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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking
Regarding Microgrids Pursuant to
Senate Bill 1339 and Resiliency
Strategies.

Rulemaking 19-09-009

**TRACK 1 PROPOSAL OF PACIFIC GAS AND ELECTRIC
COMPANY (U 39 E) ADDRESSING IMMEDIATE
RESILIENCY STRATEGIES FOR OUTAGES**

M. GRADY MATHAI-JACKSON
KRISTIN D. CHARIPAR

Pacific Gas and Electric Company
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-3744
Facsimile: (415) 973-5520
E-Mail: Grady.Mathai-Jackson@pge.com

Attorneys for
PACIFIC GAS AND ELECTRIC COMPANY

Dated: January 21, 2020

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Pursuant to the Assigned Commissioner’s Scoping Memo and Ruling for Track 1 filed in the above-captioned proceeding on December 20, 2019 (“Scoping Memo”), Pacific Gas and Electric Company (“PG&E”) respectfully submits its Track 1 Proposal to address immediate resiliency strategies for mitigation of Public Safety Power Shutoff (“PSPS”) outages (the “Proposal”).

The components and activities, timelines, forecasted costs, and ratemaking associated with PG&E’s Proposal are summarized at a high level in this pleading and are detailed in prepared testimony that PG&E is concurrently serving on the service list for this proceeding in accordance with California Public Utilities Commission (“Commission”) Rule of Practice and Procedure (“Rule”) 13.8. PG&E is also concurrently submitting its prepared testimony as a “supporting document” in the Commission’s Electronic Filing System as required by Rule 13.7(f).

This cover pleading summarizes the Proposal, provides an overview of PG&E’s prepared testimony, responds to the Administrative Law Judge’s (“ALJ”) December 30, 2019 Email Ruling Directing Respondents to Address Ruling Questions as part of their January 21, 2020 Proposal (“December 30, 2019 ALJ Ruling”), and summarizes the relief that PG&E is requesting from the Commission in Track 1 of this proceeding.

I. SUMMARY OF PROPOSAL

The Scoping Memo determined that Track 1 of this proceeding should address the Commission's goal of deploying resiliency planning in areas that are prone to outage events and wildfires, with the goal of putting some microgrid and other resiliency strategies in place by Spring or Summer 2020, if not sooner.¹ Track 1 is expected to conclude by Spring 2020, with a decision giving direction for mitigation measures ready for implementation by September 1, 2020.²

As part of Track 1, the Commission directed PG&E and the other investor-owned utilities that are respondents in the proceeding to file and serve by January 21, 2020, proposals for "immediate implementation of resiliency strategies, including partnership and planning with local governments."³ The current Proposal responds to the Scoping Order's direction.

PG&E is committed to grid investments, technology investments, and process streamlining to improve reliability and increase resiliency as we adapt to the impacts of climate change, particularly increased wildfire risk. In this context, PG&E is pursuing resiliency and reliability improvements that benefit communities for maximum and equitable impacts, and the particular focus of this filing is to mitigate the customer impacts of PSPS through permanent, temporary, and community-enabled, front-of-the meter microgrid solutions.

As detailed in its concurrently served prepared testimony, PG&E's Proposal contains three components for which it is seeking scope and cost recovery authorization:

- 1) To enable permanent Distributed Generation-Enabled Microgrid Services (DGEMS), a Make-Ready Program to invest in the infrastructure needed to allow high-priority substations and associated downstream infrastructure to operate as microgrids through the use of distributed generation ("DG"). PG&E received offers in response to its All-Source Request for Offers for permanent generation to serve its DGEMS Program on January 17, 2020 and is in the

¹ Scoping Memo, p. 3.

² *Id.*

³ *Id.*, pp. 3, 6.

process of reviewing the offers received. As more fully discussed in Chapter 1 of the prepared testimony, PG&E intends to seek Commission review and approval of the contracts and costs associated with permanent generation for the DGEMS Proposal as part of the procurement track of the Integrated Resource Planning (IRP) proceeding.

2) A Temporary Generation Program to provide mobile, temporarily-sited DG at substations, mid-feeder line segments serving commercial corridors and critical facilities, and single-customer critical facilities during PSPS events; and

3) A Community Microgrid Enablement Program (“CMEP”) to provide incremental technical and financial support on a prioritized basis for community requested microgrids for PSPS mitigation purposes.

The DGEMS Proposal seeks to create permanent microgrid capabilities at substations that have historically been safe-to-energize but that were impacted by PSPS events in 2019 because the transmission lines feeding each of the substations were not safe to energize due to wildfire risk. The Make-Ready Program involves upgrading up to 20 of the top candidate substations to provide DGEMS. The Make-Ready Program represents the first tranche of a multi-year program that would include providing DGEMS at up to an additional 28 substations.⁴ The Temporary Generation Program that is part of this Proposal is also designed to support, on a temporary basis, the DGEMS Proposal, in addition to providing temporary generation to support other temporary microgrids that can mitigate PSPS events.

PG&E is striving to collaborate with local communities as part of its broader efforts to develop permanent and temporary microgrid solutions, and it also recognizes the need and potential for solutions that originate within the local communities themselves. The purpose of the CMEP proposed in Chapter 5 of the prepared testimony is to empower local stakeholders to initiate critical facility community microgrid solutions. The CMEP provides a framework in

⁴ PG&E is only seeking approval as part of this Track 1 Proposal for the first tranche of Make-Ready work for DGEMS at substations. If the DGEMS Program is successful, PG&E will separately seek approvals for additional DGEMS work in the future.

which communities bring their innovative ideas and local expertise to the table and PG&E provides utility technical and, as appropriate, financial support for projects that are designed to mitigate PSPS impacts, focusing on the most critical and vulnerable customer groups. The CMEP will include:

- Providing participating local governments with enhanced utility technical support for microgrid projects that serve critical facilities;
- Providing enhanced customer-facing microgrid implementation information and project tools;
- Providing a financial incentive to participating local governments, in the form of a one-time matching funds payment, to offset some portion of the utility infrastructure upgrade costs associated with implementing the islanding function of a critical facility community microgrid; and
- Establishing the incremental tariffs necessary to govern the operational and financial aspects of community-requested microgrids.

PG&E's overall PSPS impact mitigation goals are to: reduce the number of customers affected by PSPS events in 2020 by nearly one-third, relative to the October 26, 2019 PSPS event; cut restoration time for those customers who remain impacted in half; and provide key support to promote societal continuity. The Proposal is a key part of achieving these overall PSPS mitigation goals. As described more fully in Chapter 2 of PG&E's prepared testimony, if the DGEMS work had been implemented for all 20 initial distribution candidate substations prior to the October 9, 2019 and October 26, 2019 PSPS events, PG&E would have been able to keep a total of approximately 138,000 customer meters energized during those events. DG at these distribution substations would have also been able to keep thousands of customers energized in the other 2019 PSPS events.

The three components of this Proposal are designed to work holistically with PG&E's other, ongoing microgrid-related resiliency activities listed in Attachment 1 to this pleading and with the grid-related PSPS mitigation work underway and described in Chapter 1 of PG&E's

prepared testimony to achieve PG&E's overall PSPS mitigation goals in 2020 and beyond. This Proposal is comprised of incremental programs that will help to address the impacts of outages on a near-term basis. PG&E is seeking expedited approval of this Proposal so that it can complete as much of the work as possible before the 2020 fire season.

II. OVERVIEW OF PREPARED TESTIMONY

PG&E's prepared testimony describes the purpose, scope, community engagement, safety, and costs for its Proposal.

Chapter 1 begins with a general description of how the Proposal fits within the broader context of activities that PG&E is undertaking to address PSPS events. It then describes each of the three components of the Proposal for which PG&E is seeking authorization and incremental cost recovery.

Chapter 2 describes how the Make-Ready Program and Temporary Generation Program support the DGEMS Proposal. In doing so, it addresses the DGEMS Proposal's purpose, the public benefits PG&E seeks to secure, the incrementality of the DGEMS Proposal, how the candidate substations were selected, and the applicability of Commission siting requirements.

Chapter 3 provides detailed descriptions of the activities and the associated cost estimates for the Make-Ready Program and the Temporary Generation Program.

Chapter 4 describes PG&E's plans and protocols to ensure the safety of employees, contractors, and the public during development and operation of the substation level microgrids and temporary generation described in other chapters of this testimony.

Chapter 5 describes the conceptual framework for the CMEP. The CMEP would provide incremental technical and financial support on a prioritized basis for community proposed microgrid projects targeting critical facilities and utilizing PG&E's distribution infrastructure that will help to mitigate PSPS impacts. The Chapter addresses the need for the CMEP, the CMEP objectives, the components of the CMEP, key CMEP eligibility criteria and program requirements, and the forecasted costs for the CMEP.

Chapter 6 describes PG&E’s stakeholder consultation and engagement plan for the Proposal, identifying the outreach efforts related to PSPS mitigation that are underway and planned.

Chapter 7 presents PG&E’s results of operations, cost recovery, and ratemaking proposals for the incremental capital expenditures and operating expenses associated with the Make-Ready Program, the Temporary Generation Program, and the CMEP.

Chapter 8 provides declarations from each of the PG&E expert witnesses sponsoring testimony, including statements of qualifications.

III. RESPONSE TO DECEMBER 30, 2019 ALJ RULING

The December 30, 2019 Ruling defined, for the purposes of the Ruling, the phrase “microgrid-related resiliency activities” and directed PG&E to provide specific data with regard to such activities. Attachment 1 to this pleading contains a summary of PG&E’s microgrid-related resiliency activities, including, but not limited to, those included in this Proposal. Attachment 1 also includes separate tables by activity to provide each of the data fields requested in the December 30, 2019 ALJ Ruling.

IV. REQUEST FOR RELIEF

Based upon the facts set forth in the prepared testimony and summarized above, PG&E respectfully requests the Commission issue an expedited decision in Track 1 of this proceeding by the end of March 2020 that includes the following orders and supporting findings:

1. Finds that the proposals for incremental microgrid-related resiliency activities set forth in PG&E’s prepared testimony are just and reasonable and should be adopted on an expedited schedule to address near-term PSPS events;
2. Approves the scope of the Make-Ready Program described in Chapters 2 and 3 of the prepared testimony;
3. Authorizes PG&E to recover up to \$135.975 million in capital additions through distribution rates in order to implement the Make-Ready Program without further reasonableness review, in the manner described in Chapter 7 of the prepared testimony;

4. Approves the scope of the Temporary Generation Program described in Chapters 2 and 3 of the prepared testimony;
5. Authorizes PG&E to recover up to \$173.30 million in expense costs through distribution rates in order to implement the Temporary Generation Program without further reasonableness review, in the manner described in Chapter 7 of the prepared testimony;
6. Approves the conceptual framework for the CMEP described in Chapter 5 of the prepared testimony;
7. Authorizes PG&E to recover up to \$60.75 million in capital and \$9.0 million in expense costs through distribution rates in order to implement the CMEP, in the manner described in Chapter 7 of the prepared testimony;
8. Authorizes PG&E to establish a new two-way Microgrids Balancing Account to record the difference between the revenue requirement based on the forecasted capital and operational expenditures and the revenue requirement based on the actual operational expenditures and actual capital additions associated with (a) the Make-Ready Program; (b) the Temporary Generation Program; and (c) the CMEP;
9. Authorizes PG&E to record any capital or expense costs actually incurred that exceed the forecasts set forth in Chapters 3, 5, and 7 of the prepared testimony for the Make-Ready Program, the Temporary Generation Program, and the CMEP, into a new Microgrids Memorandum Account and to seek recovery of those costs through the filing of a separate Tier 3 Advice Letter, subject to review of the reasonableness of the costs in excess of forecasts;
10. Directs PG&E to file a Tier 1 advice letter within 30 days of the issuance of a final decision in Track 1 of this Proceeding to: (a) modify the Distribution Rates Adjustment Mechanism preliminary statement for the purposes set forth in Chapter 7 of the prepared testimony; (b) establish a Microgrids Balancing Account for the purposes set forth in Chapter 7 of the prepared testimony; and (c) establish a Microgrids Memorandum Account for the purposes set forth in Chapter 7 of the prepared testimony;
11. Directs PG&E to submit a Tier 3 Advice Letter within 60 days of the issuance of a final decision in Track 1 of this proceeding that establishes the final implementation details for the CMEP;
12. Directs PG&E to submit annual Tier 1 Advice Letters until the last of the Programs contemplated by this Proposal is completed to report on work completed in each Program, the groups of customers that benefitted from the work in each Program, the participation rate in the CMEP, and the actual versus forecasted costs expended in each Program. The first such

annual Advice Letter should be submitted on or before the date that falls on the last day of the month twelve months after the issuance of any final Commission decision approving the Proposal; and

13. Provides any other relief that the Commission may deem just and reasonable.

V. CONCLUSION

PG&E appreciates the opportunity to present its Proposal to the Commission and to the other stakeholders in this proceeding. This Proposal is an urgent part of PG&E's overall PSPS mitigation plan to reduce the impacts of future PSPS events on PG&E's customers. The proposed Make-Ready Program, Temporary Generation Program, and CMEP identify key opportunities for near-term action and to enhance coordination with local community initiatives and proposals. The Commission should move forward with its intention to approve a decision in Track 1 of this proceeding in the Spring of 2020, and it should include the relief requested above as part of that decision.

Respectfully Submitted,

By: /s/ M. Grady Mathai-Jackson
M. GRADY MATHAI-JACKSON

Pacific Gas and Electric Company
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-3744
Facsimile: (415) 973-5520
E-Mail: Grady.Mathai-Jackson@pge.com

Attorneys for
PACIFIC GAS AND ELECTRIC COMPANY

Dated: January 21, 2020

Attachment 1
Response to December 30, 2019 ALJ Ruling Requesting Information on Microgrid-Related Resiliency Activities that PG&E is Proposing or Planning in 2020 and Beyond

PG&E Track 1 Proposal in R.19-09-009

I. INTRODUCTION

Pursuant to the December 30, 2019 Administrative Law Judge Ruling, PG&E hereby submits information on its planned and proposed microgrid-related resiliency activities in 2020 and beyond. PG&E is planning or proposing the following microgrid-related activities:

- Distributed Generation-Enabled Microgrid Services (DGEMS) at Substations: The DGEMS Substation program is focused on siting local generation at certain prioritized substations that could have safely delivered power to customers if not for 2019 transmission-related outages that were the result of Public Safety Power Shut-Off (PSPS) events. Elements of this DGEMS proposal are included in PG&E's Track 1 Proposal in the Microgrid and Resiliency Strategies Rulemaking (R.19-09-009).
- Temporary Microgrids: In 2020 and beyond, PG&E is expanding its deployment of temporary microgrids designed to energize islanded areas within towns impacted by PSPS events, thereby enabling some community resources to continue serving the surrounding population. These microgrids may utilize pre-installed interconnection hubs to safely and rapidly interconnect temporary generation. In PG&E's General Rate Case and Wildfire Mitigation Plan filings, these have also been referred to as "Resilience Zones."
- Backup Power Support for Societal Continuity: PG&E encourages customers to have a plan, which may include backup power in the event their power is turned off due to a PSPS event. However, recognizing that unforeseen circumstances may arise, PG&E may deploy backup generation support in exceptional cases involving public health, safety, or environmental risks, or to enable emergency operations of first responders and other infrastructure critical to support societal continuity.
- Community Microgrids Enablement Program (CMEP): The CMEP is a new program proposal that PG&E is submitting in its Track 1 Proposal in the Microgrid and Resiliency Strategies Rulemaking (R.19-09-009). The objective of the CMEP is to support communities in designing microgrids by providing enhanced technical support, improved access to relevant utility information, financial support for qualifying projects up to a budget established in this proceeding, and through the development of one or more tariffs to support the accounting for the flows of services, energy, and costs between the parties.
- Remote Grid Initiative (RGI): The RGI is a new utility service concept using decentralized energy sources for permanent energy supply to remote customers as an alternative to energy supply through hardened traditional utility infrastructure. Throughout PG&E's service territory, there are pockets of isolated small customer loads that are currently served via long electric distribution feeders, or until recently have been served by such feeders (but are now disconnected due to damage from recent wildfires). In many circumstances, these feeders traverse through High Fire Threat District (HFTD) areas. If these long feeders were removed and the customers served from a local and

decentralized energy source, the resulting reduction in overhead lines could reduce fire ignition risk as an alternative to or in conjunction with system hardening.

- Redwood Coast Airport Microgrid Project: Under an EPIC grant, PG&E has been working collaboratively with Redwood Coast Energy Authority and the Schatz Energy Research Center to develop and operate a multi-customer microgrid and to respond to the community's desire for enhanced resilience. This project will demonstrate and inform scalable approaches for how to plan, deploy, and operate multi-customer microgrids. The microgrid will consist of a DC-coupled 2 megawatt (MW) solar photovoltaic (PV) and 2 MW/4 hour battery energy storage system, a 320 kilowatt net-metered PV system, two microgrid controllers, four electric vehicle chargers, and communications infrastructure for visibility and control at the PG&E Distribution Control Center. The microgrid is planned to be online in early 2021.

In Section II below, PG&E provides additional detail about the type of microgrid, magnitude of expenditure, and type of benefits for each of the aforementioned activities.

In addition, PG&E considers the following programs and activities to be microgrid-related since they may allow for customers or facilities to be powered during a wider grid-outage:

- Self-Generation Incentive Program (SGIP): PG&E provides financial incentives for customers installing new, qualifying equipment for storing and generating energy. Currently, SGIP funds mostly energy storage (88%) and only certain renewable generation technologies. Furthermore, most of the funds and the highest incentive is available for critical resiliency customers impacted by PSPS or located in areas of extreme or elevated wildfire risk. SGIP allows customers to improve resiliency by installing other behind-the-meter (BTM) resources that could be paired with energy storage to create a microgrid and operate in islanded mode during a wider grid outage.
- Single-customer behind-the-meter (BTM) microgrids: As part of the Rule 21 interconnection process, PG&E's Electric Generation Interconnection (EGI) department commonly processes customer applications for solar-plus-storage projects and also other forms of technologies that, when paired, are capable of creating a BTM microgrid, and may allow a customer to be disconnected from the wider grid and be powered by those resources in an islanded mode. In 2019, PG&E processed approximately 4,330 of solar-plus-storage interconnection requests.
- Hardened Community Resource Centers: In response to community feedback during the 2019 PSPS events, PG&E is establishing a dedicated team to convert the Community Resource Centers (CRC) mobilized in 2019 from outdoor parking lot tent facilities to indoor public facilities for the 2020 fire season. For example, PG&E is planning to use libraries, community centers, school gymnasiums as future CRC sites, and is working with County Offices of Emergency Services to identify locations in every county served by PG&E. PG&E would use temporary mobile generation to power the CRC sites.
- Temporary generation for planned and unplanned outages: PG&E utilizes temporary generation during planned outages, to minimize customer impacts for planned maintenance work, or during unplanned outages, to rapidly restore customers when traditional restoration efforts (repair or switching) will be of significant duration.

II. REPORT ON PLANNED MICROGRID-RELATED RESILIENCY ACTIVITIES

A. Distributed Generation-Enabled Microgrid Services (DGEMS) At Substations

Year	2020 – forward
Location (County)	<p>As detailed in the prepared testimony accompanying this filing in R.19-09-009, PG&E is proposing to install DGEMS at up to 20 substations beginning in 2020. PG&E issued a Request for Offers on December 11, 2019 to solicit bids for distributed generation sited at or near each substation to enable the microgrids at each of the following substations:</p> <ul style="list-style-type: none"> • San Rafael Substation (San Rafael, CA) • Highway Substation (American Canyon, CA) • Molino Substation (Sebastopol, CA) • Alto Substation (Mill Valley, CA) • Las Gallinas A Substation (San Rafael, CA) • Fort Bragg A Substation (Fort Bragg, CA) • Ignacio Substation (Novato, CA) • Willits Substation (Willits, CA) • Carquinez Substation (Vallejo, CA) • Greenbrae Substation (Greenbrae, CA) • Windsor Substation (Windsor, CA) • Konocti Substation (Kelseyville, CA) • Brunswick Substation (Grass Valley, CA) • Ukiah Substation (Ukiah, CA) • Clear Lake Substation (Lakeport, CA) • Tyler Substation (Red Bluff, CA) • Cloverdale Substation (Cloverdale, CA) • Highlands Substation (Clearlake, CA) • Middletown Substation (Middletown, CA) • Big River Substation (Mendocino, CA)
Magnitude of expenditure	<p>The total cost of these projects is unknown until the DGEMS RFO is complete and CPUC approval is received. Cost recovery for the permanent generation solicited in the RFO will be requested in the procurement track of the Integrated Resource Planning (IRP) proceeding because PG&E intends that these generation resources will both enable PSPS-related microgrids and also provide Resource Adequacy to meet IRP goals at other times.</p> <p>PG&E is submitting testimony in this Microgrid and Resiliency Strategies Rulemaking (R.19-09-009) seeking approval of cost recovery for \$135.98 million to make the necessary substation upgrades (Make-Ready Program) to enable the substations to receive either permanent or temporary generation. Portions of the temporary generation reserved and leased from third parties pursuant to the Temporary Generation Program also proposed in Track 1 of this Rulemaking may be used to power DGEMS substations during PSPS events until the permanently sited distributed generation is operational. PG&E forecasts the total cost of the Temporary Generation</p>

	Program, which includes deployment for other PSPS mitigation purposes, to be \$173.30 million, as further described in the accompanying prepared testimony.
What type of activity?	Construction and operation
What type of microgrid?	<ul style="list-style-type: none"> • In-front-of-the-meter • Average nameplate capacity: PG&E is seeking bids based on the peak load for each of the 20 substations, which varies from 4 MW to 69.69 MW. • Duration: The RFO requirements include meeting substation peak load with no transmission energy supply for four consecutive days (96 hours) or two consecutive days (48 hours) without any customer load drop. • Generator/Storage technology: Any technology (or combination of technologies) that can meet operational and technical requirements (i.e. load following capability, load range, cold load capacity, volt/var control capability, space constraints) and be able to operate for 2 or 4 days consecutively in the event of a PSPS event.
What type of benefits?	<p><u>Community resilience</u>: This activity provides the greatest number of customers in communities most impacted by past PSPS events higher levels of expected reliability during future PSPS events.</p> <p>Benefits of the DGEMS Program are the provision of continuous service to the greatest number of customers, including vulnerable customers and critical facilities, where it is projected to be safe to do so during future PSPS events.</p> <p>If the DGEMS Proposal for all 20 distribution substations was implemented prior to the October 9, 2019 event and the October 26, 2019 event, PG&E would have been able to keep a total approximately 138,000 customer meters energized during those events, including medical baseline, police/fire stations, schools, and water and water treatment facilities. Further data is provided on the customer benefits by substation and by customer type in Chapter 2 of PG&E’s prepared testimony.</p> <p>The benefits of a DG-enabled microgrid with DG co-located at or near to one of the identified 20 distribution substations will vary depending upon the weather conditions that trigger a particular future PSPS event.</p>
In what venue, if any, has the planned activity been proposed or documented?	The procurement of permanent DGEMS resources for substations is being proposed as part of the separate Integrated Resource Planning (IRP) proceeding’s procurement track, and PG&E will seek approval and cost recovery for the permanent generation in that separate proceeding.
Has cost recovery for expenditures been requested and/or granted?	<p>As mentioned above, PG&E will seek approval and cost recovery for the permanent generation through the IRP.</p> <p>PG&E is seeking cost recovery in this proceeding (R.19-09-009) to engineer and construct additional infrastructure at the substations in order</p>

	to make them ready (make-ready work) for the integration of permanent or temporary distribution generation resources. PG&E is also seeking to recover the cost for leasing and reserving temporary generators that may be used on an interim basis for the DGEMS program.
Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.	PG&E is seeking incremental cost recovery relief for the make-ready work and for temporary mobile generation that could be used for DGEMS at substations or for other uses as further discussed in Chapter 2 and 3 of PG&E’s Testimony. PG&E’s cover pleading for its Track 1 Proposal in R.19-09-009 lists the findings and orders that it seeks in order to implement this DGEMS program.

B. Temporary Microgrids

Year	2020 GRC proposal: 2020 – 2022
Location (County)	<p>Target locations are communities projected to experience frequent PSPS impacts, which feature a cluster of shared resources (<i>i.e.</i>, commercial corridors and critical facilities) and electric infrastructure that can be safely energized during a PSPS event without major modifications other than the installation of a pre-installed interconnection hub (PIH).</p> <p>Pilot project was completed in Napa County in 2019. Additional projects are nearing construction phase in Shasta, El Dorado, and Napa Counties. Further projects are currently being screened for over ten additional counties.</p>
Magnitude of expenditure	<p>GRC proposal: \$47 million for infrastructure development at up to 40 temporary microgrid sites.</p> <p>Track 1 Proposal for Temporary Generation Program (to energize temporary microgrids among other use cases): \$173.3 million.</p>
What type of activity?	Construction and operation
What type of microgrid?	<ul style="list-style-type: none"> • In-front-of-the-meter • Average nameplate capacity: 4 MW • Duration: 4 days (potential duration of a PSPS event) • Generator technology: Any technology that can meet operational requirements (<i>i.e.</i> load following capability, load range, cold load capacity, volt/var control capability, space constraints, product mobility) • Storage technology: Current projects related to this activity do not include storage technology. However, this is an area PG&E will explore in the future.

	<ul style="list-style-type: none"> Fuel source: Primarily diesel expected in 2020. PG&E is actively testing and seeking alternatives with lower emissions and noise profiles.
What type of benefits?	<u>Community resilience</u> : This activity provides power continuity to shared services (e.g., commercial corridors and critical facilities) that may enable access to fuel, food, shelter, hygiene, and/or emergency services to surrounding population during PSPS events.
In what venue, if any, has the planned activity been proposed or documented?	Activity was proposed in 2020 General Rate Case, including cost recovery for program management and pre-installed infrastructure. Activity was documented in 2019 Wildfire Safety Plan and will be documented in 2020 Wildfire Mitigation Plan. Mobile generation component of this activity is included in PG&E’s Temporary Generation Program, which is proposed in Track 1 of the Microgrid and PSPS Resiliency Rulemaking (R.19-19-009) and described further in the prepared testimony supporting PG&E’s proposal.
Has cost recovery for expenditures been requested and/or granted?	Requested
Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.	As noted above, PG&E proposed the installation of PIHs in its 2020 GRC. PG&E is seeking incremental cost recovery for the procurement of the mobile generation component to connect to the PIH (and for use in other PSPS mitigation use cases) for the temporary microgrids in Track 1 of this proceeding (R.19-09-009). The relief is necessary so PG&E can ensure mobile generation is available to it for use during PSPS events to power the temporary microgrids.

C. Backup Power Support for Societal Continuity

Year	2020
Location (County)	Locations will vary by PSPS event. PG&E may deploy backup generation support in exceptional cases involving public health, safety, or environmental risks, or to enable emergency operations of first responders and other infrastructure critical to support societal continuity. During the 2019 October and November PSPS events, PG&E deployed backup generation support to 41 different sites across 14 counties, with a peak deployment of approximately 41 megawatts (MW) concurrently supporting 26 sites at one time. Customers supported by PG&E with temporary generation included transportation tunnels, water treatment and

	pumping facilities, medical centers, 911 dispatch centers, jails, and fire departments.
Magnitude of expenditure	Track 1 Proposal for Temporary Generation Program (to energize temporary mid-feeder microgrids among other use cases): \$173.3 million. Approximately \$20 million of this would be used to reserve and operate a 40 MW fleet available for societal continuity sites.
What type of activity?	Operation
What type of microgrid?	<ul style="list-style-type: none"> • In-front-of-the-meter and behind-the-meter. Microgrid type will depend on facility. • Nameplate capacity can range from 50 kW – multi-MW depending on facility. • Duration: 4 days (potential duration of a PSPS event) • Generator technology/fuel source: While diesel mobile generators were utilized in 2019, PG&E is actively testing and seeking alternatives with lower emissions and noise profiles.
What type of benefits?	<u>Societal continuity</u> : Mitigate risks to public health, public safety, environment and/or enable emergency operations of first responders and other infrastructure critical to societal continuity.
In what venue, if any, has the planned activity been proposed or documented?	Activity is proposed in Track 1 of the Microgrid and PSPS Resiliency Rulemaking (R.19-19-009). Further detail is provided in the prepared testimony supporting that proposal. Activity will also be documented in 2020 Wildfire Mitigation Plan.
Has cost recovery for expenditures been requested and/or granted?	Requested
Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.	PG&E is seeking incremental cost recovery relief in this proceeding (R.19-09-009) for the procurement of the mobile generation to ensure it is available to deploy in exceptional cases involving public health, safety, or environmental risks, or to enable emergency operations of first responders and other infrastructure critical to support societal continuity.

D. Community Microgrid Enablement Program (CMEP):

Year	2020 – 2022
Location (County)	The program would be available to communities throughout PG&E’s service territory
Magnitude of expenditure	\$69.75 million over three years
What type of activity?	Construction and operation
What type of microgrid?	<ul style="list-style-type: none"> • The CMEP would be available to multi-customer, community-scale (front-of-meter) microgrids that meet eligibility criteria designed to reduce impacts of PSPS events with a focus on vulnerable communities and populations. • The nameplate capacity, technology, and fuel source of both generation and storage would be determined by the participating communities.
What type of benefits?	<ul style="list-style-type: none"> • The number of accounts and types of accounts is dependent upon the actual projects that communities select for participation in the CMEP. • The CMEP is specifically designed to deliver critical facility resilience for the benefit of local communities.
In what venue, if any, has the planned activity been proposed or documented?	PG&E is proposing a conceptual framework for the CMEP and cost recovery for the Program in Track 1 of the Microgrid and Resiliency Strategies Rulemaking (R.19-09-009). More information on the Program is included in PG&E’s prepared testimony in support of its Track 1 Proposal.
Has cost recovery for expenditures been requested and/or granted?	PG&E is seeking cost recovery in R.19-09-009, as noted above.
Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.	PG&E is requesting approval of the CMEP and associated cost recovery in R.19-09-009. If the concept is approved as proposed in Track 1 of R.19-09-009, PG&E is requesting authority to file a Tier 3 Advice Letter in a subsequent phase to establish, in consultation with local governments, the detailed implementation requirements and processes for the CMEP.

E. Remote Grid Initiative:

PG&E’s Remote Grid Initiative will validate and develop Remote Grid solutions as standard offerings so that they can be considered alongside of or in lieu of other service arrangements and/or wildfire risk mitigation activities such as system hardening. In 2020 PG&E currently plans to deploy at least 4-8 initial sites to validate use cases, design standards, deployment processes and commercial arrangements. Based on the results of the initial projects, PG&E will deliver recommendations for scale up and/or further development for consideration in 2021 and beyond.

Year	2020. Based on the results of the initial pilot projects in 2020, PG&E will deliver recommendations for scale up and/or further development for consideration in 2021 and beyond.
Location (County)	This program is primarily targeting locations with isolated and small customer loads that are currently served via long electric distribution feeders through high fire risk areas. Projects are nearing the construction phase in San Luis Obispo County. Further projects are currently being considered in ten additional counties.
Magnitude of expenditure	\$2.5 million - \$6.5 million for approximately 8 projects
What type of activity?	The Remote Grid Initiative is currently in the pilot stage. PG&E plans to deploy at least 4-8 initial pilot projects to validate use cases, design standards, deployment processes and commercial arrangements. Pilot Construction and Operation is planned to take place in 2020.
What type of microgrid?	<ul style="list-style-type: none"> • In-front-of-the-meter • Average Nameplate capacity: 20 kilowatt (kW) • Duration: Permanently islanded stand-alone power systems (365 days 24/7) • Generator technology and fuel source: Currently assessing configurations of hybrid renewable generation systems including combinations of solar, battery energy storage, fuel cells and/or propane-fired reciprocating generators.
What type of benefits?	<p>Primary PSPS-related benefit is to reduce fire ignition risk by eliminating overhead lines in high fire risk areas.</p> <p>Additional benefits in the PSPS context include:</p> <ul style="list-style-type: none"> • Elimination of overhead lines will reduce the scope of inspections after a PSPS de-energization and could result in faster restoration of service • Customers with remote grid service may not be subject to PSPS de-energization with the same frequency <ul style="list-style-type: none"> ○ Customer impact in 2020: 10-50 customer meters. <p>Outside of the PSPS context, RGI is expected to yield cost savings relative to the forecasted cost of constructing, hardening, and/or maintaining existing and new grid infrastructure that would no longer be needed.</p>
In what venue, if any, has the planned activity been proposed or documented?	PG&E has not proposed or documented the RGI in any formal CPUC proceeding to date.

Has cost recovery for expenditures been requested and/or granted?	PG&E has not yet requested or determined the appropriate cost recovery for RGI projects. The RGI is designed to substitute for certain capital and expense distribution projects. Accordingly, for the limited projects planned for 2020, PG&E will provide further information on its cost recovery proposals after further development and planning for the 2020 RGI projects.
Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.	PG&E will provide information to the Commission staff regarding the progress of the 2020 RGI pilots and additional information in the Microgrids and Resiliency Services Rulemaking (R.19-09-009) as requested and relevant. Depending on the outcome of the pilot projects, PG&E may in the future seek Commission approval for new tariffs or form customer agreements associated with the RGI, and it may seek up-front approval for incremental cost recovery associated with an expanded RGI.

F. Redwood Coast Airport Microgrid (RCAM):

Year	Planned online date of 2021
Location (County)	Humboldt County
Magnitude of expenditure	PG&E's project costs include \$2.2M (\$2,199,314) in EPIC funds.
What type of activity?	PG&E's roles in this project include lab testing, construction, and operation.
What type of microgrid?	<ul style="list-style-type: none"> • The RCAM is a front-of-the-meter, multi-customer microgrid • The generation and storage sources are <ul style="list-style-type: none"> ○ a 2.2 MW Photovoltaic (PV) array direct current (DC)-coupled to a 2.2 MW/8.8 MWh lithium-ion battery storage unit ○ 320 kW PV array
What type of benefits?	The RCAM will serve roughly 20 retail accounts, including both bundled and unbundled customers. The project is designed to deliver a range of benefits, including: <ul style="list-style-type: none"> • Solving key outstanding operational, technical and transactional issues associated with multi-customer microgrids; • Demonstrating a viable, replicable business model for a community microgrid; • Providing resilience to key local critical facilities, including the California Redwood Coast-Humboldt County Airport and a US Coast Guard facility
In what venue, if any, has the planned activity been proposed or documented?	The RCAM project was approved through EPIC processes.

<p>Has cost recovery for expenditures been requested and/or granted?</p>	<p>PG&E is applying \$2.2M of EPIC funds to this project.</p>
<p>Please describe what additional Commission action or relief is requested for each microgrid-related resiliency activity described in Part I and why it is needed? If no additional action or relief is required, please explain why not.</p>	<p>None at this time. The project funds were previously approved by the CPUC and program authorization was provided by the California Energy Commission (CEC).</p>