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September 16, 2021

**VIA EMAIL**

Marybel Batjer  
President  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

Re: August 2021 Public Safety Power Shutoff Public Briefing

Dear President Batjer:

SDG&E appreciated the opportunity to provide an update on our Public Safety Power Shutoff (PSPS) program and our preparations for this 2021 fire season at the public briefing the Commission convened on August 2, 2021. Enclosed are SDG&E's responses to your August 31, 2021 letter requesting responses and updates on various PSPS-related topics. PSPS issues are critically important to the safety of our customers and the communities we serve, and we look forward to continuing to work with the Commission and stakeholder on these issues.

Please let me know if you have questions or concerns.

Respectfully submitted,

A handwritten signature in black ink that reads "Caroline Winn". The signature is written in a cursive, flowing style.

Caroline Winn  
Chief Executive Officer  
San Diego Gas & Electric Company

Enclosure

cc:

Service List for R.18-12-005

Service List for I.19-11-013

Commissioner Darcie L. Houck, CPUC

Commissioner Martha Guzman Aceves, CPUC

Commissioner Clifford Rechtschaffen, CPUC

Commissioner Genevieve Shiroma, CPUC

Mark Ghilarducci, Director, Cal OES

Chief Thom Porter, Director, CAL FIRE

Chief Daniel Berlant, Assistant Deputy Director, CAL FIRE

Rachel Peterson, Executive Director, CPUC

Arocles Aguilar, General Counsel, CPUC

Leslie Palmer, Director, Safety & Enforcement Division, CPUC

Edward Randolph, Deputy Executive Director for Energy and Climate Policy, CPUC

Caroline Thomas Jacobs, Director, Office of Energy Infrastructure Safety



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**SAN DIEGO GAS & ELECTRIC COMPANY’S  
RESPONSES AND UPDATES ON PSPS TOPICS**

In response to President Batjer’s August 31, 2021 letter regarding PSPS-related topics, SDG&E has prepared the following responses. Each of President Batjer’s questions are reproduced in italicized text, followed by SDG&E’s response. Please contact me if you have any questions about these responses.

*/s/ Kevin Geraghty*

Kevin Geraghty  
Senior Vice President – Electric Operations  
San Diego Gas & Electric Company

**PSPS Decision**

*An update on how climate change, grid hardening (covered conductor and undergrounding) and vegetation management factor into your company’s risk model. With the increased implementation of grid hardening and vegetation management to date, what is your estimated number of PSPS events and average and maximum event duration in 2021? What changes in the threshold framework under which you will consider calling a PSPS event have been made from last year to this year, if any? Please provide an update on sharing a technical decision fact sheet with public safety partners and publishing the same information on your website.*

With respect to the relationship between climate change and SDG&E’s risk, we are seeing an increase in high-risk events due to an increased occurrence of drought and hot temperatures. This trend is evident from data collected by our weather stations over the last decade, and the trend also appears in trends that have been observed in our Fire Potential Index.

Weather patterns drive the variability in Santa Ana events throughout the fall in Southern California. Over the past eight years, San Diego County has averaged six Red Flag Warnings (RFWs) per year, with as many as nine, or as few as two. Ultimately, the number of PSPS events and the potential duration will be determined by the severity of weather conditions that are experienced during the fall and early winter.

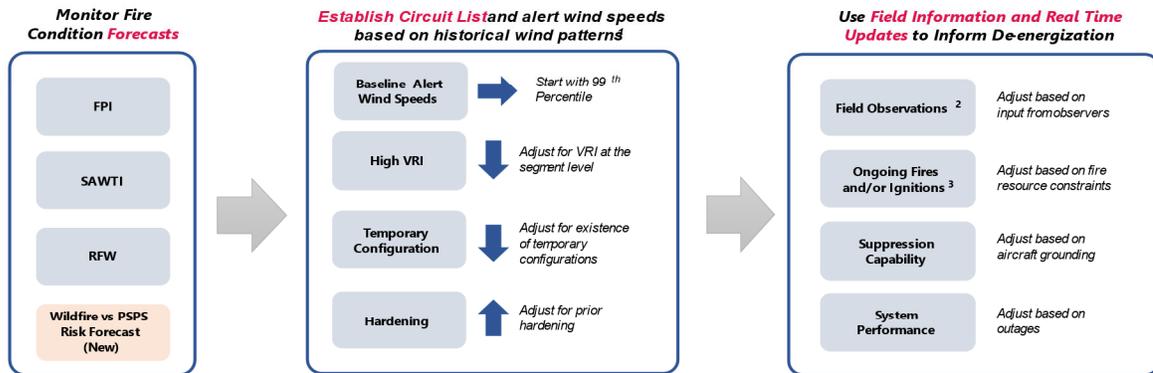
SDGE RFWs	2013	2014	2015	2016	2017	2018	2019	2020	2021 YTD	Mean/Median 2013-2020
# of RFW Events	6	7	2	7	8	5	5	9	2	6/7
# of RFW Days	12	24	4	19	22	12	10	19	5	15/16

SDG&E has hardened over 700 miles of distribution overhead lines in the High Fire Threat District (HFTD), including almost 52 miles of undergrounding to mitigate wildfires. Along with the more than 400 miles of transmission lines hardened, the hardening has allowed for a reduction of PSPS events. Most of the overhead hardening has been completed utilizing bare wire, in addition to six miles of covered conductor. In addition, the hardening has been focused on circuit segments and spans with the smallest wires. Therefore, there will not be a significant increase in PSPS thresholds as a result of covered conductor installation. Going forward, as entire circuit segments are hardened and more covered conductor and underground is installed, SDG&E anticipates further opportunities to increase PSPS thresholds.

SDG&E has been able to reduce PSPS impacts to customers through various improvements in our PSPS operations and improvements to circuit segments. For example, as a result of the ability to obtain 30-second reads from our weather stations, SDG&E was able to avoid initiating a PSPS event for some circuit segments because it learned that wind speeds would not be sustained in those segments. Circuit segment enhancements, such as adding sectionalizing devices and undergrounding some sections of a circuit, alleviated the need to take PSPS action for certain segments.

With respect to a technical decision fact sheet, please see slide 8 “PSPS Decision-Making Framework” from SDG&E’s August 2, 2021 PSPS Public Briefing presentation shown below. The Commission has already provided this presentation to the service list of R.18-12-005. SDG&E will also share the presentation with its public safety partners, specifically highlighting slide 8 and publish it on SDG&E’s PSPS webpage.

# PSPS Decision-Making Framework



- 1) If fire potential is not extreme, it can also inform adjustments to alert wind speeds
- 2) Field observations do not change alert speeds
- 3) Ongoing fires does not adjust alert speeds but rather adjusts our PSPS decision making when reaching alert speed



## Engagement with Local Community-based Organizations (CBOs)

*Please provide an update on engaging with local CBOs, particularly, any increase in the number of the CBOs engaged and the support provided to the local community. If you have significantly fewer partnerships with CBOs than your peer utilities included in this letter, please explain why that is the case. For example, we heard at the briefings that PG&E only has a few hundred CBO partnerships while SCE has over a thousand. In addition, how does your company compensate CBOs who are engaged in PSPS events? Do ratepayers pay these costs?*

CBOs are a key channel and support network utilized to promote wildfire safety, preparedness, and awareness of PSPS. SDG&E works with a network of over 400 organizations, that serve as a critical role in connecting SDG&E with its constituents and includes the Public Safety Power Shutoff Working Group and San Diego County OES Partner Relay Network, which translates communications into dozens of languages. In many cases, these agencies are considered trusted partners and experts by the communities they serve, and they provide valuable feedback to SDG&E on the needs of their constituents, while also assisting with the amplification of SDG&E’s wildfire preparedness, and notification messaging to customers with access and functional needs and hard-to-reach customers.

Nearly 200 of these organizations are members of SDG&E’s Energy Solutions Partner Network, with the majority being small, grassroots agencies serving customers that reach diverse multicultural/multilingual, Limited English Proficiency (LEP) or non-English preferred, disadvantaged and access and functional needs (AFN) communities. Since the beginning of 2021, SDG&E has added approximately 10 new CBO partners reaching AFN customers. SDG&E works with its Partner Network year-round to help prepare and educate customers for wildfire and PSPS through presentations, events, meetings, and the amplification of emergency

preparedness information and provides financial compensation.

In 2021, SDG&E kicked off an enhanced engagement effort with its Energy Solutions Partner Network by identifying approximately 50 CBOs that are located in or reach customers in the HFTD, to provide notifications before, during and after a PSPS. Through these enhanced efforts, SDG&E provided training and materials to help prepare this select list of partners and has also provided additional funding from its customer-funded WMP budget to compensate the agencies for their increased support. These CBOs serve as a critical channel to provide relevant PSPS information and updates through their respective social media platforms and notification channels.

SDG&E is not currently aware of how its total number of CBO partnerships compares to those of the other IOUs. The IOUs are jointly drafting a CBO reporting template, as part of the Bill Debt OIR, which will help provide an overview and comparison of CBOs each utility works with.

### **Medically Vulnerable Customers and Equipment**

*Please identify the number of medically vulnerable customers dependent on powered medical equipment in areas potentially impacted by PSPS that have not received the backup batteries your company has committed to providing as of the date of this letter. What is the total number of batteries that will be deployed and the timeline to achieve full deployment of the batteries? Please explain in detail how you educate the customers on operating the batteries and how your company services or replaces batteries that are not working. What is the size and duration of each battery? What are the prices of back-up generators that your company provides to customers and that your company provides rebates for (i.e. only partial cost deferral)? What is the value of the rebates that your company provides? What fuel is being used in back-up generators?*

SDG&E has committed to delivering batteries to medically vulnerable customers who are dependent on powered medical equipment and residing in areas potentially impacted by PSPS through the Generator Grant Program. This program targets customers residing in the HFTD who have experienced one or more PSPS de-energizations in 2019 or 2020, and are enrolled in our Medical Baseline Program or flagged in our customer database as having a self-reported disability. A total of 5,193 customers have been identified that meet these criteria. Of the 5,193 customers:

- 65 customers received batteries in 2019
- 1,420 customers received batteries in 2020
- 3,708 customers are eligible to receive batteries in 2021

SDG&E is projecting to deliver 2,000 portable backup batteries in 2021 and has sent participation invitation letters to these customers. Appointments are being scheduled and batteries are being delivered to those customers who have responded. The following represents program activity for 2021, as of September 8, 2021:

- 685 batteries have been delivered.
- 476 delivery appointments have been scheduled, with more appointments being scheduled each day. A total of 1,915 batteries are expected to be delivered by mid-

October.

- The remaining 85 units are anticipated to be delivered to customers upon receipt of additional inventory, by the end of 2021.

Remaining customers will have the opportunity to participate in this program to receive a portable battery in 2022. SDG&E will continue to update the number of eligible customers, which may continue to grow, and include them in the program for 2022 and future years.

Customer Education:

Contractor delivery staff provides general information on the Goal Zero Yeti backup battery, instructions on how to charge and use the battery to power electronic devices, and an informational Generator Grant Program Fact Sheet which contains program information, battery specifications, diagrams, warranty information, and contact and website information for delivery contractor and manufacturer. The manufacturer's Quick Start Guide is also included with each battery.

Warranty Process:

For battery troubleshooting that cannot be resolved by reviewing the product documentation provided, customers are referred to the battery manufacturer via website, phone, or email. If the customer and manufacturer are unable to resolve the issue, the customer is instructed to contact SDG&E's contractor for delivery of a replacement and retrieval of the non-functioning or malfunctioning unit. The delivery contractor will then work with the manufacturer directly to have them obtain a new unit and return the malfunctioning one via the warranty. This new unit will then be added to the existing delivery stock.

Size and Duration:

The battery provided to the customer is a Goal Zero Yeti 3000x, which is a 3,000-watt battery. The duration of the charge depends on the wattage of the device (or devices) being charged and the wattage of the battery unit (battery wattage/device watt hours = runtime in hours). A fully charged Yeti 3000x would power a 65 Wh continuous positive airway pressure (CPAP) machine for approximately 46 hours.

Generator and Backup Battery Pricing and Rebates:

The backup battery (Goal Zero Yeti 3000x) for Medical Baseline customers that are eligible under our Generator Grant Program is currently listed at the retail price of \$3,199.95. These units are provided at no cost to qualifying customers.

The Generator Assistance Program, which is available to all customers residing in HFTD and have experienced one or more PSPS de-energizations, offers rebates for a pre-approved list of fuel generators and portable backup batteries.

- The retail pricing of the fuel generators on our pre-approved list ranges from \$412 up to \$1,299. Fuel generator rebates are \$300 (CARE customers receive an additional \$150) but cannot exceed the full purchase price.
- The retail pricing of the portable backup batteries ranges from \$123 to \$549. Portable backup battery rebates are \$50.

Generator fuel information:

SDG&E offers rebates on gasoline, propane, or dual fuel models.

Vulnerable Customers:

SDG&E is holding 40 backup batteries for emergency deliveries for customers with access and functional needs during the 2021 PSPS season and is working with the Indian Health Councils and RHA (Richard Heath & Associates) to identify tribal community members who need a generator for medical devices or for other quality of life issues.

**Access and Functional Needs (AFN) Customers**

*Provide an update on your company's efforts to identify AFN customers in your service territory, particularly those in high fire risk areas. How granular is this information and how is your company using it to mitigate the impacts of PSPS on these customers?*

SDG&E has recently added a new general "AFN" field to its system and established a process where customers can "self-identify" as AFN. SDG&E began promoting this option in a mailer survey during July 2021 and reached out to approximately 15,000 customers who identified with a disability to update their contact information and provide them with an opportunity to "self-identify." SDG&E has created a webform survey for customers to "self-identify" through upcoming outreach events and will partner with CBOs via email campaign and targeted social media outreach and a hard copy mailer survey campaign for customers to update their contact information in Q4 2021 to continue the "self-identification" efforts.

Additionally, SDG&E collaborates with its AFN partners, the experts and trusted advisors for this community, to identify and communicate key PSPS support information. Some recent efforts include conducting training on PSPS support for State groups like In-Home Support Services (IHSS) and Regional Centers among many others who provide care for customers with disabilities and have engaged in joint marketing efforts to disseminate key information.

SDG&E has identified approximately 400,000 unique customers, which represents about 30% of our residential population. These fields include customers who participate in the following offerings: CARE, FERA, Medical Baseline, Life Support, Temperature Sensitive, Large Font Bill, Braille Bill, Non-English Preference, Hearing Impairment, Vision Impairment and Disabled.

Below is a granular breakdown of the AFN and HFTD data:

- 64% Service territory area in HFTD
- approximately 206,000 Customer accounts in HFTD
- Of the customers in the HFTD, approximately 19% are AFN
- approximately 10% of our total AFN customers reside in the HFTD

SDG&E continually works to identify and partner with external organizations that have the reach and expertise within AFN communities, to amplify its efforts to communicate available services, disaster preparedness education and emergency messaging to customers who are not yet identified within the SDG&E database(s) to help mitigate the impacts of PSPS. SDG&E will leverage customer data to identify the specific power dependency needs of the AFN customer

segments as defined by the CPUC, identify electronic technologies that provide critical support for AFN customers, and identify targeted communications and outreach plans.

### **Community Resource Centers (CRCs)**

*How do you measure if the CRCs meet the community need? Have any public officials in your service territory requested additional CRCs? Have additional CRC locations been requested but not granted? If so, why not?*

SDG&E measures the effectiveness of a Community Resource Center (CRC) through customer feedback, numbers of attendees, and through stakeholder input. Customer feedback can take many forms, but the most common form is through voluntary customer surveys completed during a CRC activation. Often, SDG&E receives positive and reinforcing feedback. Occasionally, SDG&E also receives constructive feedback, such as suggestions to offer distinct types of food options or vessels to transport water back to homes. In those instances, we have adjusted our resource offerings and now include non-perishable snack varieties, along with reusable water bags for water transport. Additionally, SDG&E leverages existing relationships with CBOs and our AFN support network to socialize our CRC strategy, and feedback received in those sessions is reviewed for potential inclusion in the program.

SDG&E remains in close contact with public officials through our regional public affairs team and has engaged in some discussion with officials as requested. SDG&E has received a few requests for additional CRCs in communities that do not currently have a CRC – such as the communities of Poway, Escondido, Rancho Santa Fe, and the La Jolla Band of Luiseno Indians. In each of these cases, SDG&E commits to a thorough analysis of the request. Of the communities mentioned above, SDG&E is still actively investigating the La Jolla Indian Reservation and Poway for feasibility. Rancho Sante Fe and Escondido, however, did not meet the requirements necessary to establish a new CRC due to the proximity of neighboring resources and frequency of Public Safety Power Shutoffs, relative to other areas. If a PSPS-prone community is a short drive (10-15 minutes or less) from other available resources such as a local convenience store or a community not impacted by a PSPS, SDG&E will prioritize other areas with more significant needs. SDG&E engages in continued discussions on these topics with communities and invites impacted communities to educational webinars and safety fairs to better prepare residents.

### **Tribal Government Outreach**

*Please provide an update on your company's consultation with tribal governments.*

In preparation for the upcoming wildfire season, SDG&E has continued to build upon the education and outreach it has conducted the past few years with tribal governments and organizations that broadly support the tribal population it serves. In addition to individual meetings with tribal governments throughout the year, this year SDG&E briefed Southern California Tribal Chairmen's Association on enhancements it has made to support tribal communities during PSPS events. SDG&E reached out to all tribes for training on its new Safety Partner portal and to provide Medical Baseline (MBL) information to tribal governments. This portal was developed with tribal input and SDG&E will continue to solicit feedback from tribal governments for future enhancements to this portal. This year SDG&E co-hosted its first

joint Wildfire Resiliency Fair with a tribe, the La Jolla Band of Luiseno Indians.<sup>1</sup> Additionally, SDG&E has also built upon partnership models with Indian Health Councils within the region for additional support and outreach before, during and after PSPS events, including direct support with generator assistance, food support, and resiliency items.

In August 2021, SDG&E added additional dedicated tribal support to its Tribal Relations team - a Tribal Relations Manager. This role is focused on supporting tribes year-round with wildfire resiliency and PSPS. In early September 2021, SDG&E reached out to the tribes it serves to introduce this new dedicated support role and offer additional briefings and support.

**PSPS Exercises**

*Please provide an update on the lessons learned from last year and this year’s exercises. How will these lessons be applied to actual PSPS execution for improvement?*

The following table presents this update:

Lessons Learned	Strategy for Improvement
Potential customer notification bandwidth issues were identified when responding to simultaneous events	Increase customer notification system (ENS) capacity from 50,000 customer calls per hour to 100,000 call per hour
The virtual EOC proved to be a successful response model – need to research additional efficiencies	Adapted the traditional in-person EOC model to include a virtual component, which was more effective, efficient, and less stressful for EOC responders
Some new partner points of contact are not clear on where to get the information needed before and during an event	Continue to conduct outreach and training to ensure external partners have situation information needed; coordinate these efforts with the Public Safety Portal launch

**Pilot Projects**

*As part of the Governor’s Executive Order from last year, CPUC ordered the utilities to propose pilot projects that support both grid hardening work and underserved communities. Please provide an update on your pilot projects.*

On July 30, 2021, pursuant to the April 20, 2021 Assigned Commissioner’s Amended Scoping Memo and Ruling, SDG&E submitted two pilot proposals to assist unserved communities with access to broadband internet service. The first pilot proposal involves SDG&E providing infrastructure attachment points for overhead routes and the potential for joint trench opportunities. SDG&E will work with the middle and last mile partners as they identify the most feasible route to extend service. Currently SDG&E is also evaluating system hardening on a portion of circuits, located in the northern area on Tribal land, and may result in a combination of system hardening solutions that includes both overhead hardening and underground hardening portions of these circuits to reduce the risk of fires and reduce PSPS events.

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<sup>1</sup> SDG&E has also held Wildfire Resiliency Fairs on the Viejas Reservation and has had participation from tribal fire departments at Resiliency Fairs.

The second pilot proposal involves a potential partnership opportunity with Cox Communications to reach unserved Tribal communities. SDG&E and Cox Communications (Cox) are exploring a few Tribal areas in the southern portion of SDG&E's service territory that have the key parameters needed to create a successful pilot opportunity. SDG&E has identified that it needs to include three main factors: 1) unserved areas, 2) proximity to future SDG&E system hardening efforts (overhead and underground), and 3) secured RDOF grant or similar funding that may make the project financially feasible.

Since filing the Pilot Proposal on July 30, 2021 (Pilot Proposal) SDG&E has continued to pursue discussions with tribal communities and third-party communication providers. In the process, we have learned that many parties are already in discussions to provide broadband services to the unserved and underserved areas of the tribal communities and do not require SDG&E's involvement at this time. AT&T mentions this fact in their opening comments. SDG&E will continue its efforts at understanding the tribal communities' needs and work with them to expand the reach of broadband services, including wired and wireless technologies.

Since the July 30, 2021 filing, SDG&E's potential partner LTD Broadband has filed an appeal for partial reconsideration with the FCC and are asking for more time to secure their Eligible Telecommunications Carrier (ETC) designation in California. At this point SDG&E is continuing to discuss the scope and feasibility of the Pilot 1 proposal with LTD Broadband and Crown Castle.

In addition to these Broadband pilots, SDG&E has previously reported on several pilot projects that continue to be developed to support grid hardening initiatives. Updates on these pilot projects are provided below:

### **Distribution Infrared Inspections**

*Status of Pilot:* SDG&E completed 8,544 Infrared inspections of distribution equipment to date in 2021. SDG&E tracks quantitative targets in its Quarterly Initiative Update (QIU). These inspections are now being performed in the Tier 2 HFTD after piloting the technology in Tier 3 last year. This pilot program has proven effective and will be incorporated into the CMP program after further determination of which segments warrant infrared inspections.

*Results of Pilot:* The infrared program implementation on its distribution system, which enables identification of issues such as hot connections and other issues that cannot be detected with traditional visual inspections, has found 11 instances in 2021 of faulty equipment that were able to be repaired before any damage occurred. SDG&E continues to track findings per inspection figures and will utilize a model to estimate the effectiveness of these inspections relative to other inspection programs.

*Remedy of Ignitions/Faults Revealed During Pilot:* SDG&E's thermography team consists of individuals trained as linemen and electricians who evaluate the program's thermal results and structures. With their knowledge of the electrical system, thermography, and the results, the team can appropriately assess the potential risk for more accurate prioritization. The thermography team provides a report of their findings and prioritization to the distribution compliance team to include with their maintenance prioritization. In cases where larger potential

concerns exist, a discussion with the responsible district will provide an immediate assessment and repair when deemed necessary. This process ensures identified risks are appropriately prioritized.

*Example of equipment found during an infrared inspection:*

SDG&E found a hot connection on the bottom of a fuse cutout showing over 800°F and a hotline clamp showing excessive heat while in service.

### **Advanced Protection – Falling Conductor Protection**

*Status of Pilot:* Falling Conductor Protection (FCP) is now in the stages of full deployment within Tier 3 of the HFTD. As circuits are constructed and commissioned with FCP, the protection enters a “test mode” until operations and engineering teams have deemed them ready to be placed in a tripping mode also known as “live and in-service.” In test mode, the Advanced Protection devices utilized for FCP will operate as designed, identify potential broken conductor conditions, and send various tripping signals and alarms to their respective endpoints, without operating any devices. This test mode is specifically designed to gauge the performance of this platform of broken wire detection without incurring any unnecessary outages for customers. SDG&E is on track to have a total of three circuits enabled in 2021. Quantitative targets are being tracked in SDG&E’s QIU.

*Results of Pilot:* FCP has been proven to operate correctly and sufficiently in both the lab and field commissioning environments. Currently, SDG&E is measuring performance by the amount of broken wire events that occur within the zone of protection of FCP circuits. If a broken conductor were to occur on a circuit operating in test mode, SDG&E would measure performance by the reaction of the Advanced Protection devices to that event, and whether the devices would have acted to isolate the event. To date, broken conductor events have not occurred in a FCP zone of protection. Although field performance measurements have not been realized due to a lack of broken conductor events within FCP zones, SDG&E believes this program is ready to move beyond the pilot phase due to the successful lab and field tests which have been completed thus far. As FCP gains in number of circuits covered, it is expected that performance measurements will materialize due to the overall exposure of the protection technology.

*Remedy of Ignitions/Faults Revealed During Pilot:* SDG&E will use the data it receives from FCP broken conductor events to perform incident reviews, as it currently does with other protection operations throughout the system. The event record data produced by Advanced Protection devices will assist SDG&E subject matter experts in performing detailed event analysis to make recommendations to the various SDG&E planning, design, and construction organizations in situations where material improvements can be made outside of the protection scheme operation.

*Expanded Use of Technology:* SDG&E will continue to expand FCP technology throughout its service territory with a focus on areas prone to wildfire. SDG&E is planning to deploy this technology in the HFTD Tier 3 by 2026, which accounts for approximately 76 circuits. Once completed, SDG&E plans to continue deploying FCP technology to approximately 123 circuits located within the HFTD Tier 2.

### **Advanced Protection – Early Fault Detection**

*Status of Pilot:* The project has completed installation of Early Fault Detection (EFD) sensors at 15 locations on a distribution circuit located in HFTD Tiers 2/3. Planned usage is to direct patrols or inspections when the sensors detect any anomalies. SDG&E will continue to investigate Early Fault Detection technology to determine if it is appropriate for broader implementation.

*Results of Pilot:* While the project pilot is still in progress, initial findings include but are not limited to the following events:

- Pilot deployments are demonstrating EFD technology identifies locations of potential defects to within 30 feet of the detected anomaly.
- EFD sensors on the pilot circuit illustrated energy signals that may have been originating on a low voltage line from the adjacent property. Upon site inspection by SDG&E in April 2021, a damaged conductor was observed.
- Multiple instances of insulator leakage were detected.
- Noise related to a suspected in-tank transformer discharge was detected, analysis to root cause and impact is continuing.

*Remedy of Ignitions/Faults Revealed During Pilot:* Expanded Use of Technology: Upon successful completion of the pilot deployment phase, SDG&E will continue to expand EFD technology throughout its service territory with a focus on areas prone to wildfire located in the HFTD areas.

### **Drone Distribution Assessment**

*Status of Pilot:* The drone distribution assessment pilot program completed flights and assessments of 37,311 of the nearly 40,000 overhead distribution structures within the HFTD Tier 3 in 2019 and 2020, and another 6,150 distribution structures have been flown in Tier 2 so far in 2021. The drone transmission assessment pilot program completed an additional 1,454 structures in 2020.

*Results of Pilot:* As a result of the drone assessments, SDG&E has repaired over 8,300 potential fire hazards on our facilities with an estimated reduction of 0.804 ignitions and 29 risk events overall in the Tier 3 HFTD. As a result, SDG&E decided to continue the program and complete flights and assessments of the overhead distribution structures in the Tier 2 HFTD over the next two years, as well as additional select transmission structures. The program is on track to perform 22,000 distribution inspections through year end 2021 which represents almost half of SDG&E's Tier 2 overhead distribution structures. SDG&E also added approximately 1,400 transmission structures to the Program for 2021 and is on target to complete flights of 700 of those structures by October 1, 2021. Quantitative targets are being tracked in SDG&E's QIU, and SDG&E will continue to evaluate the performance and estimated reduction of ignitions in Tier 2 in future years.

In addition, SDG&E has utilized over 1.5 million images collected during drone investigation, assessment and repair (DIAR) operations in 2019 and 2020 to develop Intelligent Image

Processing (IIP) models which use machine learning to automatically identify assets and damages in imagery captured from the field. Over 25 models have currently been developed, and 11 damage detection models are currently supporting the DIAR program in its assessment efforts by providing quality assurance checks to enhance inspection and IIP model accuracy. Current models in production include: Loose Transformer Hanger Bolt, Transformer Leak, Cracked or Hollow Pole Top, Cracked Pole / Side Guy, Woodpecker Holes in Pole, Leaking Bushing, Flashed Bushing, Chipped or Cracked Insulator, Crossarm Chipped End, Crossarm Cavity, and Crossarm/Insulator Tracking.

*Remedy of Ignitions/Faults Revealed During Pilot:* Issues identified by drone assessments are categorized as either emergency (0-3 days) or priority/non-critical (30 days to 1 year) and are remediated within those time frames.

*Expanded Use of Technology:* Based on the results of the drone program to date, SDG&E plans on continuing this program beyond the pilot phase. At this point, SDG&E plans to complete the Tier 2 assessments by December 2022, as well as the portions of its transmission system within the HFTD and then continue to perform assessments using drones on a regular cycle. SDG&E also plans to continue to develop its IIP technology and use those models to create efficiencies that will assist our operations and maintenance teams in identifying and mitigating potential fire hazards using other technologies such as fleet vehicles or images captured from mobile devices.