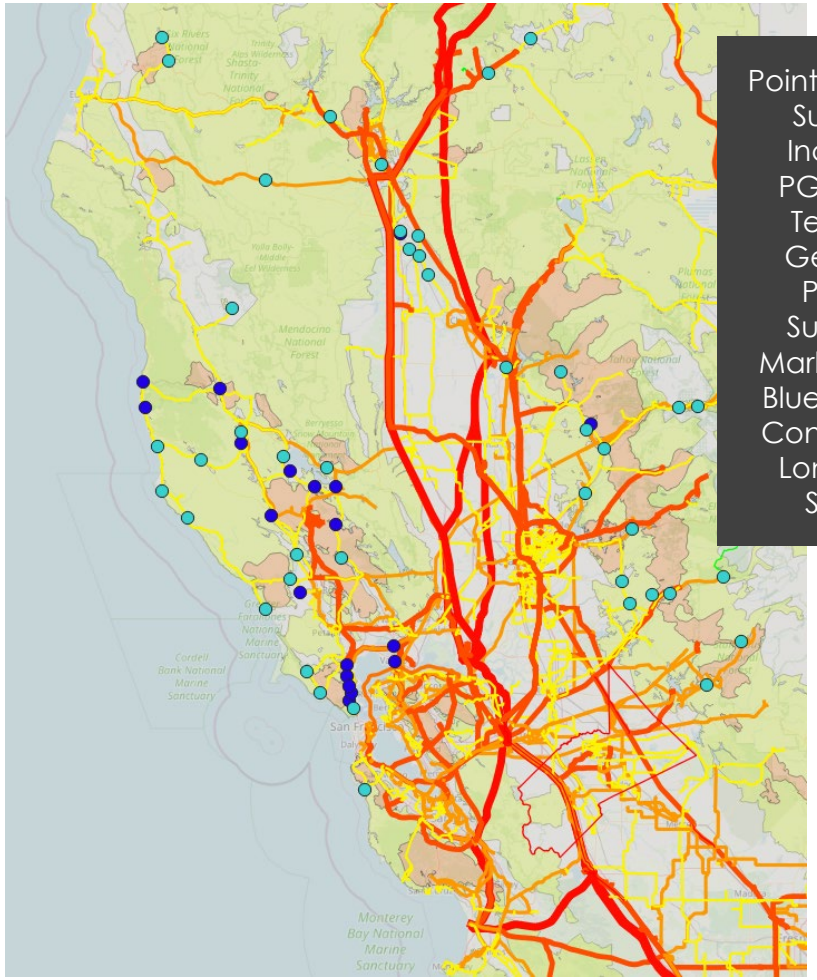
Jessica Tse, Senior Regulatory Analyst

Daniel Tutt, Utilities Engineer

California Public Utilities Commission

PG&E's Temporary Generation Program

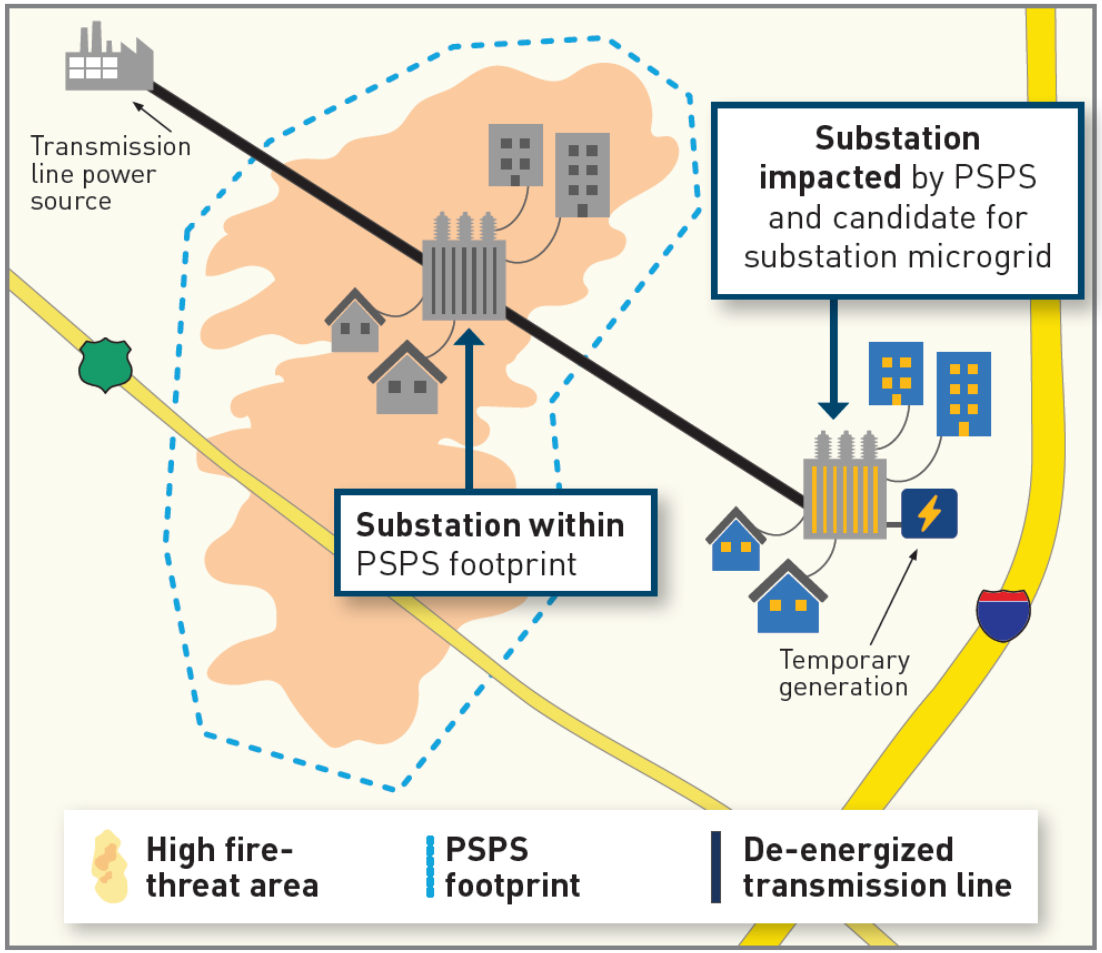
- **2020** - PG&E launched its temporary generation program which includes reserving 350 MW of diesel generation and planning to deploy backup at 63 substations.
- **2021 and 2022** - PG&E's temporary generation program shrinks in size as the estimated number of future *transmission-level* PSPS events decreases. In 2022, PG&E reserves **NO** temporary generation.
- **Clean Pilot and Longer-Term Framework** – CPUC ordered PG&E to pursue a longer-term clean substation microgrid pilot at one substation, and is considering a framework for transitioning to clean generation if the need arises again.



Points Indicate a Substation Included in PG&E's 2020 Temporary Generation Program. Substations Marked in Dark Blue Were Also Considered for Longer-Term Solutions

What is a Transmission-Level PSPS with Safe-to-Energize Customers?

Safe-to-Energize Customers: Customers who lose power during a PSPS event because the *Transmission* line serving them is deenergized, even though the *Distribution* lines serving them are safe.



Difficulties of Substation-Level Backup Power

vs

Microgrid Incentive Program Overview

- **Funding:** $200M program
- **Target:** To fund clean energy microgrids to support the critical needs of disadvantaged and vulnerable communities impacted by grid outages.
- **Goals:**
  1) increases electricity reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages;
  2) prioritizes serving communities with higher proportions of low-income residents, access and functional needs residents, and electricity dependents;
  3) enables communities with lower ability to fund development of backup generation to maintain critical services during grid outages; and
  4) provides an opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers.

Program Overview cont.

Timeline:

Dates	Activity
Spring 2021	CPUC approved Program Concept
Summer 2021	Input from CBOs, tribes, local municipalities, and other stakeholders in a workshop series
Winter 2021	Program administrators to file proposed implementation plan
Spring/Summer 2022	Staff Proposal on the Implementation Plan
Summer 2022	Parties' Comments and Reply Comments
Q1 2023	Commission Vote on the Decision
Q1/Q2	Program Launch

Questions

What were the Commission Order Key Elements?

- Directed the three large investor-owned utilities to develop a joint microgrid incentive program
- Step 1: Tier 1 Advice Letter: description of implementation details and timeline for convening public workshops to solicit a range of positions on the program elements to form a full program implementation plan
- Step 2: Proposed Joint Implementation Plan, at a minimum to include:
  - Program administrator reporting requirements and timeline (ex. program, project status reports, quarterly budget reports)
  - Approach for allocating program funding
  - Method used to control program administrative expenses (ex. Overhead cap)
  - Development of a program delivery plan handbook as a resource for potential participants
  - Approach for program evaluation
  - Description and details of public workshops that were convened
  - Authorize PG&E to purpose changes to its Community Microgrid Enablement Program to integrate into the MIP

Questions cont.

Why the focus on community microgrids as opposed to customer behind the meter microgrids?

- The CPUC's Self-Generation Incentive Program (SGIP) provides incentives to support existing, new, and emerging distributed energy resources. SGIP provides rebates for qualifying distributed energy systems installed on the customer's side of the utility meter.
- Our focus on longer duration, more complex multi-property requirement addresses a policy gap not filled by other programs.

What were the drivers (background/landscape) for the CPUC to initiate the Microgrid Incentive Program?

- Track 1: Adopted short-term solutions to accelerate interconnection of resiliency projects in advance of the 2020 wildfire season;
- Track 2: Developed standards, protocols, rates, and tariffs to support microgrid barriers;
- Track 3: Approved exemptions from the capacity reservation component of standby charges for certain eligible microgrids with very high availability; and
- Track 4 Phase 1: Enhanced Summer 2023 reliability by approving substation energy storage projects that can also form microgrids to support critical facilities during certain outages.
- Etc.

Questions cont.

What is the concern regarding underserved populations?

- Overarching CPUC policy to guide its decisions and ensure broad regulatory authority continues to advance equity throughout the state via the proceedings.
- Funding priority towards low-income, rural, Tribal, and environmental & social justice communities.
- ESJ Action Plan: the CPUC has created the plan to serve as a commitment to furthering ESJ principles and as an operating framework to which integrate ESJ considerations throughout the Commission's work.

How was the $200M incentive amount determined? Where does the funding come from?

- The original intent of the $15 million cap per project is to fully fund a microgrid system that a community would otherwise not be able to afford. The total amount evolved over during the Comments and Reply Comments.
- The program is ratepayer funded

Rules and Tariffs

- **Rule 2** - SCE amended its Rule 2 so any language and/or any examples of added or special facilities is removed so that Rule 2 deviations are not needed for an added or special facilities microgrid project.
- **Rule 18/Rule 19** - IOUs amended Rule 18 and Rule 19 to allow the critical facilities owned or operated by or on behalf of a public agency on an adjacent premises to supply electricity on a different premise.
- **Rule 21 -** For interconnections, aligns microgrid technical requirements for the Behind-The-Meter schedule.
- **Behind-the-Meter Microgrid Tariff** – This is a new microgrid tariff that involves a single customer establishing a microgrid at a single account. It did not modify rates nor compensation. It created microgrids as a statutorily defined entity in the tariff books.

- **Net Energy Metering** – IOUs modified their NEM tariffs to allow energy storage systems that are interconnected under the condition that they charge from solar to temporarily import from (but not export to) the grid upon receiving advanced notification from the utility of an upcoming Public Safety Power Shutoff.

Rules and Tariffs

- **Community Microgrid Enablement Tariff**
  - Governs the eligibility, engineering studies, development, and island and transitional operation of community microgrids.
  - As an experimental tariff associated with a limited CMEP, this Schedule is available, on a first-come, first-served basis, to applicant.
  - Project Resources can participate in CAISO markets during Blue Sky Mode.
  - Island Mode, the settlement of energy transactions associated the Project Resources continues to occur according to applicable CAISO tariff provisions and rules, per the Microgrid Operating Agreement.
- **Multi-Property Tariffs**
  - In Spring 2021, the Resiliency and Microgrids Working group explored different tariff elements that would enable multi-property and multi-customer microgrids. Working group participants to present their tariff proposals (rate schedules, rules, contracts, etc.).
  - Q3 2022 Official Proceeding Track 4 Phase 2

Guiding Principles

Guiding Principles for Stakeholder tariff proposals:

- Facilitate the commercialization of microgrids.
- Prioritize system, public, and worker safety.
- Protect consumers against predatory market actors and practices.
- Avoid shifting costs between ratepayers.
- Align with all applicable CPUC policies and state and local permitting requirements.
- Contain sufficient information and details in support of their positions to facilitate evaluation by the commission staff and other stakeholders.

Key Issues

Prioritizing safety of the system, the public, and workers above all else.

- How will system protection be implemented and coordinated with the surrounding grid?
- How does it ensure operational safety risks are addressed?
- How will utility testing and commissioning validate operational safety?
- How will it mitigate fire ignition risk?
- How are cybersecurity risks being mitigated?

Key Issues

Aligning rules, tariffs and policies.

- How do stakeholder proposals describe how they integrate with existing approved rules and processes? Include Wholesale Distribution Tariff, Interconnection Rules, and Rules governing description of service.
- How will the tariff protect consumers against misinformation, overcharging, and other predatory practices by market actors, including developers, equipment vendors, and utilities.

Modifying rates and providing compensation for microgrid services

- Are there sufficient existing methods (demand response, Emergency load reduction programs, resource adequacy) for microgrids to receive value for services provided?
- How to ensure microgrids are targeted to the right place and largest need where they are the highest value-add?
- Avoid subsidizing microgrids where they do not provide resilience services as the highest priority.

Questions?

California Public Utilities Commission

- Joyce Steingass, Senior Utilities Engineer — joyce.steingass@cpuc.ca.gov
- Jessica Tse, Senior Regulatory Analyst — jessica.tse@cpuc.ca.gov
- Daniel Tutt, Utilities Engineer — daniel.tutt@cpuc.ca.gov

BREAK (5 min)

Open Questions

Phase 2 Priority Issue	Questions
a. Microgrid Compensation and Grid Services	• Who should get compensation and why? • Aside from resilience service, are there any energy and grid services not already available to MGs through PPA, tariff or program?
c. Customer Protection and Related Considerations	For Hybrid MGs that may island voluntarily: • Who is protecting the customer if 100% of load not met during blue-sky conditions (MGs typically are not designed for 100% of load, or long duration if renewable energy based)? • What is the benefit of voluntary islanding for customers and how does this support the original intent of Act 200 to promote microgrids for resiliency purposes?
e. ii. Identifying a variety of funding mechanisms for microgrid development, including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects	• State access to IIJA funding potential for hybrid MG, what is the potential? Also, DOE's Loan Program Office funding potential. • How much funding would be needed to support Hawaii's community resilience goals (how many projects)? • Should there be a focus on disadvantaged and vulnerable communities at risk to address equity issues? • How to address preliminary engineering, implementation costs and ongoing operational costs for a third party owned & operated Hybrid MG?
e. v. Customer education and outreach	• What types of Customers are interested in Customer MGs or Hybrid MGs and why?
Overall	• What are the "low-hanging fruit" that can result in a tangible Hybrid MG project to help critical infrastructure and vulnerable communities as soon as possible?

Case Study Evaluation Framework

- Motivation for Hybrid Microgrid
  - Situational context for initiating microgrid study
  - What were the primary factors? (e.g., resilience, economics, research, other)
- Proposed Hybrid Microgrid Scope
  - Number of critical facilities
  - Number of customers
  - Disadvantaged population
- Proposed Hybrid Microgrid Design
  - Generation resources
  - Storage resources
  - Microgrid Controller (who owns, controls?)
  - Configuration
  - % load served when islanded and duration capability
- Ownership Model (examples below)
  - Private owner/operator – City/County or Customers resilience service counterparty
  - Private owner/operator – Utility resilience service counterparty
  - City/County owner/3rd party operator - Customers resilience service counterparty
  - City/County owner/3rd party operator - Utility resilience service counterparty
  - Utility owner/3rd party operator - Utility resilience service counterparty

Case Study Evaluation Framework

- Economics (as available)
  - Revenue Model(s)
    - Energy sales
    - Avoided retail tariff charges (e.g., demand charges)
    - Bulk power and distribution grid services
    - Resilience service contract between microgrid operator (third party or utility) with customers
    - Resilience service contract with grid operator (third party or utility)
  - Expenditures (lifecycle)
    - Project development (incl. feasibility studies and preliminary design)
    - Project Implementation (incl. equipment & installation, land acquisition, system testing, operational training, etc.)
    - Microgrid Operations (incl. ongoing maintenance and operations)
  - Funding
    - Project Revenue
    - 3rd Party Financing
    - Federal & State Grants
    - City/County funds
- Enabling Regulatory Mechanisms
  - Applicable tariffs, rules, markets, programs
  - Barriers identified
- Decision Considerations & Outcomes
  - Key considerations for Hybrid MG decision makers (developer/owner/off-takers)
  - Proposal outcome(s)
- Applicability to Hawaii
  - Relevant takeaways for Hawaii & MST Ph2 issues
    - Are there any tariff improvements that would further support this project?
    - Is there a benefit for voluntary islanding during non-emergency situations?
    - How could the tariff further promote resiliency for remote communities and critical facilities?
    - What grid services are being provided?

Third-Party Operated Hybrid Microgrid Case Study:

Calistoga Community Microgrid

Presented by:

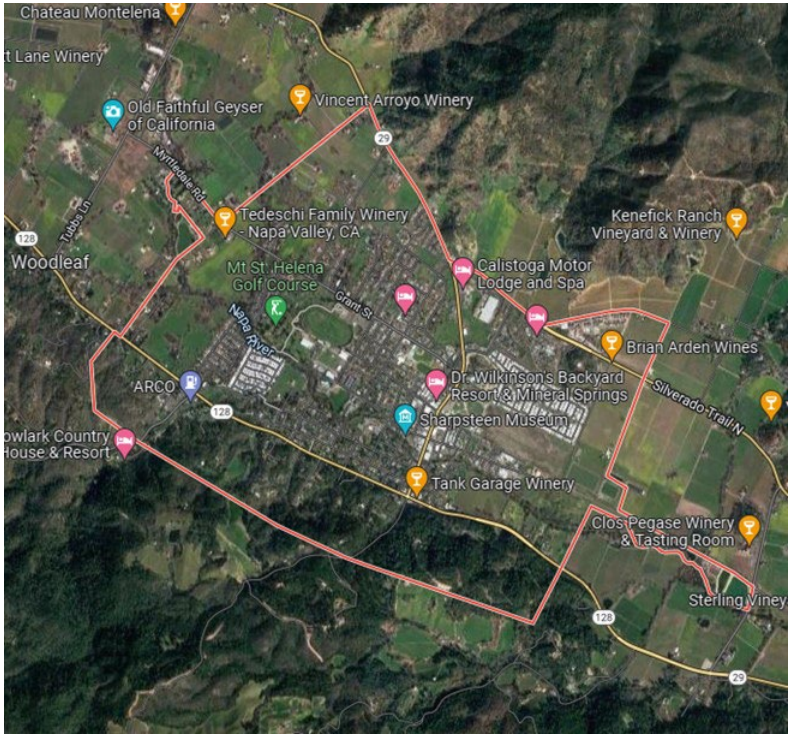
Paul DeMartini, Newport Consulting

Calistoga Microgrid Case Study

August 30, 2022

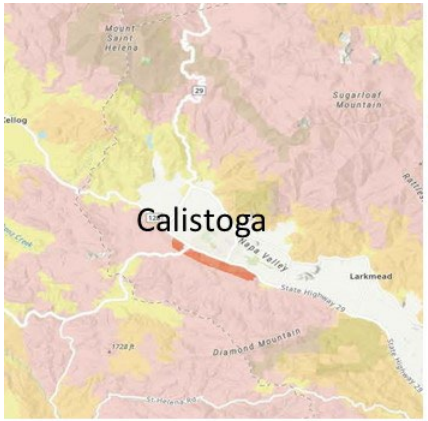
Calistoga Background

- Calistoga is a small city in the upper part of California's Napa Valley. It's known for its resorts, main street retail and wineries.
- Location: Upper part of Napa Valley surrounded on east and west by 1,200 ft. mountains and on the north side is Mt. St. Helena at 4,200 ft.
- Area: 2.595 mi²
- Population: 5,346 (2020)
- Household Income
  - Average household income is $33,280/year (US average is $28,555/yr)
  - Median household income is $52,131/year (US average is $53,482/yr).
- Peak Load: 7.8MW

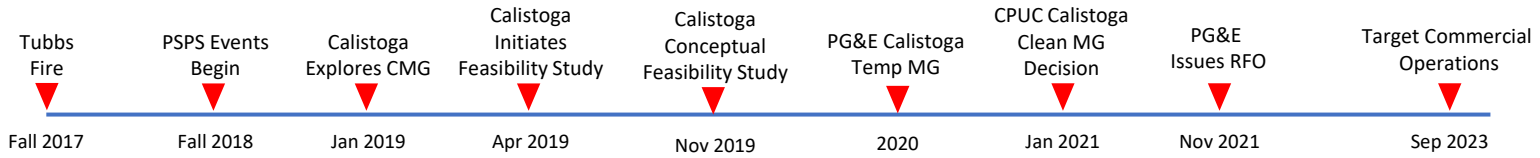


Resilience Need

- Calistoga is fed by 60kV line that runs through high fire threat areas.
- PG&E's Public Safety Power Shutoff (PSPS) events involve de-energizing transmission & distribution lines through high fire threat area during extreme weather conditions (i.e., low humidity, high temps & winds)
- Calistoga has experienced a large number of PSPS events since its initiation in 2018 – each event lasting between 24 to 96 hours.
- The PSPS event durations have been declining given improvements in fire risk assessments, but the fire risk threat has been increasing due to continuing extreme drought conditions.
- There have been major fires in the surrounding area each year since 2017.



Calistoga Community Microgrid Timeline



- City Council initiation of Community Microgrid exploration
  - (January 15, 2019)
- Initial Clean Coalition presentation on establishing a Community Microgrid
  - (April 2, 2019)
- Calistoga City Council Approval of Clean Coalition Feasibility Study
  - (April 2, 2019)
- Calistoga enters into public agreement with Clean Coalition to conduct a feasibility study
  - (July 2019)
- Clean Coalition conceptual community microgrid study
  - (November 5, 2019)
- Calistoga city council took “no decision” on microgrid project
  - (November 6, 2019)

- PG&E building temporary microgrids to offset blackouts
  - (Calistoga mentioned – November 6, 2019)
- PG&E - Calistoga Temporary Microgrid
  - April 2020
  - April 27, 2020
- PG&E Clean Substation Microgrid Pilot
  - (2021)

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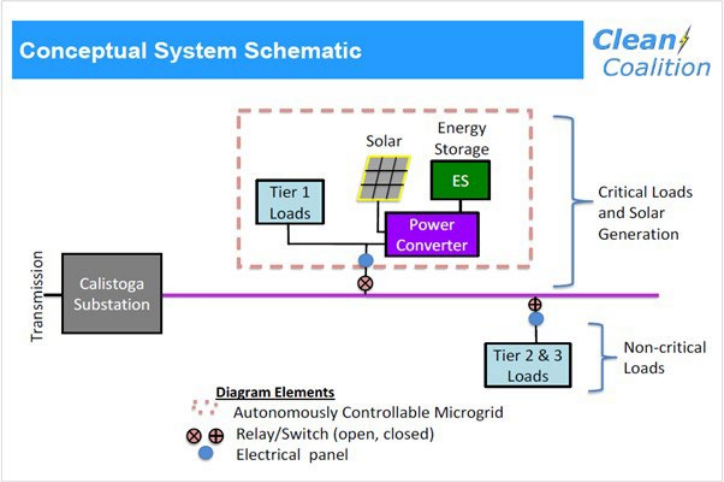
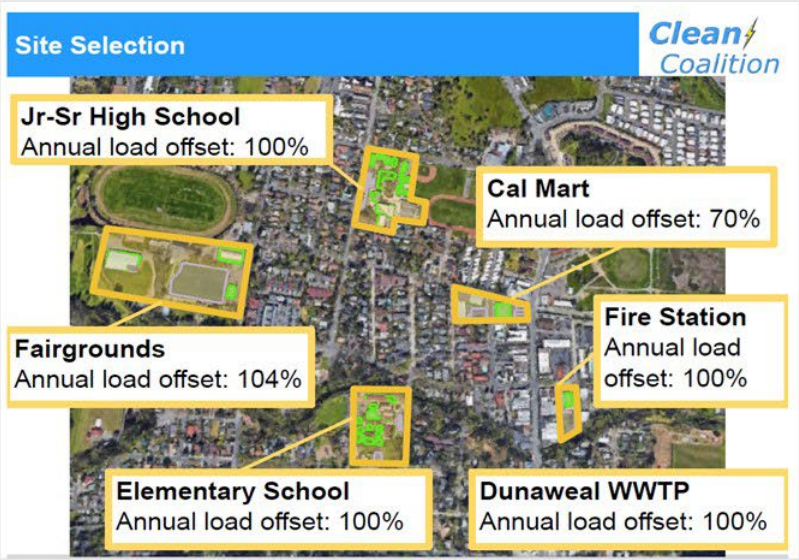
1st Microgrid Concept - Scope

- Calistoga engaged Clean Coalition to prepare an initial community microgrid assessment in Apr 2019 for $26,000.
- Clean Coalition's initial assessment identified potential for community microgrids:
  - Site overview map with Solar Siting Survey
  - 5 target deployment sites
  - Functional block diagram
  - Summary of loads and equipment
  - Hosting capacity details from PG&E maps
  - Conceptual cost estimate within 70% of final costs
- Total Conceptual Cost Estimate: ~$10,000,000
- In Nov 2019, the City Council took no decision to move forward with next level of MG feasibility study.



1st Microgrid Concept - Scope



Site Summary — Clean Coalition

Site	Total Annual Energy Use [kWh]	Existing Solar [kW AC]	New Solar [kW DC]	New Annual Solar Gen. [kWh]	Battery [kW]	Battery [kWh]
Cal Mart	900,501	-	480	626,310	300	2,000
Calistoga Elementary School	219,617	65	145	220,899	60	180
Calistoga Fairgrounds	308,559	-	210	322,927	120	1,440
Calistoga Jr-Sr High School	92,846	46	64	93,218	30	150
Dunaweal WWTP	1,017,489	-	660	1,015,618	200	2,000
Fire Station	63,002	-	42	63,984	30	90
TOTALS	**2,602,014**	**111**	**1,601**	**2,342,956**	**740**	**5,860**

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1st Microgrid Concept - Economics

Portfolio Summary

Clean Coalition

Proposed New Assets	1,601 kW Solar 740 kW / 5,860 kWh Energy Storage
Annual Generation	2,342,956 kWh
Percentage of Load Served	111% of current usage
Current Annual Electricity Spend*	$563,100
Annual Electricity Savings	$346,557
Payback Period**	8.5 - 25 years / site

*Electricity costs are expected to increase 3% annually; savings will scale with cost increases.

**Payback assumes converter and battery need to be replaced every 10 years

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1st Microgrid Concept – Potential Funding Sources

Financing Options

Clean Coalition

1. Power purchase agreement (PPA)
   a. Typically a must-take contract. Whoever it's contracted to must purchase all.
   b. 90% of commercial PV systems are financed through PPAs.
2. Energy services agreement (ESA)
   a. Similar to a PPA, but includes energy efficiency technology as well.
3. Direct purchase
   a. Large capital costs make this option difficult for most customers.

Potential incentives

Clean Coalition

Incentive	Provider	Form	Technologies	Restrictions
Federal Investment Tax Credit - 26%	Fed	Tax incentive	Solar PV, energy storage	Incentive step-down:2020- 26%, 2021- 22%, 2022- 10%
MACRS accelerated or Bonus Depreciation	Fed	Tax incentive	Solar PV, energy storage	
Self-Generation Incentive Program	California State	Tax incentive	Energy storage	
MCE NEM Credit- $0.01/ kWh more than PG&E	MCE	Energy bill credits	Solar PV	$5,000 cap for monthly credit rollover
Qualified Energy Conservation Bonds (QECBs)	Fed	Bond	Renewable Generation	Tax credit at 70% of rate set by Treasury
Certified Renewable Energy Bonds (CREBs)	Fed	Bond	Renewable Generation	Tax credits are taxable income
Department of Energy Loan Guarantee Program	Fed - DoE	Loan Guarantee	High risk technologies	

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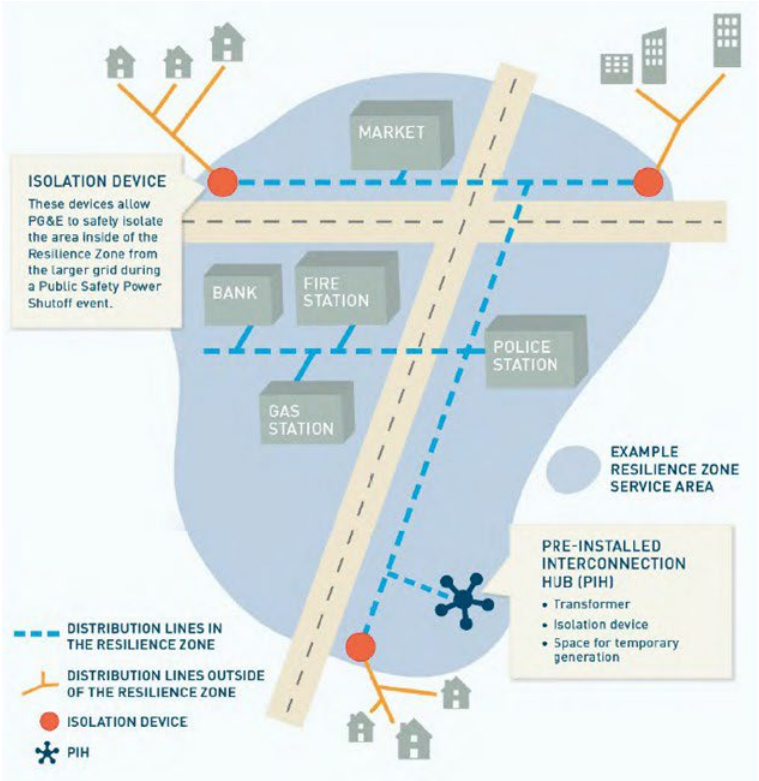
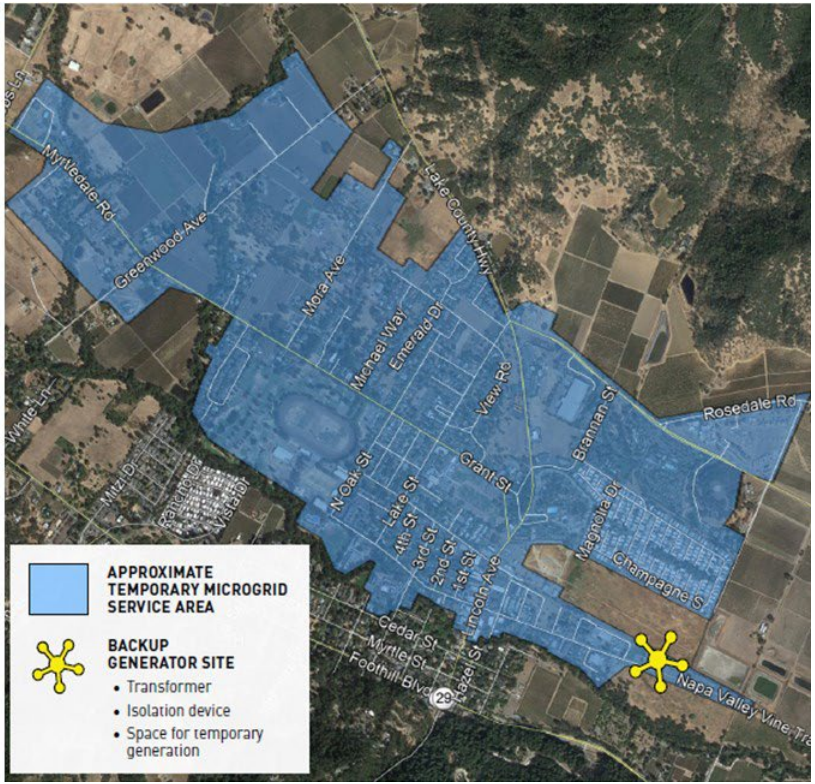
PG&E Temporary Microgrid Solution

- PG&E developed a PSPS Mitigation Plan (part of their required Wildfire Mitigation Plan) that included mobile temporary back-up generators in selected communities affected by PSPS events in their 70,000 sq. mile service area
- Temp Gen Program is controversial given use of diesel generators, but CPUC allowed initial use because the urgency of need
- PG&E grid connected leased mobile diesel back-up generators (7MW) in Calistoga to provide temporary power during PSPS events that primarily occur during Sept-Nov.
- Temporary microgrid has provided back-up power during PSPS events in 2019-2021
- **Issues:**
  - Temp MG doesn't serve the entire community – west side residential areas and part of main street commercial district are not served.
  - Diesel generators unacceptable as a solution, driving need for cleaner solutions

PG&E Calistoga Temporary Microgrid

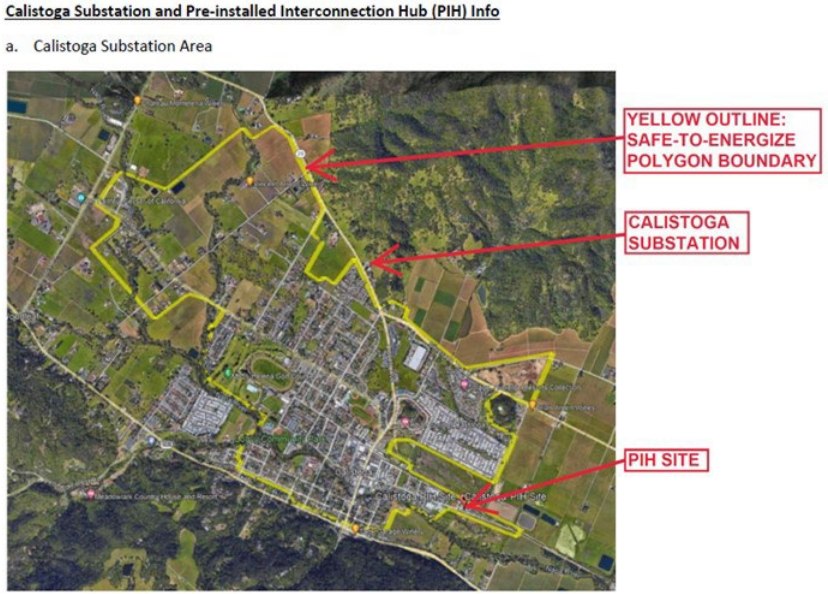




PG&E Clean Substation Microgrid Pilot

PG&E Clean Substation Microgrid Pilot Website

- PG&E is pursuing a Clean Substation Microgrid Pilot ("CSM Pilot") in compliance with California Public Utilities Commission ("CPUC") Decision 21-01-018Opens in new Window. issued on January 21, 2021 (the "Decision") and Resolution E-5164PDF. Opens in new Window. issued on September 9, 2021 (the "Resolution").
- The CSM Pilot is designed to procure a clean substation microgrid project providing Distributed Generation Enabled Microgrid Services ("DGEMS") solely from a third-party owned microgrid project that serves customer demand during future Public Safety Power Shutoff ("PSPS") events in the Calistoga Substation area.
- Calistoga Microgrid would address a greater portion of the community that are safe to energize during high fire risk conditions



PG&E Clean Substation Microgrid Pilot

PG&E Competitive RFO Overview

- PG&E is seeking to procure Distributed Generation Enabled Microgrid Services ("DGEMS") solely from a project that can serve customer demand within the Calistoga Substation safe-to-energize area during future PSPS events.
- Projects must be capable of powering variable load of up to 8.5 MW throughout the Substation Area during a 48-hour transmission outage.
- Projects must also be able to provide the following: Protection, Load, Frequency, Voltage Regulation, Black Start, Cold Load Pick-Up, Siting, Emissions
- PG&E is not procuring any other products other than DGEMS
- As other products may become available in the future, DGEMS provided to PG&E shall not be interfered with during any development to facilitate delivery of such products or the commercial transactions to market such products.

Compensation:

- Capacity Payment Rate ("CPR") in $/kW-month
- Variable O&M Rate ("VOMR") in $/kWh

Delivery Term: 5 or 10 years

Initial Delivery Date: September 1, 2023

Calistoga's Role

- Calistoga and PG&E are collaborating on the development.
- Calistoga currently provides the land for the temporary generators under lease to PG&E and is currently exploring city owned land availability/lease for the clean substation microgrid solution.
- Calistoga also collaborating on the permits and other development considerations for the pilot.

Thank you

Paul De Martini
paul@newportcg.com

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Remaining Work Plan

Meeting / Deadline	Date	Priority Issues
WG Mtg #7	Wednesday, Sep 28, 2022	• ***Resilience services and compensation, including societal and environmental value, to inform development of a resilience tariff –*** Guest Speaker, California Public Utilities Commission • Utility-operated Hybrid Microgrid Case study: North Kohala Microgrid & BESS RFP • Debrief on 8/30 HSEO IIJA webinar • Review draft consensus list and identify areas of disagreement for final report
WG Mtg #8	Wednesday, Oct 19, 2022	• ***Identifying critical facilities*** – *Hawaiian Electric update on Resilience Application Filing / IGP RWG Next Steps* • Review and discuss draft report and tariff revisions
Status Conference	Thursday, Oct 27, 2022	
WG Mtg #9	Wednesday, Nov 9, 2022	• Discuss open items for WG report and tariff revisions
Parties to file Phase 2 WG Report	Wednesday, Nov 23, 2022	
Technical Conference	Thursday, Dec 8, 2022	

*New proposed dates

Mahalo for your time.

Any questions?

Working Group Progress - Discussion Takeaways

Priority Issue	Discussion Takeaways	Guest Speaker(s)
e. iv. Better understanding barriers to microgrid development and what would make the microgrid tariff more attractive for developers	• Barriers include C&C permitting process, supply chain issues, and **overall project economics** (i.e. avoiding high demand charges for customer microgrids) • Barriers did not include interconnection or tariff improvements • **Solar + storage MGs are the most expensive option** due to large footprint (requires 400x space than diesel), doesn't make sense for most businesses • **Hybrid MG no longer under consideration for NELHA** because HNEI determined service reliability was above average; various Customer MG projects are already in progress to increase resiliency	Ted Peck, Holu Hou Aiden Coyle, Ameresco Allan Schurr, Enchanted Rock Gregory Barbour, NELHA
a. iii. Resilience services and compensation, including societal and environmental value, to inform development of a resilience tariff *e. ii. Identifying a variety of funding mechanisms for microgrid development. Including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects*	• A **"technology-neutral" perspective may not include a MG** to get to the same resiliency objective (one size does not fit all) • MG projects will likely use a **"best-fit, most-reasonable-cost" cost-effectiveness method** • In some cases, the customer should pay for a MG; **need to determine if there is a benefit to the grid** or not (i.e. a university MG) • Infrastructure Investment and Jobs Act (IIJA) **federal funding available allocated to states** to support resilience investments	Joe Paladino, Office of Electricity US Department of Energy
e. iii. Identifying community needs *e. iv. Customer education and outreach*	• **ETIPP final report due in December 2022**, will include a map of potential sites for hybrid microgrids on Oahu under 3MW and **community outreach with HNEI** • Map inputs include existing DER, supporting infrastructure, as well as **area vulnerability, criticality, and societal impact**	Katy Waechter, NREL & Ken Aramaki, Hawaiian Electric

MST Phase 2 Priority Issues (Order No. 38293)

a. Microgrid Compensation and Grid Services

i. Harmonization with other programs' grid services mechanisms
ii. Customers with existing DER/DR grid service agreements
iii. Resilience services and compensation, including societal and environmental value, to inform development of a resilience tariff

b. Utility Compensation

i. Standby charges, exit fees, and/or other charges

c. Customer Protection and Related Considerations

d. Interconnection

e. Working group coordination with related microgrid and resilience initiatives at Hawaiian Electric and government agencies

i. Identifying critical facilities
ii. Identifying a variety of funding mechanisms for microgrid development. Including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects
iii. Identifying community needs
iv. Better understanding barriers to microgrid development (e.g., economic, project opportunities, technical expertise) and what would make the microgrid tariff more attractive for developers
v. Customer education and outreach

Procedural Timeline