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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 (Filed September 12, 2019)

RESPONSE OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) WITH PROPOSALS REQUESTED BY SCOPING MEMO AND INFORMATION REQUESTED BY ALJ RULING

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Pursuant to the scoping memo[1] and Judge Rizzo's December 30, 2019, ruling,[2] San Diego Gas & Electric Company ("SDG&E") submits this response. The scoping memo (at 3) directed respondent investor-owned utilities ("utilities") to submit "proposals for immediate implementation of resiliency strategies, including partnership and planning with local government" by January 21, 2020. The ruling (at 5) directed the utilities, for the purposes of their January 21, 2020, proposals, to answer and include information on the issues itemized in the ruling, and, for the purposes of this filing, asked the utilities to:

> … use an inclusive definition of the phrase "microgrid-related." At a minimum, any activities related to the following should be included:
>
> - Projects that conform with the definition of microgrid provided in SB 1339; and
> - Activities that enable load to be served during a wider grid outage, such as a public safety power shutoff, including temporary backup generation.

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1 *Assigned Comm'r's Scoping Memo and Ruling for Track 1* (December 20, 2019).

2 *Email Ruling Directing Respondents to Address Ruling Questions as part of their January 21, 2020 Proposal* (December 30, 2019) ("ruling"). Citations to the ruling are to the version published on the Commission website.

I. HOW THIS RESPONSE PRESENTS ACTIVITIES AND PROPOSALS PURSUANT TO THE SCOPING MEMO AND THE RULING

Below, and in the matrix Attachment hereto, SDG&E provides its summary on "planned microgrid-related resiliency activities" per Part I of the ruling (at 5-6), including the proposed Commission actions for the planned activities as described in Part II of the ruling (at 6). This response concludes with SDG&E's proposals for immediate implementation, as directed by the scoping memo. To be clear, SDG&E reads the scoping memo to request the respondent utilities to propose new projects and identify authorized projects, with an emphasis on mitigating outages for the upcoming fire season, and the ruling to ask respondents to provide certain information on all activities related to microgrids as broadly-defined in the ruling. SDG&E has structured its response based on this reading of these directives.

SDG&E is engaged in ongoing system resiliency activities already in process as authorized in other proceedings, notably the 2019 Wildfire Mitigation Plan ("WMP") ("2019 WMP"), and as will be described in SDG&E's upcoming 2020 WMP, which will be submitted on February 7, 2020.[3] In addition, SDG&E filed its Risk Assessment Mitigation Phase ("RAMP") report on November 27, 2019 ("2019 RAMP Report"),[4] which further describes SDG&E's ongoing wildfire mitigation strategies. In response to the scoping memo and the ruling, this response provides information and activities contained in SDG&E's RAMP and 2019 WMP; however, the RAMP and 2019 WMP are far more expansive and provide a comprehensive description of SDG&E's current wildfire mitigation programs. SDG&E continues to review and refine its strategies for dealing with wildfires and the impacts on its

[3] Rulemaking ("R.") 18-10-007.

[4] Investigation ("I.")19-11-011, *Order Instituting Investigation into … [SDG&E's] Risk Assessment and Mitigation Phase November 2019 Submission*.

customers, and will capture those updates in its 2020 WMP. Many of the activities described in SDG&E's WMPs, including microgrids, have involved interaction with local governments and state agencies.

Pursuant to the scoping memo, this submission requests approval of two additional proposals that can be implemented by the end of 2020. The first is procurement of a local area distribution controller ("LADC") or field level microgrid controller. An LADC is a software and hardware solution that enables the distribution grid operator to monitor, manage and control the component resources of the microgrid, as described herein. SDG&E conducted an open and competitive solicitation, supervised by an independent evaluator, to select the specific LADC proposed herein. Because the winning bidder is a subsidiary of SDG&E's parent company, Sempra Energy, SDG&E requires Commission approval prior to deploying the LADC, per the affiliate transaction rules. SDG&E seeks approval here rather than by Tier 3 advice letter, because under the scoping memo's schedule,[5] approval of the LADC in this context will permit timely deployment of several microgrid projects as further described herein.

SDG&E's second proposal would install electrical infrastructure and electrical vehicle ("EV") charging stations at critical facilities within the microgrids that SDG&E is deploying in anticipation of the 2020 fire season. This charging infrastructure would mitigate customer mobility issues arising from a public safety power shutoff ("PSPS"), including emergency evacuation.

[5] The scoping memo (at 3) aims for "a decision giving direction for mitigation measures ready for implementation by September 1, 2020."

To provide perspective on the matters described herein, SDG&E begins by explaining the foundation of its fire resiliency efforts, current activities designed to mitigate PSPS events in 2020, and the proposals for which SDG&E requests approval in this response.

II. SDG&E's MICROGRID RESILIENCY ACTIVITIES DERIVE FROM ITS EXPERIENCE SINCE THE 2007 FIRES AND REPRESENT ONGOING EFFORTS PRECEDING THIS OIR

The scoping memo and ruling in this proceeding reflect an appropriate response to concerns over the October 2019 PSPS events. The activities described in section III below, and the proposals submitted in section IV (which are both summarized in the Attachment with the related data requested by the ruling), are best understood in the context of SDG&E's efforts over the past twelve years to address wildfire risk by building system resilience.

SDG&E's efforts to mitigate wildfire risks and enhance grid resilience began in 2007 after San Diego experienced some of the most destructive wildfires in the county's history. Initially, this involved establishing a company-wide fire-awareness culture and prioritizing safe work practices. SDG&E hired subject matter experts in firefighting, fire science, and meteorology who have developed and implemented programs to enhance situational awareness, which increases SDG&E's ability to monitor and understand the wildfire environment. This level of understanding led to changes in operational procedures to reduce the potential for ignitions associated with utility infrastructure during periods of elevated fire potential. SDG&E established customer and local agency outreach programs to educate customers and stakeholders on the wildfire risk and maintain open lines of communication during hazardous conditions. In 2018, SDG&E formalized a Fire Science and Climate Adaption department comprised of meteorologists, community resiliency experts, fire coordinators and project management personnel. This department's purpose is responding to and planning for SDG&E's fire preparedness activities and programs. It will continuously evaluate new and

emerging technologies. SDG&E's meteorology program includes a network of 190 weather stations that are physically located on electric distribution and transmission poles which allows monitoring of near real-time weather conditions. SDG&E's weather data is available to all SDG&E employees, local governments, weather agencies, fire agencies, educational facilities, and the general public.[6] This meteorology effort permits early warning of fire threats and more specific targeting of PSPS, including duration. SDG&E also assists local government public safety efforts by establishing community resource centers ("CRCs"),[7] and providing air attack assets for firefighting.[8]

The meteorology, CRCs, air attack assets, and SDG&E's emergency response generally involve extensive cooperation and planning with local governments and state agencies.

Additionally, SDG&E focused on hardening its electric transmission and distribution systems, particularly in rural areas where vegetation, weather conditions, and topography often align to increase the potential for catastrophic wildfires (*i.e.,* the high fire threat district, or "HFTD").[9] Ongoing infrastructure hardening projects have targeted high-risk fire areas to increase electric system resiliency and reduce wildfire ignition potential. The benefits of such hardening include raising the threshold where PSPS must be considered, thereby reducing the

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6 *See* I.19-11-011, 2019 RAMP Report at SDG&E 1-56 to 1-62.

7 SDG&E established CRCs to help communities during extreme weather events. To date, eleven customer-owned facilities in the HFTD have been used as CRCs, located specifically in areas most likely to be affected by a PSPS to serve as CRCs. *See* 2019 RAMP Report at SDG&E 1-79.

8 "SDG&E has developed and implemented an effective, year-round aerial firefighting program to support the fire agencies in its service territory. SDG&E has two aerial assets available for the purpose of helping fight fires." *See* 2019 RAMP Report at SDG&E 1-81 to 1-82.

9 In R.15-05-006, *Order Instituting Rulemaking to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations* (May7, 2015), the Commission led the development of a statewide fire threat map to designate areas, called the HFTD, where there is an elevated risk of powerline fires, and where enhanced fire safety regulations would apply. The Commission's fire map, which shows the HFTD, is available at https://ia.cpuc.ca.gov/firemap/.

frequency and duration of PSPS for hardened segments. SDG&E's vegetation management program mitigates wildfire risk and supports electric system resiliency by maintaining proper tree and brush clearances to minimize vegetation-related impacts.

SDG&E has also worked to improve its sectionalizing capability, enabling it to segment targeted system outages in a more granular fashion, thereby reducing the number of customers affected, whether for PSPS or for other safety reasons. These efforts are ongoing.

With the increasing impacts from climate change, community growth, and other societal forces, SDG&E's wildfire risk mitigation strategy will continue to evolve. SDG&E's 2019 WMP[10] describes the foregoing projects, and the plans to expand system hardening projects and incorporate additional wildfire mitigation activities into SDG&E's resilience practices.[11] While SDG&E's efforts since 2007 may have identified much of the "low-hanging fruit" available to mitigate wildfire risk, SDG&E has built the teams and infrastructure to continue to pursue such mitigation, and welcomes the opportunity to communicate and refine SDG&E's ongoing mitigation development and implementation.

III. MICROGRID AND OTHER RESILIENCY ACTIVITIES

SDG&E provides the following in response to Part I of the ruling. Note that specific activities described in the narrative below are listed in the Attachment to this response, with the related data requested in the ruling.

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[10] Approved in D.19-05-039. Pursuant to the scoping memo in R.18-10-007 (December 7, 2018), SDG&E filed its initial WMP on February 6, 2019 and will submit its next WMP February 7, 2020.

[11] SDG&E's approved 2019 WMP sets forth a framework for SDG&E to develop such infrastructure, which could include microgrids, subject to approval of any project costs in a general rate case or separate application. This framework is described in SDG&E's 2019 WMP at section 4.3.20, pp. 40-41. The current approved 2019 WMP is found at: https://www.sdge.com/sites/default/files/regulatory/R.18-10-007%20SDG%26E%20Wildfire%20Mitigation%20Plan.pdf

A. Microgrid activity conforming to the Senate Bill ("SB") 1339 definition (ruling at 5)

1. SDG&E has substantial microgrid development and operation experience

As a preliminary matter, SDG&E notes that it has historical experience in microgrid development, construction and operation, beginning with its storage-supported microgrid solution to serve an isolated portion of SDG&E's system, which has been in operation since 2010. Borrego Springs is a small, isolated desert community located in northeast San Diego County, fed only by a single radial sub-transmission line.[12] The Borrego Springs microgrid project uses advanced technologies to provide additional resiliency, and is capable of powering the entire community of Borrego Springs during planned grid maintenance and forced outages, thus avoiding or mitigating major service interruptions to these isolated customers. The Borrego Springs microgrid deploys onsite generation and energy storage to serve multiple circuits which integrate third-party owned renewables at service-level voltages for specific customer sites. In addition to onsite generation and energy storage systems, SDG&E can re-energize Clearway Energy's nearby de-energized 26 MW Borrego Solar facility as needed to supply electricity to all 2,800 customers in the area during certain island configurations. The microgrid is connected to the centralized (albeit radially-served) energy grid, but can disconnect from the larger grid and function independently during emergencies, which may include severe weather events across the service territory. The radial line that serves Borrego Springs traverses substantial HFTD territory.

[12] *See,* Department of Energy, Microgrids at Berkeley Lab, *Borrego Springs* (2019), available at https://building-microgrid.lbl.gov/borrego-springs

2. SDG&E's current microgrid for resiliency efforts

Building upon its wildfire mitigation investments and microgrid experience, SDG&E plans to deploy microgrids where they promote public safety, including mitigating the impacts of PSPS events. As highlighted in SDG&E's comments on the preliminary scoping memo in this proceeding,[13] SDG&E's approved 2019 WMP includes a program ("Backup Power for Resilience"),[14] pursuant to which SDG&E will develop infrastructure to provide backup power to strategic locations (*e.g.*, fire stations, medical centers, schools, evacuation centers, and others) to ensure resiliency for communities impacted by PSPS events. Such infrastructure will include microgrids as appropriate. Due to the ever-increasing high fire threat conditions and the use of PSPS events as a mitigation measure, SDG&E plans to deploy Backup Power for Resilience microgrid projects where appropriate and prudent to mitigate the impacts of PSPS events to affected communities. SDG&E anticipates providing further discussion of such projects, and requests for approval, as appropriate, in its upcoming 2020 WMP. SDG&E also identified these Backup Power for Resilience – Microgrids in its SDG&E 2019 RAMP Report.[15] In that filing, SDG&E notes that it examines various criteria to determine if a microgrid is an appropriate solution to mitigate the impacts of PSPS. Such criteria could include:

- Identifying the critical facilities and the impact of PSPS events (*e.g.*, number and duration) in that area;

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[13] *Comments of … [SDG&E] on Preliminary Scoping Memo Issues* (October 21, 2019) at 8-9.

[14] SDG&E's 2019 WMP does not specifically identify projects as such, but it sets forth a framework for SDG&E to develop such projects, which could include microgrids, subject to approval of any project costs in a general rate case or via separate application. This framework is described in SDG&E's WMP at section 4.3.20, pp. 40-41.

[15] I.19-11-011, 2019 RAMP Report at SDG&E 1-45 to I-47. 2019 RAMP Report, Chapter SDG&E-1, available at https://www.sdge.com/sites/default/files/regulatory/SDG%26E-1%20Wildfire%20Risk%20FINAL.pdf

- Determining the proximity of the strategic locations in relation to one another (to determine necessary undergrounding);
- Identifying available land and its proximity to a point of interconnection;
- Determining the load profile and electric needs of these facilities;
- Determining the appropriate solution (*e.g.*, solar with storage, generator with storage, storage alone); and
- Determining the feasibility of the solution from a cost perspective.[16]

B. SDG&E has several microgrids currently in development

As discussed in its 2019 RAMP Report, SDG&E used the above criteria to identify three microgrid projects that could potentially be in-service by the end of 2020: Cameron Corners,[17] the Ramona Air Attack Base, and Desert Circuit 221. SDG&E is deploying these three microgrids in the context of its current Commission-approved 2019 WMP.

In addition, SDG&E has identified potential microgrids for post-2020 implementation as described in the Attachment hereto. SDG&E anticipates providing further discussion of such projects, and requests for approval, as appropriate, in its upcoming 2020 WMP. As these projects are in unincorporated San Diego, SDG&E has met with County of San Diego staff to discuss resiliency efforts, including microgrids. SDG&E has a collaborative relationship with the County and regional planning groups and engage them in fire hardening and Public Safety Power Shutoff mitigation efforts.

Because of the direct pertinence to the purpose of SB 1339, SDG&E describes in the next section the three microgrid projects that could be completed as early as the end of the year.

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[16] *Id.* at SDG&E 1-46.

[17] One of the proposals SDG&E submits for approval in Section IV of this response is electric vehicle charging infrastructure associated with the Cameron Corners microgrid.

1. Cameron Corners

Cameron Corners is a remote, low-income community located in the Tier 3 HFTD, in the eastern part of San Diego County.[18] The critical customers that will be served by the microgrid include a medical care facility, CAL FIRE station, telecom central office (911 switching center), as well as local food establishments, convenience stores and gas (and propane) stations that can provide residents of this remote community with important goods and services during an outage. The microgrid will be SDG&E-owned and operated and will be designed to support 300 kW of critical load continuously, and the project will consist of a 725 – 884 kW solar photovoltaic array with an approximately 2,000-kWh energy storage resource. Both the microgrid generation assets (*i.e.*, solar and energy storage) and necessary SCADA switches will be coordinated and controlled via a field controller known as a local area distribution controller LADC.[19] The fully renewable microgrid solution will support resiliency at these key facilities and therefore will provide significant benefits to the surrounding rural community. During a de-energization event, SDG&E will be able to island the critical facilities for the entirety of a multi-day PSPS event, during which time they will not experience a perceptible outage from the distribution grid.

SDG&E worked with San Diego County staff on the proposed microgrid project, and SDG&E is in the due-diligence phase for cultural, environmental and geotechnical examination for land development. This project is currently in the preliminary engineering and design phase for the facility and related undergrounding. SDG&E anticipates contracting for engineering,

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[18] Designated AB 1550 Low Income, available at https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/lowincomemapfull.htm

[19] As described elsewhere herein, approval for the LADC supporting this and other microgrids is being sought In Track 1 of this proceeding.

procurement and construction of the solar, energy storage and inverters by the end of first quarter 2020.

2. Ramona Air Attack Base

The Ramona Air Attack Base is located in the Tier 2 HFTD in the northeastern part of San Diego County and is directly adjacent to a low-income community. The critical customers who would be served by the microgrid include CAL FIRE Air Support, United State Forest Service Air Support, and the fire-retardant mixing station. These critical facilities provide stewardship and fire protection for San Diego County and adjacent communities, including tactical coordination with the incident commander on the ground and directing airtankers and helicopters to critical areas for fire retardant and water drops. Phase 2 of the project may add a nearby waste water treatment facility to the microgrid. The microgrid would be SDG&E-owned and operated, and the initial project scope will consist of an approximately 2,000-kWh energy storage resource, to support 60 kW of critical load for up to 1.5 days (a new C-130 aircraft has been recently added to the air attack fleet, and the load necessary to maintain service for the aircraft may continue to change over time). Both the microgrid generation assets (*i.e.*, energy storage) and necessary SCADA switches will be coordinated and controlled via a LADC.[20] During a de-energization event, the critical facilities will be able to island and not experience a perceptible outage from the distribution grid.

SDG&E is in the acquisition phase for land right-of-way for this microgrid solution. This project is currently in the preliminary engineering and design phase and related undergrounding.

[20] As described elsewhere herein, approval for the LADC supporting this and other microgrids is being sought In Track 1 of this proceeding.

SDG&E anticipates contracting for engineering, procurement and construction for the energy storage and inverters by the end of first quarter 2020.

3. Desert Circuit 221

Desert Circuit 221 serves a small residential, low-income[21] desert community of approximately 230 customers with about 550-kW of peak load in the far eastern part of San Diego County. While the community itself is not in the HFTD, the distribution line feeding the community runs through a Tier 3 HFTD, resulting in relatively frequent PSPS events for this community. The microgrid would be SDG&E owned and operated and would island all residential customers and the following critical customers: a San Diego County Fire Station and a community center. The project will be sized-similarly to that of Cameron Corners, and both the microgrid generation assets (*i.e.*, solar and energy storage) and necessary SCADA switches will be coordinated and controlled via a LADC.[22] During a de-energization event, the critical facilities will be able to island and not experience a perceptible outage from the distribution grid.

SDG&E is in the early stages of solution definition, and will be working with San Diego County and the local community to determine potential locations. SDG&E does not anticipate the need for undergrounding at this site. SDG&E plans to contract for engineering, procurement and construction for generation, energy storage and inverters by the end of second quarter 2020. For this solution, SDG&E is analyzing the potential to leverage available behind-the-meter third-party owned distributed energy resources ("DER").

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[21] Designated AB 1550 Low Income, available at https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/lowincomemapfull.htm

[22] As described elsewhere herein, approval for the LADC supporting this and other microgrids is being sought In Track 1 of this proceeding.

C. "Activities that enable load to be served during a wider grid outage …." (ruling at 5)

This response describes the activities with particularity as requested by the ruling in the matrix Attachment hereto. The following describes the context and background of these activities.

1. Activities undertaken by SDG&E in its 2019 WMP

At its inception, PSPS was identified as a core element of SDG&E's approach to mitigating and preventing wildfires, which goes hand-in-hand with SDG&E's investments in electric system hardening and sectionalizing, and vegetation management efforts described above. SDG&E considers PSPS to be an effective wildfire mitigation and prevention tool, albeit a measure of last resort due to the impact of PSPS on customers, especially those with access and functional needs. SDG&E is committed to continuing to explore ways to reduce the impact of PSPS on its customers. To this end, SDG&E is taking steps to evaluate all areas of its service territory which have a high probability of being impacted by PSPS. SDG&E plans to identify short and long-term strategies to increase safety and reliability, minimize wildfire risk, and reduce or eliminate the customer impacts of PSPS.

These efforts include a segment-by-segment analysis of circuits prone to PSPS in order to identify the highest risk areas within the circuit to target mitigation efforts that can either eliminate the need for shutoffs or reduce their impact. The analysis incorporates a variety of risk factors including tree strike potential, customer density, egress issues, and critical infrastructure to identify the most appropriate portfolio of mitigations across the high wildfire risk areas. The portfolio of mitigation measures that the team is evaluating includes but, is not limited to:

- System Hardening: this includes key mitigation programs such as Pole Risk Mitigation and Engineering ("PRiME") and Fire Risk Mitigation ("FiRM"). In 2013, SDG&E established the FiRM program, an overhead distribution, fire-

hardening, and rebuilding effort. The goal of the FiRM program is to fire-harden facilities in the HFTD by replacing aged line elements, utilizing advanced technology, and designing for known local weather conditions. FiRM is also tasked with developing a multi-year plan for the rebuilding of circuits with the greatest fire-related risk. Prioritization and scoping of each FiRM project is driven largely by analysis using SDG&E's Wildfire Risk Reduction Model (WRRM). SDG&E's PRiME program was developed to assess pole strength and integrity considering loading conditions, third party attachments, localized weather conditions, and remaining pole strength throughout SDG&E's service territory.

- Strategic undergrounding: SDG&E's Strategic Undergrounding Program was recently established in 2019. This program began as a small-scale program to target areas of HFTD with the most significant risk or in areas where it could significantly reduce PSPS impacts. Undergrounding is the most impactful of all the mitigation options, as it is nearly 100% effective at mitigating both equipment related and foreign object in line related ignition risks.[23]

- Expanded use of covered conductors:[24] SDG&E acknowledges the benefits of a targeted approach to installing covered conductor in areas that have electric infrastructure with high tree-strike potential (*i.e.*, near dense vegetation) and near at-risk vegetation. SDG&E has over five miles of covered conductors installed where its overhead electrical equipment is in close proximity to dense vegetation and where outage history supports this type of installation. SDG&E believes the use of covered conductor in certain applications can be beneficial and will continue to utilize covered conductors in those applications. From dramatically reducing ignitions from a "wire-slap" to foreign objects (*e.g.*, avian, vegetation, Mylar balloons), covered conductor provides value in mitigating the potential for a fire.

- Additional sectionalizing or circuit reconfigurations:[25] this program mitigates the impact to customers and communities involved in PSPS events by installing additional remote sectionalizing devices within the HFTD. This, in conjunction with weather station data, allows PSPS events to be more precisely targeted and localized, which reduces the outage impact to customers. SDG&E is evaluating locations for these sectionalizing devices.

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[23] SDG&E plans to address strategic undergrounding in its 2020 WMP (to be submitted February 7, 2020) and the Rule 20 undergrounding, R.17-05-010.

[24] R.18-10-007, SDG&E's 2019 WMP at 37. Also to be addressed in SDG&E's 2020 WMP.

[25] SDG&E 2019 WMP at 39; to be addressed in SDG&E's 2020 WMP.

- Vegetation management:[26] SDG&E's vegetation management operations are centered around annual routine and enhanced inspections. Routine operations are driven by regulatory requirements following a master schedule that includes the activities of pre-inspection, trimming, auditing, and pole brushing. Enhanced inspections augment the operations by including incremental activity frequency and scoping to address potential line strikes and fire hazard. For both routine and enhanced activities SDG&E has identified tree species to target for enhanced trimming and removal. The criteria for determining target species include factors such as growth rate and characteristics, failure potential, outage history, and other environmental factors.

- Providing backup generation either in the form of individual customer generator solutions.[27] In 2019, SDG&E created the Generator Grant Program ("GGP") in response to feedback received from residential customers previously impacted by PSPS events. While impacted customers may desire to obtain generators, all cannot afford to acquire one. The GGP was launched as a pilot program earlier in 2019 as a first attempt at reaching these impacted communities on a limited basis so that SDG&E may learn from this program and adjust in future years. The program is administered by a neutral third party who provides the generator and educates the residential customers (*e.g.*, medical baseline customers) how to use a portable generator during PSPS events.

As the team evaluates and scopes these various mitigation options, the scope of other programs within SDG&E's WMP will likely be adjusted to balance short and long-term strategies for mitigating wildfire risk.

2. Managing PSPS and Emergencies

SDG&E manages and mitigates the impacts of a PSPS event through collaboration with key stakeholders in the wildfire response community including, the San Diego County Fire Chiefs' Association, CAL FIRE and the San Diego County Fire Authority, County Unified Disaster Council, County Office of Emergency Services, all fire agencies in San Diego County,

[26] SDG&E's 2019 WMP at 41.

[27] SDG&E's 2019 WMP at 58; to be addressed in SDG&E's 2020 WMP.

all law enforcement agencies in San Diego County and fire dispatch centers.[28] During the course of the year, SDG&E also works with its Public Safety Partners[29] and community partners, including, but not limited to, local governments, including tribal governments, first responders, chambers, Fire Safe Councils, Community Emergency Response Teams, Access and Functional Needs groups, local utilities. When conditions allow, SDG&E will make every attempt to notify its Public Safety Partners and community partners about a potential Public Safety Power Shutoff, alerting them that conditions are being monitored that may either cause outages or require SDG&E to de-energize for safety in the coming days. In these advanced notifications SDG&E provides its Public Safety Partners with information to help prepare the community, including estimated start time, restoration time, number of Medical Baseline Customers impacted, GIS map information of potential impacted areas, and 24/7 points of contacts available to respond to questions or concerns. SDG&E continues to update its Public Safety Partners throughout the event as conditions change.

The SDG&E Emergency Management organization is responsible for coordinating emergency management activities and activation of the Emergency Operations Center ("EOC").[30] Collectively, this department leads efforts and strategies to prepare for, respond to, and recover from all risks, hazards, and incidents that may impact SDG&E operations. SDG&E's EOC serves as the location from which centralized emergency management is coordinated.[31] The activation of the EOC assembles the internal subject matter experts to assess and provide

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[28] *See* 2019 WMP at Attachment A, pp. 55-56; 2019 RAMP Report at SDG&E 1-75 – 1-76.

[29] Public Safety Partners as defined in D.19-05-042 (De-Energization (Public Safety Power Shut-Off) Guidelines).

[30] 2019 RAMP Report at SDG&E 1-76.

[31] *Id.*

situational awareness to internal and external stakeholders, overarching incident objectives, planning, anticipation, response, communications, and coordination. External Emergency Management partners, such as the County of San Diego Office of Emergency Services ("OES") and California OES, are provided with situational awareness up to 24-72 hours in advance or as soon as operationally feasible. Those partners are embedded within SDG&E's EOC during emergency conditions.[32]

As described in the 2019 WMP,[33] the Company's Emergency Response Plan and risk-specific response plans provide a framework by which SDG&E can effectively coordinate the company's pre-incident and response/recovery activities to a given threat or hazard. With respect to community outreach and public awareness, SDG&E has created a multilevel approach related to fire threats, fire prevention, and emergency preparedness. Planning for community outreach and public awareness occur before, during, and after a wildfire. Key elements of SDG&E's multi-level approach to community education and outreach include the following:[34]

- Fire Safety stakeholder's coordination. SDG&E has worked with various stakeholders, such as local school, water districts, disability rights advocates, consumer groups, and fire departments, to develop a joint fire presentation plan.

- Partners with organization dedicated to readiness and response. SDG&E partners with non-profit organizations dedicated to readiness and response to wildfires and emergencies. SDG&E is also a member of California Utilities Emergency Association, which serves as a point of contact for critical infrastructure utilities and other governmental agencies before, during and after an event.

- First responder outreach program. SDG&E works with local, state, and federal fire agencies, regional dispatch centers, law enforcement, and other emergency management partner agencies so that effective command, coordination, and communications are in place in preparing for and responding to incidents.

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[32] *Id.* at SDG&E 1-77.

[33] 2019 WMP at Attachment A., p. 59.

[34] 2019 RAMP at SDGE 1-78 – 80.

- Community outreach – SDG&E supports non-profit organization whose programs promote emergency preparedness and safety at home and in communities within its service territory.

- Education and outreach of elected officials and key government staff – SDG&E meets with elected officials from local, including tribal governments, to provide information on Public Safety Power Shutoffs, including what to expect during an event and how to reach a dedicated 24/7 liaison during an event.

- Community Resource Centers (CRCs) – as a result of community feedback, SDG&E has established CRCs to help communities in real-time during extreme weather events. To date, eleven customer-owned facilities in the HFTD have been utilized, located specifically in areas most likely to be affected by a PSPS to serve as CRCs. SDG&E operates these centers to offer impacted customers a place to gather, charge cell phones, and obtain current information and comfort items such as bottled water, light snacks, and ice for temporary refrigeration.

- Community communications – SDG&E provides regular, proactive communications to residents and businesses located in the HFTD.

3. Activities planned for SDG&E's 2020 WMP.

In its upcoming 2020 WMP, SDG&E anticipates discussing several new programs for customers that are likely to be impacted by PSPS or wildfires:

1) A pilot program to grant rebates for portable generators for customers who do not qualify for the current Generator Grant Program. The pilot rebate program will require the identification of specific generator technologies, rebate levels, number of eligible customers, marketing/outreach, and cost recovery. Processes and systems used for existing rebate programs can be leveraged for implementation;

2) Providing back-up power for community centers, senior centers, schools and Cool Zones. This program will follow similar protocols set forth for the Community Resource Centers in the WMP. CRCs have been positively received by customers who have been affected by PSPS events. CRCs offer customers a place to gather, charge cell phones, and obtain supplies such as bottled water, snacks and ice for

temporary refrigeration, as well as information and updates on the situation. Expanding the CRC model to these key sites and locations adds an additional layer of resiliency to impacted customers. The criteria mentioned above for the pilot rebate program will be also considered for providing of back-up power; and

3) Working with critical services providers, such as water agencies and communication providers, to identify solutions that can enhance their resiliency efforts. To this end, SDG&E will work with critical services providers serving customers in the HFTD to identify solutions and best practices. In addition, SDG&E is awaiting approval of an EPIC proposal for a demonstration project for a mobile battery system at one or more Community Resource Centers. This demonstration will evaluate the effectiveness of mobile batteries.

Lastly, in 2019 SDG&E implemented a Generator Grant Program as part of its 2019 WMP. This program provided portable, backup power to customers in the HFTD that require life support equipment. The program will be expanded in 2020 and 2021 to additional customers located in the HFTD.

These strategies will focus on customers and service providers in Tier 3 and Tier 2 of the HFTD and will further help protect the health and safety of residents during power outages. These customer programs are detailed in the Attachment hereto.

IV. NEW PROPOSALS REQUSTED PURSUANT TO THE SCOPING MEMO

SDG&E proposes two projects here to further mitigate PSPS events and promote microgrid deployment that could potentially be in-service by the end of 2020: (1) procurement of a LADC, a proprietary software and hardware solution that can enhance microgrid operation substantially, but requires Commission approval for the reasons described below, and (2) electric

vehicle charging infrastructure to be installed at the Cameron Corners microgrid to support customer mobility, including evacuation during PSPS and other emergencies.

Because of the limited time for response to the scoping memo, SDG&E proposals here describe the projects generally, including any necessary Commission action. Information pertaining to these proposals that is responsive to the ruling's question is provided in the Attachment hereto. SDG&E looks forward to working with the Commission to provide the information needed for approval in Track 1 of this rulemaking

A. Approval of the Local Area Distribution Controller ("LADC") is important to timely microgrid implementation

As detailed in this section, SDG&E submits this LADC proposal in Track 1 of this proceeding for approval. This technology is important to microgrid control and operations and a critical component to the timely implementation of the microgrid projects as summarized in the Attachment hereto and SDG&E's 2019 WMP.

1. This solution is key to timely microgrid implementation

The LADC is a key component of the successful and timely deployment of the Cameron Corners, Ramona Air Attack Base, and Desert Circuit 221 microgrids as described above, as well as future microgrids operated by SDG&E. The LADC is a proprietary software and hardware solution that provides microgrid control functionality for multiple types of DER, and other microgrid components. This distributed microgrid controller is necessary to augment and interoperate with SDG&E's existing Advanced Distribution Management System and SCADA system. The LADC will coordinate the control of DER and conventional grid management devices (*e.g.*, capacitors, switches) to ensure reliable operation during both island and grid-connected scenarios. Localized microgrid controllers, such as the LADC, are an emerging

technology, and SDG&E determined the need for the LADC via lessons learned from its experience operating the Borrego Springs microgrid.

The LADC will be deployed locally in the field at the microgrid location with communication networks enabled to support remote control, visibility and supervisory operation to all microgrids from SDG&E's distribution control center. This centralized ability to manage and control all microgrids is critical for the timely, safe and reliable operations of a microgrid connected on the distribution system.

The LADC will have the capability to control multiple DER to provide resiliency through black-start (via grid-forming DER), minimal-impact island transition, and load-shedding. When implemented, the LADC has the ability to automatically detect grid outages and automatically switch to island mode without the need to black start the feeder loads. The controller can be set up to shed noncritical loads as necessary to maintain the critical loads. The system can automatically reconnect to the main grid when the main grid power returns and stabilizes. The LADC is critical to the success of the proposed microgrids due to the need for fast-acting decisions and controls, which are required to maintain voltage and frequency within appropriate limits while in island-mode.

2. LADC Selection complies with the Affiliate Rules

The LADC described above is a proprietary technology that was developed and is owned by an SDG&E affiliate, PXiSE, a subsidiary of SDG&E's parent company, Sempra Energy. The following describes the process followed to identify the solution, how the winning bidder was selected, and compliance with the affiliate rules.

In October 2018, SDG&E identified the need for a LADC to be included in microgrid projects. SDG&E issued a Request for Proposals ("RFP") for the LADC after developing

requirements and identifying potential bidders. On December 21, 2018, SDG&E directly sent the RFP to more than 20 vendors, one industry informational website (resulting in the RFP being published on their website), and it was also published to SDG&E's public RFP website. Over 30 vendors contacted SDG&E with express interest in the RFP. One of the potential bidders was an affiliate company (PXiSE). To ensure transparency and fairness throughout the RFP and evaluation process and compliance with the Affiliate Transaction Rules,[35] SDG&E hired an Independent Evaluator to oversee the RFP.

On February 22, 2019, the date the bids were due, SDG&E received six bids from eight vendors. The project team evaluated all six bids and eliminated three bids due to failure to meet the minimum requirements established in the RFP offering materials. In March 2019, SDG&E notified each bidding vendor whether they had been eliminated for submitting a non-conforming bid or had instead made the shortlist. The affiliate company, PXiSE, was a continuing bidder.

In June 2019, after evaluating and scoring the bid packages of the three remaining vendors, SDG&E conducted separate, face-to-face demonstrations with all three shortlisted vendors as the final phase of the evaluation. SDG&E completed scoring on the demonstrations in July 2019 and eliminated one bidder due to incomplete demonstration.

In July 2019 SDG&E notified the two remaining bidders that the scope originally included in the 2018 RFP would be modified to reflect SDG&E's updated plans for microgrid projects, including one of the microgrid projects highlighted in this document, Cameron Corners, which would require the LADC for successful operation of the microgrid. SDG&E received revised proposals on July 22, 2019.

[35] *See* D.06-12-029, Appendix A-3, Affiliate Transaction Rules Applicable to Large California Energy Utilities, Rule III.B.1.

After consideration of the updated bids, demonstration and bid package scoring, and the strength of bidder-provided customer references, SDG&E determined that PXiSE was the top scoring bidder. SDG&E is currently in contract negotiations with PXiSE as the winning bidder, and in accordance with the Affiliate Transaction Rules will be submitting the purchase contract for Commission approval as part of this proceeding once finalized.[36] As required by the Affiliate Transaction Rules, an Independent Evaluator was engaged and participated in all stages of this arms-length transaction to ensure its fairness and compliance with applicable rules. A copy of the Independent Evaluator's report will be submitted with the finalized LADC contract.

The projects within the LADC scope include the microgrid projects summarized and described in the Attachment hereto and 2019 WMP. If SDG&E is going to meet the targeted 2020 commissioning dates for Cameron Corners, Ramona Air Attack Base, and Desert Circuit 221, it is critical that SDG&E begins working on the integration and testing of the LADC product as soon as possible.

B. Electric Vehicle Charging Infrastructure

PSPS events not only have an impact on customers in terms of a lack of power within their place of residence and the surrounding community, but for those customers that drive EVs), PSPS events may also affect their mobility. Further, customers may be reluctant to adopt EVs if the community in which they live suffers from frequent PSPS impacts. Such an outcome is antithetical to California's electrification and GHG emissions reductions goals. To mitigate such

[36] D.06-12-029, Appendix A-3, Affiliate Transaction Rules Applicable to Large California Energy Utilities, Rule III.B.1.

issues, SDG&E is proposing to install electrical infrastructure and EV charging stations at some of the critical facilities SDG&E intends to microgrid.[37]

The EV charging stations would be installed behind a utility meter, and customers would pay for charging on a time-varying rate such as EV-TOU.[38] Payment would be smart-phone-based, credit card (if applicable), or via an EV service provider's electronic key (aka "fob"). For microgrid and resiliency purposes, SDG&E proposes to own and maintain the end to end infrastructure, including the EV charging stations.

The number of charging stations installed would be correlated with how many EVs reside on or near specific circuits affected by PSPS. Until more information is known about the quantity of EVs and drivers that would need to charge in a PSPS event at these sites, SDG&E has designed four different site scenarios for charging, with different combinations of Level 2 and DC Fast charging to cover various charging needs, as follows:

- Site type 1: Ten Level 2 EVSE
- Site type 2: Four Level 2 EVSE
- Site type 3: Four Level 2 EVSE, Two DC Fast chargers
- Site type 4: Two Level 2 EVSE, Two DC Fast chargers

As part of this filing, SDG&E is proposing charging infrastructure only for the Cameron Corners Microgrid for 2020. SDG&E expects to develop additional locations for later implementation as part of its WMP.

Costs and loading/consumption estimates are outlined in the matrix Attachment hereto, and were obtained from recent Commission filings or RFP efforts by SDG&E.

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[37] SDG&E notes that such EV infrastructure may have an impact on the microgrid system.

[38] This is similar to the rate structure proposed in the State Parks/Beaches AB1082 project, approved by D.19-11-017.

V. CONCLUSION

SDG&E's mission to build the cleanest, safest and most reliable energy infrastructure company in America drives the various wildfire mitigation efforts throughout the Company. With that mission in mind, SDG&E continuously evaluates its wildfire mitigation strategies and programs to identify new ways to further reduce risks and find opportunities for improving its overall approach to wildfire mitigation. SDG&E welcomes the opportunity provided by the OIR to accelerate the implementation of wildfire mitigation projects. SDG&E requests that the Commission accept this response in compliance with the scoping memo and the ruling, and we look forward to working with the Commission and the stakeholders to implement the proposals described herein.

Respectfully submitted,

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January 21, 2020

ATTACHMENT

Information requested by ALJ Rizzo's *Email Ruling Directing Respondents to Address Ruling Questions as part of their January 21, 2020 Proposal* (December 30, 2019)

Customer Programs	Year	Name	Location (County)	Magnitude of Expenditure	Type of Activity (Research, Construction, Operation)	Type of Microgrid (IFM, BTM, Capacity, Duration, Technology, Fuel Source)	Type of Benefits (Number of Customer Accounts by Customer Type, Expected Community Benefits)	Venue Activity Has Been Proposed or Documented (Advice Letter, CPUC Proceeding, Another Agency (i.e. CEC, EPIC Grant, etc.)	Has Cost Recovery Been Requested and/or Granted	Additional Commission Action Needed?
1	2020 - 2021	Backup Generator Grant Program (expansion)	HFTD	2020 - $5.1M 2021 - $6.1M Note: these budgets are inclusive of what is needed for CRCs.	Operations - provide	N/A	1500 MBL customers in 2020 2200 MBL cusomters in 2021	Costs are charged to a memo account - FRMMA	Funding is sought through GRC and possily other, separate applications	Not at this time
2	2020	Backup Generator Rebate Pilot (new)	HFTD	$510,000	Operations - Design and implement a rebate program	N/A	up to 500 Residential Customers - depending on adoption leverages same or similar technology as the generator grant program	May be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	No	Once the activity is formally proposed, review and approval of the project and associated costs in the appropriate venue.
3	2020	Back-up power (new)	HFTD sites such as schools, senior centers, community centers or Cool Zones	$530,000	Operations	N/A	up to 4 new sites	May be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	No	Once the activity is formally proposed, review and approval of the project and associated costs in the appropriate venue.
4	2020	Work with critical service providers (new)	San Diego / HFTD	$200,000	Research	N/A	TBD	May be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	No	Once the activity is formally proposed, review and approval of the project and associated costs in the appropriate venue.
5	2020-2021	Mobile Batteries	Community Resource Centers	$1.4M	Research and Operations	N/A	clean, backup power for CRCs	Research Administration Plan (RAP) proceeding - this is an EPIC project	Requested in RAP proceeding. A proposed decision (PD) was already issued.	Awaiting further action on the PD

** SDG&E notes that information within this table is subject to change*

Microgrid-Related, EV Charging Infrastructure	Year	Name	Location (County)	Magnitude of Expenditure (Infrastructure and Equipment) Site Type 1	Magnitude of Expenditure (Infrastructure and Equipment) Site Type 2	Magnitude of Expenditure (Infrastructure and Equipment) Site Type 3	Magnitude of Expenditure (Infrastructure and Equipment) Site Type 4	Magnitude of Expenditure (Maintenance)	Magnitude of Expenditure (Network Comm Fees)	Type of Activity (Research, Construction, Operation)	Peak load of Charging stations	Estimated kWh consumption (per month)	Type of Benefits (Number of Customer Accounts by Customer Type, Expected Community Benefits)	Venue: Has Activity Been Proposed or Documented (Advice Letter, CPUC Proceeding, Another Agency (i.e. CEC, EPIC Grant, etc.)	Has Cost Recovery Been Requested and/or Granted	Additional Commission Action or Relief Needed?
1	2020	Cameron Corners	San Diego	Ten Level 2 EVSE, $145K Direct Costs	Four Level 2 EVSE, $127K Direct Costs	Four Level 2 EVSE, Two DC Fast chargers, $197K Direct Costs	Two Level 2 EVSE, Two DC Fast chargers, $191K Direct costs	$1,300 per year in Direct costs for each Level 2 nozzle, $1,500 per year in Direct costs for each DC Fast charger.	$300 per year in Direct costs per nozzle.	Install electrical infrastructure and EV charging stations for microgrid and resiliency purposes. SDG&E proposes to own and maintain the end to end infrastructure, including the EV charging stations.	Site Type: 1: 70 kW peak load 2: 28 kW peak load 3: 128 kW peak load 4: 114 kW peak load	Site Type: 1: 2,870 kWh 2: 1,148 kWh 3: 4,648 kWh 4: 4,074 kWh	EV customers would be able to charge vehicles during PSPS event to enable evacuation and/or transportation for other critical needs.	Has not been proposed in another venue as of this filing.	As of this filing, this has not been proposed in another venue. Therefore, cost recovery has not been previously requested or granted and next steps should be addressed as part of the proposals submitted in this OIR.	Approval of the project and associated cost in the appropriate venue.
2	2021	C448	San Diego	Ten Level 2 EVSE, $145K Direct Costs	Four Level 2 EVSE, $127K Direct Costs	Four Level 2 EVSE, Two DC Fast chargers, $197K Direct Costs	Two Level 2 EVSE, Two DC Fast chargers, $191K Direct costs	$1,300 per year in Direct costs for each Level 2 nozzle, $1,500 per year in Direct costs for each DC Fast charger.	$300 per year in Direct costs per nozzle.	Install electrical infrastructure and EV charging stations for microgrid and resiliency purposes. SDG&E proposes to own and maintain the end to end infrastructure, including the EV charging stations.	Site Type: 1: 70 kW peak load 2: 28 kW peak load 3: 128 kW peak load 4: 114 kW peak load	Site Type: 1: 2,870 kWh 2: 1,148 kWh 3: 4,648 kWh 4: 4,074 kWh	EV customers would be able to charge vehicles during PSPS event to enable evacuation and/or transportation for other critical needs.	Has not been proposed in another venue as of this filing.	TBD	Not at this time
3	2021	C908	San Diego	Ten Level 2 EVSE, $145K Direct Costs	Four Level 2 EVSE, $127K Direct Costs	Four Level 2 EVSE, Two DC Fast chargers, $197K Direct Costs	Two Level 2 EVSE, Two DC Fast chargers, $191K Direct costs	$1,300 per year in Direct costs for each Level 2 nozzle, $1,500 per year in Direct costs for each DC Fast charger.	$300 per year in Direct costs per nozzle.	Install electrical infrastructure and EV charging stations for microgrid and resiliency purposes. SDG&E proposes to own and maintain the end to end infrastructure, including the EV charging stations.	Site Type: 1: 70 kW peak load 2: 28 kW peak load 3: 128 kW peak load 4: 114 kW peak load	Site Type: 1: 2,870 kWh 2: 1,148 kWh 3: 4,648 kWh 4: 4,074 kWh	EV customers would be able to charge vehicles during PSPS event to enable evacuation and/or transportation for other critical needs.	Has not been proposed in another venue as of this filing.	TBD	Not at this time
4	2021	C1458, C357	San Diego	Ten Level 2 EVSE, $145K Direct Costs	Four Level 2 EVSE, $127K Direct Costs	Four Level 2 EVSE, Two DC Fast chargers, $197K Direct Costs	Two Level 2 EVSE, Two DC Fast chargers, $191K Direct costs	$1,300 per year in Direct costs for each Level 2 nozzle, $1,500 per year in Direct costs for each DC Fast charger.	$300 per year in Direct costs per nozzle.	Install electrical infrastructure and EV charging stations for microgrid and resiliency purposes. SDG&E proposes to own and maintain the end to end infrastructure, including the EV charging stations.	Site Type: 1: 70 kW peak load 2: 28 kW peak load 3: 128 kW peak load 4: 114 kW peak load	Site Type: 1: 2,870 kWh 2: 1,148 kWh 3: 4,648 kWh 4: 4,074 kWh	EV customers would be able to charge vehicles during PSPS event to enable evacuation and/or transportation for other critical needs.	Has not been proposed in another venue as of this filing.	TBD	Not at this time

**SDG&E notes that information within this table is subject to change*

***The infrastructure or equipment deployed (i.e. either a Site 1, 2, 3, or 4 configuration) will depend on number of EVs in vicinity*

Microgrid-Related, LADC	Year	Name	Location (County)	Magnitude of Expenditure	Type of Activity (Research, Construction, Operation)	Type of Microgrid (IFM, BTM, Capacity, Duration, Technology, Fuel Source)	Type of Benefits (Number of Customer Accounts by Customer Type, Expected Community Benefits)	Venue: Has Activity Been Proposed or Documented (Advice Letter, CPUC Proceeding, Another Agency (i.e. CEC, EPIC Grant, etc.)	Has Cost Recovery Been Requested and/or Granted	Additional Commission Action or Relief Needed?
1	2020	All new PSPS microgrid projects (e.g. Cameron Corners, Ramona Air Attack Base, Desert Community-C221)	San Diego	$1.4 - 2.5M	In contract negotiatons. Will be part of SDG&E-owned PSPS microgrid solutions	Field controller for microgrid operation	Needed for microgrid islanding and to isolate appropriate customers and pick up and drop load as appropriate. Interfaces with SDG&E's distribution operations (ADMS and SCADA systems).	Proposed and documented in this Microgrid OIR Track 1	No - will be requested in future GRC.	Approval of affiliate transaction. Approve cost-recovery in future GRC or other appropriate venue.

Microgrids	Year	Name	Location (County)	Magnitude of Expenditure	Type of Activity (Research, Construction, Operation)	Type of Microgrid (IFM, BTM, Capacity, Duration, Technology, Fuel Source)	Type of Benefits (Number of Customer Accounts by Customer Type, Expected Community Benefits)	Venue: Has Activity Been Proposed or Documented (Advice Letter, CPUC Proceeding, Another Agency (i.e. CEC, EPIC Grant, etc.)	Has Cost Recovery Been Requested and/or Granted	Additional Commission Action or Relief Needed?
1	2020	Cameron Corners	San Diego	$7-9M	Pre-Construction, SDG&E owned and operated	IFM, 884 kW Solar + 500 kW/2,000 kWh energy storage	CALFIRE Station, medical center, telecom hub, 2 gas and propane stations, 2 food establishments. Community microgrid providing resiliency to town center	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and RAMP filing (SDG&E-1-M16, pp. 44-47)	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
2	2020	Ramona Air Attack Base	San Diego	$2-3	Pre-Construction, SDG&E owned and operated	IFM, 500 kW/2,000 kWh energy storage	CALFIRE Air Support (one of only 13 in California), United State Fire Services (USFS) Air Support, and fire retardant mixing station. Aircraft includes C130, and five fixed wing aircraft. Provide fire protection for San Diego County and adjacent areas, including tactical coordination with the incident commander on the ground and directing airtankers and helicopters to critical areas for fire retardant and water drops. Phase 2 could include waste water facility (such costs not included here).	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and RAMP filing (SDG&E-1-M16, pp. 44-47)	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
3	2020	Desert Circuit 221	San Diego	$4-7M	Pre-Construction, SDG&E owned and operated	IFM, similar technology mix as Cameron Corners, may leverage BTM DER as available	~230 residential customers (which include medical baseline, CARE, and Section 8), in addition, San Diego County Fire Station and Community Center	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and RAMP filing (SDG&E-1-M16, pp. 44-47)	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
4	2020	Julian	San Diego	Microgrid currently operational, none identified here in this plan	Operational, SDG&E owned and operated	IFM, 1 MW mobile diesel generator	Downtown Julian, plus post office, county branch library, Julian Union High School, Julian Charter School, Julian Elementary School and the CAL FIRE Station, as well as a county public works maintenance yard and a school bus yard	GRC	Cost recovery via GRC previously granted	No additonal action needed at this time
5	2020	Borrego Springs	San Diego	Microgrid currently operational, none identified here in this plan	Operational, SDG&E owned and operated	IFM, 1.5MW/4.5MWh, 2-1.8MW diesel generators, 2MW load bank, 2-25kW/50kWh CES, 26MW 3rd Party Array (69kV interconnection), future 250kW Ultracapacitor, future ESS up to 8MW/12MWh	2,780 customers (including medical baseline and CARE) - fueling stations, cool zone (library), schools, medical clinic, markets, restaurants, fire station, sheriff's department, hotels/motels and residential	CEC, DOE, GRC	Cost recovery via DOE, CEC funding and GRC previously granted	No additonal action needed at this time
6	2020	Carmel Valley	San Diego	Microgrid currently operational, none identified here in this plan	Operational, SDG&E owned and operated	IFM, 1MW/3MWh energy storage	School and gymnasium - also serves as emergency evacuation center	GRC	Cost recovery via GRC previously granted	No additonal action needed at this time
7	2021	C79	San Diego	TBD	Pre-Construction, SDG&E owned and operated	IFM, off grid solution	1 customer, 2 meters at end of a distribution line	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and may be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
8	2021	C448	San Diego	TBD	Pre-Construction, SDG&E owned and operated	TBD	Public library, elementary school, united states post office, general store, CALFIRE Station	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and may be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
9	2021	C221	San Diego	TBD	Pre-Construction, SDG&E owned and operated	TBD	Numerous residential customers, general store, community center	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and may be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.

10	2021	C908	San Diego	TBD	Pre-Construction, SDG&E owned and operated	TBD	CALFIRE Station, several schools, boys and girls club of San Diego, library, Municipal Water District, USPS, gas station, town center	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and may be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.
11	2021	C1458, C357	San Diego	TBD	Pre-Construction, SDG&E owned and operated	TBD	Sheriff station, fire protection district, community center, multiple gas stations, 2 urgent and 1 medical office	SDG&E's 2019 WMP (4.3.20, pp. 40-41) and may be included in SDG&E's 2020 WMP to be filed Feb. 7, 2020	Cal. Pub. Utilities Code 8386.4 (b)(1), (2) provides a path for cost-recovery for this project through the General Rate Case (GRC).	Approve cost-recovery in future GRC or other appropriate venue.

**SDG&E notes that information within this table is subject to change*