

San Diego Gas & Electric Company's
Quarterly Report on
2020 Wildfire Mitigation Plan for
Fourth Quarter 2020

February 5, 2021



I. Introduction

Pursuant to Ordering Paragraph (OP) 8 of California Public Utilities Commission (Commission or CPUC) Resolution WSD-002, San Diego Gas & Electric Company (SDG&E or Company) submits its Quarterly Report (QR or Report) on its ongoing Class B deficiency related to its 2020 Wildfire Mitigation Plan (WMP).¹ A copy of this Report is being provided to the Director of the Commission's Wildfire Safety Division (WSD) and is being served to the California Department of Forestry and Fire Protection (CAL FIRE) and the service list of Rulemaking (R.) 18-10-007.

In this Report, SDG&E addresses its Class B deficiency related to its 2020 WMP, which is applicable to all electric utilities – Condition Guidance-9: Insufficient Discussion of Pilot Programs.

¹ Resolution WSD-002, Guidance Resolution on 2020 Wildfire Mitigation Plans Pursuant to Public Utilities Code Section 8386 (June 11, 2020) at p. 45-46, Ordering Paragraph 8.

A. Condition Guidance-9: Insufficient Discussion of Pilot Programs

In its quarterly report, each electrical corporation shall detail:

- i. all pilot programs or demonstrations identified in its WMP;*
- ii. status of the pilot, including where pilots have been initiated and whether the pilot is progressing toward broader adoption;*
- iii. results of the pilot, including quantitative performance metrics and quantitative risk reduction benefits;*
- iv. how the electrical corporation remedies ignitions or faults revealed during the pilot on a schedule that promptly mitigates the risk of such ignition or fault, and incorporates such mitigation into its operational practices; and*
- v. a proposal for how to expand use of the technology if it reduces ignition risk materially.*

In its 2020 WMP, SDG&E identified 11 pilot programs/demonstrations, including: Covered Conductor, Distribution Infrared Inspections, Expanded Generator Grant Program (now referred to as the Generator Assistance Program), Advanced Protection – Falling Conductor Protection, Strategic Undergrounding, Drone Assessment, Circuit Ownership, Vegetation Management LiDAR, Ignition Management, Fuels Management, and Vehicle Tracking. SDG&E provides the following information for each pilot as required by this condition. The following information builds upon the information provided in SDG&E’s WMP Quarterly Report submitted on December 9, 2020.²

Covered Conductor (2020 WMP Section 5.3.3.3)

Status of Pilot: As stated in last quarter’s report, SDG&E is piloting a new three-layered covered conductor technology. On November 6, 2020, SDG&E energized its first covered conductor project of this type, hardening approximately 1.9 circuit miles with the new technology. In addition to the pilot, SDG&E successfully built a mobile trailer to assist with training SDG&E crews on how to install the covered conductor, as well as address safety concerns and any questions regarding how to reduce construction delays (see Figure 1).

² San Diego Gas & Electric Company’s Quarterly Report on 2020 Wildfire Mitigation Plan for Q4 2020 (December 9, 2020).

Figure 1: Covered Conductor Mobile Trailer



Results of Pilot: As stated in the previous quarterly report, with the construction completed, SDG&E will now be evaluating the effectiveness of the pilot to validate testing and industry expectations. SDG&E believes that this initial construction went well, as demonstrated by the fact that it withstood the recent Red Flag Warning events. The project at this specific location is still in the close-out phase and SDG&E is currently performing quality assurance inspections of the project to ensure the quality of construction was as expected. As stated in last quarter's report, SDG&E plans to measure effectiveness of this mitigation by comparing the reliability performance of the distribution lines before covered conductor was installed to the reliability performance after covered conductor was installed, normalized by operating years for an apples-to-apples comparison. SDG&E plans to have a dedicated team monitor outages that are reported into the system related to the covered conductor. This dedicated team will be required to present covered conductor performance results during SDG&E's Electric Risk Analysis team meetings. The performance results should be able to identify the root cause of any outages associated with the covered conductor, identify mitigation techniques, and identify required improvements within SDG&E's Construction Standards. Based upon, current indications and review with local construction crews, it appears that this equipment can be installed more broadly.

Remedy of Ignitions/Faults Revealed During Pilot: N/A

Expanded Use of Technology: The pilot of SDG&E's covered conductor project has concluded, and SDG&E will pursue this as a full-fledged program going forward. As stated in the last quarter's results, SDG&E expects the effectiveness of covered conductor to fall somewhere between the effectiveness of traditional overhead hardening, which has been measured to be approximately 50% effective at reducing faults and ignitions, and undergrounding lines, which has been approximately 99% effective at reducing ignitions. Covering the lines should prevent some of the foreign object in line contacts that traditional hardening does not mitigate, and the new infrastructure is expected to be equally as effective as traditional hardening at reducing equipment failure. Since these overhead lines are on above-ground structures, they remain susceptible to vehicle contacts, vegetation contacts, and high winds, which means undergrounding has advantages that covered conductor does not have. SDG&E intends to increase covered conductor installations in future years and looks forward to measuring its effectiveness as covered conductor installation becomes a larger part of SDG&E's system.

Distribution Infrared Inspections (2020 WMP Section 5.3.4.4)

Status of Pilot: In 2020, SDG&E completed approximately 13,000 infrared inspections in Tier 3 of the HFTD, utilizing circuits with the highest fault counts in prior years for initial circuit selection. The data from the infrared inspections depicts that Tier 3 connections are in good condition, but there were more issues found during the visual inspections of the same area as discussed in the results section below. Tier 3 structures are often in rural locations where a distribution circuit or segment may be carrying load for only a small number of customers. The infrared technology takes the energy radiated from wires and connections and converts this to temperatures, and the thermography team uses these temperatures to analyze any differentials to identify the potential for future failure. The low load values on the distribution segments combined with a low corrosive environment led to minimal findings, although it still returned good value based on risk spend efficiency. That said, SDG&E plans to pilot the technology this year in Tier 2 of the HFTD, where circuits are located in more urban settings with higher electrical loads which could put more stress (and heat) on the connections and splices in those areas. SDG&E will continue monitoring and assessing the effectiveness of this pilot program as it moves to the more urban circuits within Tier 2.

Results of Pilot: In 2020, the pilot program was focused on Tier 3 of the HFTD, utilizing circuits with the highest fault counts in prior years for initial circuit selection. The data from these inspections informs SDG&E's analysis of program effectiveness. The table below provides the current inspections, findings, and ignition rate for the Distribution Infrared Inspection program and compares the results with the issues found on SDG&E's visual inspection program performed in the same area.

Table 1: Distribution Infrared Inspection Program – Inspections, Findings, and Ignition Rate

	HFTD Tier 3 Visual Inspections	Distribution Infrared Inspections (Tier 3)
Findings – Emergency (0-30)	18	0
Findings – Priority (4-30)	84	2
Findings - Non-Critical	362	0
Findings – Fire Risk Infractions	464	2
Inspection Count	13,013	13,077
Estimated Faults Avoided	11	2*
Estimated Ignitions Avoided	0.29	0.055

*SDG&E assumes that all fire risk infractions found by Distribution Infrared inspections will eventually lead to a fault if not detected since this program detects issues that may not be visible to other inspection programs.

While distribution infrared found significantly less issues inspecting the same structures visually, the issues found are of high value, as a hot connection left unmitigated would have eventually led to a failure and a risk event. Although SDG&E expected that the risk reduction benefit was too low to continue in Tier 3 of the HFTD due to the low findings, when it completed its MAVF on these two programs, due to the significantly lower cost of inspections and repairs, it was Distribution Infrared inspections that had the higher RSE. Even though it mitigates much less risk, it does so at lower cost, making it the more efficient mitigation.

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 of the inspections, 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 phone call directly to the responsible district will be made to provide an immediate assessment and repair where deemed necessary. This process ensures identified risks are appropriately prioritized. In areas where issues occur and further evaluation is required, the program has been reviewing the areas of concern to ensure no further issues exist.

Expanded Use of Technology: If the program continues to prove successful in Tier 2 of the HFTD, the timeline and resource allocation would be evaluated to find the optimal inspection cycle for the infrared inspection program. In addition, SDG&E would look to identify other potential locations with highly loaded or critical circuits which may benefit from these inspections.

Expanded Generator Grant Program (2020 WMP Section 5.3.3.11.2)

Status of Pilot: The Expanded Generator Grant Program (renamed the Generator Assistance Program in 2020) pilot concluded on December 31, 2020 and provided insights into customer spending habits, portable generator preferences, and general interest in a rebate-type of program. In total, 1,274 rebates were issued to customers for a wide range of portable gas generators, exceeding our full-year target of 1,000.

Results of Pilot: SDG&E leveraged its experience in issuing point-of-sale rebates for Energy Efficiency devices by replicating these established processes in this first ever rebate program for portable backup generators. The program was launched in July 2020 and saw a steady monthly coupon download and redemption trend with a large surge in program activity near the end of the year. SDG&E is currently running a customer survey to identify the reasons for this year end spike in interest. It is presumed that both the end of year coupon expiration deadline and larger than normal PSPS events in November and December 2020 likely increased demand. In the month of December, over 700 customers elected to redeem their coupons at local big box retailers both in-store and online. In the months leading up to December 2020, SDG&E received feedback through our customer contact center and program e-mail inbox indicating customers desired more dual fuel and either key or push-button start options and SDG&E responded by adding dozens of new models throughout the year.

Remedy of Ignitions/Faults Revealed During Pilot: The Generator Assistance Program was designed to mitigate customer risk and negative impacts during PSPS event by creating greater access to available portable generators to customers in the High Fire Threat District. Customers purchasing these commercially available devices are given access to SDG&E safety information and sign off on reading all generator safety information provided by both SDG&E and the generator manufacturers. As these are portable backup generation devices, they are not evaluated in the same ways as permanent grid-enhancing infrastructure.

Expanded Use of Technology: The pilot of SDG&E's Expanded Generator Grant Program project has concluded, and SDG&E will pursue this as a full-fledged program going forward. Given the success of the GAP program in 2020, the program will be expanded as a general market offering to a larger number of customers in HFTD, as well as customers with propensity to need a backup generator for well pump resilience. SDG&E also plans to offer some new clean portable battery options for rebate in 2021.

Advanced Protection – Falling Conductor Protection (2020 WMP Section 5.3.3.2)

Status of Pilot: The Falling Conductor Protection (FCP) pilot is still in the stages of strategic deployment within Tier 3 of the HFTD under “test mode” operation. In this 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 form of broken wire detection platform without incurring any unnecessary negative impacts to reliability. SDG&E continues to have six distribution circuits in test mode operation. In last quarter’s report, SDG&E indicated that it had planned an additional five distribution circuits for test mode operation, but due to fire season and weather conditions, work in Tier 3 of the HFTD was often cancelled in the latter part of 2020. These five circuits are currently staged and ready for commissioning early 2021. Two more circuits out of Rincon substation (C215 and C271) are being commissioned this week. As stated in its 2020 WMP, SDG&E planned to have FCP enabled on all HFTD Tier 3 circuits by 2023. An update to this goal has been included in SDG&E’s 2021 WMP Update. Due to a number of factors such as the strategic reprioritization of FIRM circuit deployments, specialized resource constraints such as Relay Technician, SCADA Technician and Distribution System Operator availability, and switch plan cancellations, SDG&E has revised its forecasted completion of its HFTD Tier 3 FCP deployment to 2026. In support of meeting this goal, SDG&E has finished construction on seven of eight substations and six of six circuits which were planned for 2020 as a part of the advanced protection program.

SDG&E is also implementing a combination of leased and private LTE to support the FCP use case. Currently, a combination of these technologies is being deployed and tested on existing Borrego area SCADA and protection devices with ongoing testing for improved FCP communication on three existing distribution circuits. As stated in its WMP, SDG&E believes LTE to be the optimum technology to support FCP.

Results of Pilot: FCP has been shown to operate correctly and sufficiently in both the lab and field commissioning environments. Proper design, field communication infrastructure, and commissioning expertise has led to the successful deployment of the six test mode circuits with five more planned in early 2021. 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 occurs on a circuit operating in test mode, SDG&E measures performance by the reaction of the Advanced Protection devices to that event, and whether or not the devices would have acted to isolate the event. To date, broken conductor events have not occurred in a FCP zone of protection, and thus ultimate field performance measurements have not yet been realized.

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 all 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 this technology throughout its service territory with a focus on the wildfire prone areas first. As noted above, SDG&E is planning to deploy this technology in the HFTD Tier 3 by 2026. Once that is complete, SDG&E plans to deploy the technology within the HFTD Tier 2. After HFTD circuits are covered, SDG&E will look to target the non-HFTD circuits so this technology may be utilized for public safety use cases, not just for wildfire risk reduction.

Strategic Undergrounding (2020 WMP Section 5.3.3.16)

Status of pilot: In 2020, SDG&E’s Strategic Undergrounding Program installed and energized 15.8 miles of undergrounding. Including the CNF mileage energized 14.4 miles, the overall total of undergrounding completed is 30.2 miles. SDG&E achieved its operational goal to install between 20-30 miles of underground line in the HFTD areas.

Overall, the Strategic Undergrounding Program has made significant progress in the community of Julian, Valley Center, Jamul Tribe, and Alpine areas. Below is a status summary table of the projects:

Project Description	# UG Miles	Status	Design %	Construction %	Status Notes	PSPS Customer Savings
Quick Win- Lilac	0.20	Energized	100%	100%	Line energized on 10/24/20.	1
Phase 1 (Skyline Ranch)	6.63	In Construction	100%	95%	5.9 mi o/o 6.63mi energized on 12/18/20, including existing underground customers and mobile home park. Pending for the remaining 0.73mi to be energized 2/28/21 as part of 2021 mileage goal.	152+
Phase 1 (Cape Horn)	0.53	Energized	100%	100%	Line energized on 8/12/20.	17
Phase 2 (Banner Rd)	0.90	Energized	100%	100%	Line energized on 8/19.	8
Quick Win Job#1 -- E. Victoria Rd	0.83	Energized	100%	100%	Line energized on 9/4/20 for Job 1&2. Job 3 separated & pushed to 2021	88
DUG to Jamul Tribe	6.80	Energized	100%	100%	Line energized on 11/21/20 and 12/15/20; 2 outage plan.	3
Quick Win- Vallecitos	0.30	Energized	100%	100%	Line energized on 5/5/20.	1
DUG PH.2 (ST to Dudley's)	0.41	In Design	95%	0%	Ready for IFC, pending Caltrans permit only	Not energized
Quick Win PH.1A W. Victoria Rd	2.30	In Design	100%	18%	Late construction start due to design issues.	Not energized
Quick Win Job#3-- E. Victoria Rd	0.10	In Design	60%	0%	Pending Caltrans permit	Not energized
Scada Switch PSPS Device #1&2 Installation---El Camino Del Norte	0.34	Energized	100%	100%	Line energized on 8/20/20. Mileage count from PSPS SCADA program.	N/A

Accordingly, SDG&E considers the pilot complete and will continue to pursue Strategic Undergrounding as a full-fledged program going forward.

Results of pilot: As SDG&E discussed in the previous quarterly report, the effectiveness of undergrounding has already been measured at approximately 99% effectiveness, with the only ignitions caused by vehicle contacts with pad mounted equipment. SDG&E was interested in seeing the cost per mile associated with undergrounding pilot projects to provide cost baseline for the program. SDG&E forecasted undergrounding costs to be \$3.25M per mile in 2020. Based on the SDG&E’s strategic undergrounding actual cost per mile provided in the table below shows an average of approximately \$2.6M per mile direct cost. According to 2020 actuals, the average overheads shows approximately 26% overheads, which means approximately \$3.3M per mile fully loaded cost.

As mentioned in its 2020 Q4 status update, depending on the specific project needs and requirements (*i.e.*, materials, design, construction, and field conditions), the cost varies. For these reasons, the projects shown in blue in the Cost Table Baseline below were selected as baseline due to similarities in terrain, subsurface conditions, and construction timeframe. As noted in the Cost Table Baseline, the C1030 Ph.1 (Skyline Ranch) and C75 DUG (Jamul Tribe) were not selected as part of the cost baseline due major difference in field conditions, usage of existing undergrounding facilities, especially with C75, permitting requirements, environmental concerns, and duration of construction.

Cost Table Baseline

Project	#UG Miles	Design Cost/Mile	Construction Cost/Mile	Overall Cost/Mile
C221 PH.1 Cape Horn	0.53	\$625,804	\$2,003,223	\$2,629,026
C221 Ph.2 Banner Rd	0.90	\$368,529	\$1,140,472	\$1,509,001
C1021 Lilac	0.20	\$1,165,130	\$4,110,940	\$5,276,070
C754 Quick Win - Vallecitos	0.30	\$437,500	\$1,107,907	\$1,545,407
C357 E. Victoria	0.83	\$161,388	\$2,741,320	\$2,902,708
C1030 Ph.1 Skyline Ranch	<i>Not included in the in the baseline due to different field condition</i>			
C75 DUG Jamul Tribe	<i>Not included in the in the baseline due to different field condition</i>			
Average Cost/Mile				\$2,585,622
Loaded Cost/Mile (26% Overheads)				\$3,257,883.72

Remedy of Ignitions/Faults Revealed During Pilot: N/A

Expanded Use of Technology: SDG&E will continue to use the undergrounding of overhead lines as a mitigation alternative in the areas of extreme risk impact, where a strategy of risk elimination is more prudent than a strategy of risk mitigation efficiency, and in areas where small amount of undergrounding can provide significant PSPS mitigation benefits to SDG&E’s customers.

SDG&E is expanding the use and installation of undergrounding in key locations to reduce or eliminate ignitions and PSPS impacts. In addition, SDG&E would pursue this strategy in all areas subject to PSPS events, as well as in all HFTD zones.

Drone Distribution Assessment (WMP Section 5.3.4.9.2)

Status of Pilot: This pilot was initiated in late 2019 with a goal of using drones to take pictures of every distribution structure within the HFTD Tier 3 by 2020. The drone distribution assessment pilot program has flown and assessed 37,310 structures of the nearly 40,000 overhead distribution structures within the HFTD Tier 3.

Results of Pilot: An updated quantitative analysis for this program is provided in the table below.

Drone Distribution Assessment Results - 2019-2020 (Pilot in Tier 3)	
Emergency (0-3 days)	113
Priority/Noncritical (30 days – 1 year)	9,056
All Fire Risk Infractions	9,169
Inspection Count	37,310
Faults avoided	28
Ignitions avoided	0.778

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 findings described in the table above, SDG&E plans on continuing this drone program beyond the pilot phase. At this point, SDG&E plans to expand the drone program to complete flights and assessments within the Tier 2 of the HFTD in the next two years, as well as the portions of its transmission system within the HFTD. Based on the results, SDG&E will determine an appropriate cycle for the drone program that balances the benefits of the inspection versus the cost of the program.

Circuit Ownership (WMP Section 5.3.4.9.3)

Status of Pilot: As discussed in last quarter's report, the circuit ownership pilot has been completed and implemented. This program provides the opportunity for SDG&E's field employees and management of field employees to submit circuit vulnerabilities via a Mobile Data Terminal (MDT) program or mobile application (both iOS and Android). Specifically, this program facilitates supplemental submission of circuit vulnerabilities (in addition to the existing inspection programs) so that they can be repaired in a timely manner, to prevent a potential ignition, and minimize the risk of wildfire. SDG&E has released the program system wide and is currently utilizing the software.

Results of Pilot: Since last quarter's report, SDG&E has had four submittals through the MDT program, with two that identified potential fire concerns. Two were determined to be "descoped" due to no fire potential. Formal trainings on the business process were conducted. The mobile phone application, EPOCH application, and SharePoint site were all successfully deployed.

Remedy of Ignitions/Faults Revealed During Pilot: For the two fire potential findings identified above, one was a mylar balloon stuck on power lines, which was removed the same day it was discovered. Objects in power lines have the potential to cause an ignition, and if an ignition had started in this location it would have been a moderate fire risk. The other finding related to removing an overhead wire (sized #6 bare stranded copper) that ran through a dry brush canyon near an urban development. This branch line feeds a small transformer that is used for monitoring. SDG&E developed a plan to isolate the transformer with solar generation and a battery, which reduced the overhead exposure from 22 spans of wire to 1 or 2 with covered secondary wire. This area also is associated with moderate fire risk if an ignition were to occur. The likelihood of equipment failure is low, reducing the risk impact.

Expanded Use of Technology: SDG&E has deployed the mobile phone application for submission of circuit vulnerabilities, which make it easy for anyone qualified to submit a concern in the field. SDG&E also has an EPOCH application (use on the electric troubleshooter's MDT), as well as the ability to submit through SharePoint. This gives SDG&E's personnel plenty of options to submit a concern. No further expanded use of technology is needed at this time.

Vegetation Management LiDAR (2020 WMP Section 5.3.5.7)

Status of Pilot: SDG&E is still in the very early stages of leveraging LiDAR technology as a component of its vegetation management activities. The Vegetation Management LiDAR pilot is being conducted on a section of Circuit 214 identified as high risk based on meteorological data, tree density and vegetation type. The circuit section is located within Tier 3 HFTD on Palomar Mountain along a roadside with a rich diversity of tree species including conifer and oaks. The first phase of the pilot was scoped to include 414 poles and 207 spans of overhead distribution and secondary conductor. The intent of the pilot was to test the accuracy of the clearance data and to determine whether the resultant data can be processed efficiently to provide timely information that is readily useable and actionable.

Results of Pilot: Initial findings based on the results of the first phase of the project indicate that that LiDAR may not easily be adaptable into a predefined utility work management schedule. Accurate LiDAR information is contingent on flight frequency. The timing of LiDAR capture and processing can be complex, and the delivery of a finished product in a user-friendly format can take several weeks.

After the LiDAR information was processed, the results were verified with a field review. Much of the data proved to be valid. Nevertheless, some discrepancies were found with clearances and hardware identification. In one instance it was determined that the LiDAR clearances did not identify the closest portion of the tree's position relative to the line. The field review determined the tree was closer than LiDAR data indicated. In another instance, the modeling did not make the distinction between differing electric facilities (distribution vs. secondary). Lastly, in another instance LiDAR did not fully penetrate dense tree canopies resulting in unobserved conductors or equipment.

Remedy of Ignitions/Faults Revealed During Pilot: The findings of this pilot project have thus far not identified any non-compliant vegetation-related conditions. In instances where a non-compliant condition is observed SDG&E Vegetation Management has a priority response procedure for mitigating the condition to prevent a line contact from vegetation encroachment or line strike. Ultimately, an expected remedy of ignition for this project could be highly accurate clearance readings and the ability to take quick action to prevent tree/line conflicts that may be identified.

Expanded Use of Technology: SDG&E does not expect that LiDAR would completely replace detailed, foot patrol inspections. Currently LiDAR is not capable of identifying structural tree hazards such as included bark, decay, disease and infestation, or compromises to root systems. This requires a trained and qualified individual to perform a Level 2 hazard assessment and accurately assess risk. SDG&E would expect to use LiDAR as a tool to augment traditional inspection activities and for situational awareness.

SDG&E is also considering the use of LiDAR in its QA/QC program to confirm compliance with minimum clearance requirements. However, the feasibility and timing to re-fly segments of completed work would be added cost and time to the program's current schedule. Therefore, SDG&E will need more time to identify any schedule and cost impacts and benefits to the use of LiDAR for its vegetation management program.

SDG&E will continue to work diligently with the current pilot LiDAR vendors to further analyze and refine the data processing in 2021 with plans to implement a phased approach into the HFTD inspection program.

Ignition Management Program (2020 WMP Section 5.3.7.4.1)

Status of Pilot: SDG&E's Ignition Management Program (IMP) is managed by a Fire Ignition Management Program Coordinator. The purpose of this pilot program is to identify ways to reduce the risk and occurrence of fire ignitions. The IMP has identified databases throughout the Company, and it is working to consolidate the information into a single source of information so as to conduct analytics and identify modes of failure as well as mitigation

owners. In addition, the IMP follows up on all reported ignitions and equipment failures and is conducting an analysis to determine the cause of each ignition.

The IMP team works closely with SDG&E engineering subject matter experts (SMEs) by providing site analysis data to support equipment failure analysis. This data is used in conjunction with the data collected from other internal stakeholders for use in determining failure modes and future analytics.

Results of Pilot: The program continues to progress toward broader adoption and is based on the data gathering process that has been put in place and continues to be refined. Data, along with the events initiating the data, are being documented then filtered through the program and the program manager. In 2020, the program has documented and followed up on 210 reports with findings being communicated to the appropriate SME.

Remedy of Ignitions/Faults Revealed During Pilot: The process for reducing the frequency and consequence of ignitions is constantly being refined, and the program has established the initial path for analysis to be communicated to mitigation owners. SDG&E plans to integrate the findings of the program into its decision-making process for WMP risk reduction and hardening initiatives.

Expanded Use of Technology: When ignitions or near ignitions have been identified through the IMP processes, SDG&E's Electric Engineering SME failure analysis team is notified, and a systematic analysis is conducted to determine the cause of the failure. When the cause of the failure is determined, the mode of failure is tracked for trends and reported to the mitigation owner to remedy the failure. The IMP is building a process to analyze failures that will include a Failure Mode Effect Criticality Analysis to further analyze data collected in the IMP process.

Fuels Management (2020 WMP Section 5.3.5.5)

Status of Pilot: SDG&E has awarded a grant to the Fire Safe Council of San Diego County. This supports the goals of increasing the efficiency of the Fuels Management process and adding additional value for our customers.

Results of Pilot: Success of this pilot is measured based on the completion of the projects associated with the award recipients. Additionally, establishing a selection process based on the scoring criteria and strengthening the fire defense of the service territory has made the pilot a success.

Remedy of Ignitions/Faults Revealed During Pilot: This program is a partnership with the community that reduces the consequence of ignitions. The process is similar to that established by the CPUC and partner agencies for the Sunrise Powerlink Grant Program.

Expanded Use of Technology: Through coordination with community partners SDG&E hopes to gather metrics to support future improvements to the program.

Vehicle Tracking (2020 WMP Section 5.3.9.4.7)

Status of Pilot: SDG&E completed the pilot project installation of the Verizon Telematics vehicle tracking solution on 240 vehicles within Gas Operations, Fleet Services, and Electric Regional Operations in March 2020. SDG&E collected initial baseline data from the pilot project and enacted reporting standards that focus on vehicle speeding metrics and identified a handful of other metrics that will be targeted in the future. SDG&E is actively deploying this technology to the remaining Fleet Assets with 1,337 additional assets complete. At the end of 2020, SDG&E had 6 units remaining to install and anticipates full installation by end of February 2021. This pilot has concluded, and SDG&E will continue to pursue this as a full-fledged program.

Results of Pilot: SDG&E prioritized employee safety metrics, namely speeding reduction. After enacting reporting standards on this metric, SDG&E has realized a 90% reduction in speeding. SDG&E will continue to focus on this metric as it expands the technology to additional vehicles. Additionally, SDG&E will work on improving other areas, including: idle time, distracted driving, and improved maintenance response times. Tracking employee location in the Tier 2 and 3 High Fire Threat Districts is critical to ensuring their safety and support. As an example, during the recent Valley Fire, SDG&E was able to utilize the vehicle tracking technology to monitor employees entering evacuation areas in support of fire services. SDG&E was able to validate vehicles entering these areas were purposeful and could track these vehicles' movements throughout the evacuation areas to ensure they remained at a safe distance from the fire. In sum, SDG&E considers the pilot complete and will pursue this as a full-fledged program going forward.

Remedy of Ignitions/Faults Revealed During Pilot: Remedies of ignitions include the real-time ability to identify the closest appropriate resource during PSPS and other weather-related events to safely assess conditions for de-energization and re-energization reducing the risk of ignitions/faults during these conditions.

Expanded Use of Technology: Expanding this project fleet wide will provide greater situational awareness and resource management during weather, wildfire, and PSPS events. SDG&E anticipates all fleet vehicles will have this technology in place by end of February 2021; 302 trailer assets will also have this technology installed with an estimated completion date of Q2 2021. A next level technology is Sole Worker Tracking, which would provide real-time situational awareness of employee tracking once they exit their vehicle in the HFTD Tier 2 and 3 areas, again improving employee safety and resource management toward ignition risk reduction.