

San Diego Gas & Electric Company
2021 Wildfire Mitigation Plan
Annual Report on Compliance

March 31, 2022



Table of Contents

I.	Introduction	1
II.	Risk Assessment and Mapping (2021 WMP Section 7.3.1).....	3
A.	Summarized Risk Map: Operational Wildfire Risk Reduction Model (2021 WMP Section 7.3.1.1) ..	4
III.	Situational Awareness and Forecasting (2021 WMP Section 7.3.2).....	5
A.	Advanced Weather Station Integration (2021 WMP Section 7.3.2.1)	6
B.	Wireless Fault Indicators (2021 WMP Section 7.3.2.3).....	7
C.	Fire Science and Climate Adaptation Department (2021 WMP Section 7.3.2.4.1).....	8
D.	Fire Potential Index (2021 WMP Section 7.3.2.4.2)	9
E.	Santa Ana Wildfire Threat Index (2021 WMP Section 7.3.2.4.3)	10
F.	High Performance Computing Infrastructure (2021 WMP Section 7.3.2.4.4)	11
G.	Operating Conditions (2021 WMP Section 7.3.2.5)	12
IV.	Grid Design and System Hardening (2021 WMP Section 7.3.3)	13
A.	SCADA Capacitors (2021 WMP Section 7.3.3.1).....	14
B.	Covered Conductor Installation (2021 WMP Section 7.3.3.3)	15
C.	Pole Replacement and Reinforcement (2021 WMP Section 7.3.3.6).....	16
D.	Expulsion Fuse Replacement (2021 WMP Section 7.3.3.7).....	17
E.	PSPS Sectionalizing Enhancements (2021 WMP Section 7.3.3.8.1)	18
F.	Microgrids (2021 WMP Section 7.3.3.8.2)	19
G.	Advanced Protection (2021 WMP Section 7.3.3.9).....	20
H.	Hotline Clamps (2021 WMP Section 7.3.3.10)	21
I.	Customer Resiliency Programs (2021 WMP Section 7.3.3.11.1).....	22
J.	Fixed Backup Power Program (2021 WMP Section 7.3.3.11.2)	23
K.	Expanded Generator Grant Program (2021 WMP Section 7.3.3.11.3)	24
L.	Strategic Undergrounding (2021 WMP Section 7.3.3.16).....	25
M.	Distribution Bare Conductor System Hardening (2021 WMP Section 7.3.3.17.1).....	26
N.	Overhead Transmission Fire Hardening (2021 WMP Section 7.3.3.17.2).....	27
O.	Cleveland National Forest Fire Hardening (2021 WMP Section 7.3.3.17.3)	28
P.	Distribution Communications Reliability Improvements (2021 WMP Section 7.3.3.18.1)	29
Q.	Lightning Arrestor Replacement (2021 WMP Section 7.3.3.18.2)	30
V.	Asset Management and Inspections (2021 WMP Section 7.3.4).....	31
A.	Detailed Corrective Maintenance Program Inspections (2021 WMP Section 7.3.4.1)	32
B.	Detailed Inspections of Transmission Equipment (2021 WMP Section 7.3.4.2)	33

C.	Infrared Inspections of Distribution Infrastructure (2021 WMP Section 7.3.4.4).....	34
D.	Infrared Inspections of Transmission Infrastructure (2021 WMP Section 7.3.4.5).....	35
E.	Intrusive Pole Inspections - Distribution (2021 WMP Section 7.3.4.6)	36
F.	LiDAR Inspections of Distribution Equipment (2021 WMP Section 7.3.4.7)	37
G.	LiDAR Inspections of Transmission Equipment (2021 WMP Section 7.3.4.8).....	38
H.	HFTD Tier 3 Inspections (2021 WMP Section 7.3.4.9.1).....	39
I.	Drone Assessments of Distribution Infrastructure (2021 WMP Section 7.3.4.9.2).....	40
J.	Circuit Ownership (2021 WMP Section 7.3.4.9.3).....	41
K.	Drone Assessments of Transmission Infrastructure (2021 WMP Section 7.3.4.9.4)	42
L.	Aerial 69kV Inspections of Transmission Infrastructure (2021 WMP Section 7.3.4.9.5)	43
M.	Patrol Inspections of Distribution Poles - CMP (2021 WMP Section 7.3.4.10)	44
N.	Visual Inspections of Transmission Equipment (2021 WMP Section 7.3.4.11).....	45
O.	Monitoring and Auditing of Inspections (2021 WMP Section 7.3.4.13).....	46
P.	Substation System Inspections (2021 WMP Section 7.3.4.14).....	47
VI.	Vegetation Management Inspections (2021 WMP Section 7.3.5).....	48
A.	Vegetation Management - Community Engagement (2021 WMP Section 7.3.5.1)	49
B.	Detailed Inspections of Vegetation Around Distribution Infrastructure – Inventory Tree Inspections (2021 WMP Section 7.3.5.2).....	50
C.	Fuels Management (2021 WMP Section 7.3.5.5).....	51
D.	LiDAR Inspections of Vegetation Around Distribution Infrastructure and Vegetation Management Technology (2021 WMP Section 7.3.5.7).....	53
E.	Other Discretionary Inspections of Vegetation Around Distribution Infrastructure – Enhanced Inspections, Patrols, and Trims (2021 WMP Section 7.3.5.9).....	54
F.	Quality Assurance/Quality Control of Inspections (2021 WMP Section 7.3.5.13).....	55
G.	Recruiting and Training of Vegetation Management Personnel (2021 WMP Section 7.3.5.14).....	56
H.	Removal and Remediation of Trees with Strike Potential to Electric Infrastructure - Hazard Tree Removal and Right Tree-Right Place (2021 WMP Section 7.3.5.16).....	57
I.	Vegetation Inventory System - Tree Database (2021 WMP Section 7.3.5.19).....	58
J.	Vegetation Management to Achieve Clearances Around Electric Infrastructure – Pole Brushing (2021 WMP Section 7.3.5.20)	59
VII.	Grid Operations and Protocols (2021 WMP Section 7.3.6)	60
A.	Recloser Protocols (2021 WMP Section 7.3.6.1.1).....	61
B.	Sensitive / Fast Protection Settings (2021 WMP Section 7.3.6.1.2).....	62
C.	Wildfire Infrastructure Protection Teams - Contract Fire Resources (2021 WMP Section 7.3.6.2).....	63

D.	Other Special Work Procedures (2021 WMP Section 7.3.6.3)	64
E.	Protocols for PSPS Re-energization (2021 WMP Section 7.3.6.4)	65
F.	Mitigating the Public Safety Impact of PSPS Protocols (2021 WMP Section 7.3.6.5)	66
G.	Aviation Firefighting Program (2021 WMP Section 7.3.6.6.1)	67
VIII.	Data Governance (2021 WMP Section 7.3.7)	68
A.	Centralized Repository for Data (2021 WMP Section 7.3.7.1)	69
B.	Collaborative Research on Utility Ignition and/or Wildfire - Innovation Lab and Other Collaboration (2021 WMP Section 7.3.7.2)	70
C.	Ignition Management Program (2021 WMP Section 7.3.7.4.1)	71
D.	Reliability Database (2021 WMP Section 7.3.7.4.2)	72
IX.	Resource Allocation Methodology (2021 WMP Section 7.3.8)	73
A.	Asset Management (2021 WMP Section 7.3.8.1)	74
B.	Wildfire Mitigation Personnel (2021 WMP Section 7.3.8.4.1)	75
X.	Emergency Planning and Preparedness (2021 WMP Section 7.3.9)	76
A.	Adequate and Trained Workforce for Service Restoration (2021 WMP Section 7.3.9.1)	77
B.	Community Outreach, Public Awareness, and Communication Efforts (2021 WMP Section 7.3.9.2) 78	
C.	Overview of Customer Support in Emergencies (2021 WMP Section 7.3.9.3)	80
D.	Overview of Emergency Preparedness Plan (2021 WMP Section 7.3.9.4)	81
E.	Preparedness and Planning for Service Restoration - Mutual Assistance and Contractors (2021 WMP Section 7.3.9.5)	82
F.	Protocols in Place to Learn from Wildfire Events - After Action Reports (2021 WMP Section 7.3.9.6)	83
G.	Other - Emergency Management Operations (2021 WMP Section 7.3.9.7)	84
XI.	Stakeholder Cooperation and Community Engagement (2021 WMP Section 7.3.10)	85
A.	Community Engagement - Community Outreach and Public Awareness (2021 WMP Section 7.3.10.1)	87
B.	PSPS Communication Practices (2021 WMP Section 7.3.10.1.1)	88
C.	Emergency Management and Fire Science & Climate Adaptation (2021 WMP Section 7.3.10.2.1) 90	
D.	International Wildfire Risk Mitigation Consortium (2021 WMP Section 7.3.10.2.2)	91
E.	Cooperation with Suppression Agencies (2021 WMP Section 7.3.10.3)	92
F.	Non-Conductive Balloon Initiative (2021 WMP Section 7.3.10.5)	93

I. Introduction

Wildfire safety, prevention, mitigation, and recovery are central priorities for SDG&E. Consistent with these priorities, state law, and the objectives of the California Public Utilities Commission (CPUC or Commission) and other state agencies, SDG&E's Wildfire Mitigation Plan (WMP) was founded upon the goal of minimizing the probability that SDG&E's electric infrastructure might become the original or contributing source of ignition resulting in wildfire. On February 7, 2021, SDG&E submitted its 2021 Wildfire Mitigation Plan Update (2021 WMP) in accordance with updated guidance from the Commission and the CPUC's Wildfire Safety Division.¹ The programs, initiatives, and plans described in SDG&E's 2021 WMP highlight many of SDG&E's ongoing efforts to mitigate the risk of catastrophic wildfire related to electrical infrastructure and reduce the customer impacts of Public Safety Power Shutoff (PSPS) events.

In 2021, SDG&E implemented and tracked the progress of 78 different mitigations outlined in its 2021 WMP. Progress on these mitigations is reported through 35 quantitative and 45 qualitative metrics (two initiatives have both quantitative and qualitative metrics). SDG&E's mitigations involve a wide array of topic areas such as inspection and maintenance programs, infrastructure replacement programs, and vegetation management programs, all aimed at mitigating the risk of ignitions related to the electric system. Additional topic areas include situational awareness, which informs SDG&E's risk models and helps prioritize infrastructure replacement and upgrades, and strategies and tools for real time decision making during emergency response or PSPS events. SDG&E also has mitigations aimed at reducing the impact of a wildfire once an ignition has occurred, including high-definition cameras, ground and aerial fire suppression resources, and a fuels management program. In addition, SDG&E has implemented mitigations designed to minimize the customer impacts associated with PSPS events, including the installation of sectionalizing devices, additional weather stations, and microgrids; and customer service efforts including generator grant programs, operating Community Resource Centers (CRC) during PSPS events, and customer outreach programs aimed at wildfire and PSPS preparedness.

Pursuant to Public Utilities Code Section 8386.3(c)(1), SDG&E submits this report addressing its WMP compliance for 2021. This report provides a breakdown of each mitigation described in SDG&E's 2021 WMP Update with a quantitative or qualitative metric to show risk reduction. As discussed in SDG&E's 2021 WMP Update, the risk reduction calculations performed for the WMP programs rely on the quantitative targets to calculate the overall risk reduction for the program. This report also provides a description of Discussion and their potential impact on risk reduction, planned and actual spend with variance explanations for units greater or less than 5% of target and expenditures greater or less than 20% or ten million dollars, and a description of the PSPS customer impact reduction provided by the mitigation. It is important to note that many of the program-level variances reported are due to differences in WMP reporting requirements between the 2021 and 2022 WMP Update.

¹ WSD-002, *See also* Rulemaking (R.) 18-10-007, Administrative Law Judge's Ruling on Wildfire Mitigation Plan Templates and Related Material and Allowing Comment, Attachment 1 – WMP Guidelines (December 16, 2019), as clarified by the Wildfire Safety Division (WSD) on January 15, 2020, and January 27, 2020. In July 2021 the Commission's Wildfire Safety Division transitioned to the Office of Energy Infrastructure Safety (Energy Safety) under the California Department of Natural Resources.

In sum, SDG&E met or exceeded the risk reduction intent for 31 of 35 quantitative targets and reduced PSPS impacts to 8,300 customers during one event in November 2021. In these achievements, SDG&E has met its risk reduction intent as described in the 2021 WMP. The following are some activities that are summarized in this report:

- SDG&E fire hardened 163 miles of its electric system within the high fire threat district (HFTD) from January 1, 2021, through December 31, 2021.
- Annual routine and high fire threat district (HFTD) focused distribution, substation, and transmission inspections were completed, including timely remediation per general order requirements.
- Vegetation management annual inspections and trimming were completed in accordance with SDG&E’s 2021 WMP, including the inspection of over 17,000 targeted species and the trim or removal of over 12,500 targeted species trees in HFTD to enhanced clearance levels.
- Situational awareness capabilities were enhanced by upgrading and rebuilding 46 weather stations capable of 30 second reads.

Overall, SDG&E met 16 and exceeded 12 quantitative targets of the 2021 WMP. SDG&E did not meet 7 of the stated targets as initially described in its 2021 WMP as further addressed in this report. Generally, for the 7 targets:

- 3 met the risk reduction intent of the initiative but the original target was either erroneously derived or did not accurately capture the intent of the initiative;
- 3 are in progress and will be completed in 2022; and
- 1 target was not met to allow SDG&E to review potential conflicts with the Strategic Undergrounding Program and determine the more optimal mitigation strategy.

Additionally, in November 2021, SDG&E experienced one PSPS event where 5,858 customers were de-energized. During this event, SDG&E’s PSPS mitigation programs were able to reduce PSPS impacts to approximately 8,300 customers.

Below is a financial summary for SDG&E’s 2021 Wildfire Mitigation Plan:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 454,091	\$ 371,750	\$ (82,341)
O&M	\$ 185,949	\$ 168,181	\$ (17,768)
TOTAL	\$ 640,040	\$ 539,931	\$ (100,109)

II. Risk Assessment and Mapping (2021 WMP Section 7.3.1)

SDG&E has remained committed to the ongoing development and implementation of its WRRM model and continues to refine a primarily automated risk assessment and mapping methodology. SDG&E's engineers and emergency operations personnel continue to analytically evaluate and prioritize proposed grid hardening projects and emergency actions from the standpoint of reducing or eliminating fire risk potential from overhead electric facilities.

SDG&E continues to work with Technosylva and others to implement innovative approaches to enhance and leverage this modeling and efforts are being duplicated across the state. WRRM represents SDG&E's continued commitment to the ongoing development and further refinement of risk related models for the evaluation of hardening projects and the safe operation of the SDG&E system. To date, SDG&E subject matter experts, including fire coordinators and fire scientists analyze the model's performance for all wildfires on the landscape, identifying deviations from the risk and propagation modeling. These findings help drive the future development of the model and refining the model will result in improved and more specific quantifiable outcomes allowing for better decision making in the overall hardening effort. SDG&E stands at the forefront of the development of this important risk related model and leads the industry in the creation of such a model.

In addition to WRRM and using the information it provides, SDG&E built the WiNGS model to aid with the allocation of grid hardening initiatives across HFTD segments based on an assessment of both the wildfire risk as well as the PSPS impacts to customers on those segments.

Below is a financial summary for the programs within the Risk Assessment and Mapping category of SDG&E's 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 1,539	\$ 1,446	\$ (93)
O&M	\$ -	\$ -	\$ -

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.1.1 – Summarized Risk Map: Operational Wildfire Risk Reduction Model

A. Summarized Risk Map: Operational Wildfire Risk Reduction Model (2021 WMP Section 7.3.1.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to enhance WRRM-Ops throughout 2021. Enhancements planned for 2021 include upgrading fuel moisture inputs into the fire behavior modeling, upgrading the forecaster interface, and incorporating the data into a PSPS decision support tool.	SDG&E met its planned goals for 2021 with regards to WRRM-Ops. Enhancements included upgrades to the herbaceous fuel moisture inputs, updated fuel layers, an updated forecaster interface, and a new version of the PSPS decision support tool which includes the latest data.

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 1,539	\$ 1,446	\$ (93)

PSPS Impact Reduction: N/A

III. Situational Awareness and Forecasting (2021 WMP Section 7.3.2)

Weather continues to have a significant impact on utility operations. SDG&E is an industry leader in the development and implementation of utility-specific meteorological technology to anticipate, prepare for, respond to, and recover from severe weather and wildfire events. Utilization of situational awareness tools such as weather stations, cameras, wireless fault indicators, and the Fire Potential Index have proven successful historically and continue to be beneficial to system planning, emergency operations, and the safe implementation of PSPS. Based on these successes, SDG&E situational awareness networks will be expanded into areas where they can be used to minimize the impacts of PSPS and make communities safer.

Below is a financial summary for the programs within the Situational Awareness and Forecasting category of SDG&E's 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 4,625	\$ 1,533	\$ (3,092)
O&M	\$ 3,289	\$ 2,812	\$ (477)

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.2.3 – Wireless Fault Indicators
- 7.3.2.4.1 – Fire Science and Climate Adaptation Department

O&M:

- 7.3.2.4.1 – Fire Science and Climate Adaptation Department

A. Advanced Weather Station Integration (2021 WMP Section 7.3.2.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
20	46	230%	Weather stations

Discussion: SDG&E was able to complete additional weather station rebuilds due to available inventory and crew availability to perform the work.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 483	\$ 391	\$ (92)

PSPS Impact Reduction: During the PSPS events in November 2021, SDG&E determined that there were 58 sectionalizing devices identified in which the wind speeds met the pre-determined alert speed prior to the event, but real-time information during the event provided in part by upgraded weather stations capable of 30-second reads supported decisions to not initiate a PSPS for these devices. Approximately 25,000 customers were in the areas where a PSPS was avoided.

B. Wireless Fault Indicators (2021 WMP Section 7.3.2.3)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
500	544	109%	Wireless fault indicators

Discussion: SDG&E was able to complete additional wireless fault indicator installations due to available inventory and crew availability to perform the work.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 656	\$ 1,104	\$ 448

The additional spend in 2021 was due to the purchase of all materials for 2022 that was done under the 2021 budget.

PSPS Impact Reduction: N/A

C. Fire Science and Climate Adaptation Department (2021 WMP Section 7.3.2.4.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
17	17	100%	Cameras

2021 Plan	2021 Actual
The FS&CA Department plans to continue establishing long-lasting partnerships with academia to create opportunities to advance fire science and climate science while doing our part to educate the next generation of utility wildfire subject matter expertise.	As planned, the FSCA department continues to make large strides on the partnerships that are being established with academia to continue to push forward weather science, fire science and climate science.

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 3,486	\$ 38	\$ (3,448)
O&M	\$ 3,289	\$ 2,812	\$ (477)

The reduction from planned spend is related to the delays in design and construction of joint Wildfire and Climate Resilience Center (WCRC)/Emergency Operation Center (EOC).

PSPS Impact Reduction: N/A

D. Fire Potential Index (2021 WMP Section 7.3.2.4.2)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E will continue to prioritize the integration of the FPI into its operational decision-making to mitigate wildfire potential. Additionally, SDG&E's meteorology team consists of experts in fire science and data science who will continue to conduct daily verification of the FPI tool. Through the verification process of the FPI, any instance of the index not performing as expected will be investigated, leading to improvements by the fire science team.	SDG&E operationalized improvements to the FPI in 2021 to include an improvement to the weather component of the index. The daily verification conducted by SDG&E SMEs continues and the Capstone Team of graduate students at UCSD conducted additional analysis to inform updates to the index.

Discussion: N/A

Spend: The costs for this program are embedded within Fire Science and Climate Adaptation.

PSPS Impact Reduction: While this program cannot be directly tied to a decrease in PSPS impacts, it does improve situational awareness during PSPS events.

E. Santa Ana Wildfire Threat Index (2021 WMP Section 7.3.2.4.3)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E will continue to work with academia and the fire agencies to further develop fire science for integration into SAWTI.	SDG&E has continued to generate the SAWTI data daily and shares the information with fire agencies. In 2021, SDG&E transitioned over to leverage the San Diego Supercomputer Center (SDSC) to help share the data with the United States Forest Service.

Discussion: N/A

Spend: The costs for this program are embedded within Fire Science and Climate Adaptation.

PSPS Impact Reduction: While this program cannot be directly tied to a decrease in PSPS impacts, it does improve situational awareness during PSPS events.

F. High Performance Computing Infrastructure (2021 WMP Section 7.3.2.4.4)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E intends to maintain and update this program to stay aligned with the latest computing technology and intends to share all the data that is generated with the wildfire community. SDG&E intends to work closely with the San Diego Supercomputing Center to closely monitor data science advancements to ensure that this program remains highly capable of providing the advanced analytics required to operate the utility of today and of the future.	SDG&E's High Performance Computing infrastructure continued to operate as planned and designed in 2021.

Discussion: N/A

Spend: The costs for this program are embedded within Summarized Risk Map: Operational Wildfire Risk Reduction Model program.

PSPS Impact Reduction: N/A

G. Operating Conditions (2021 WMP Section 7.3.2.5)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E will continue to integrate the latest risk assessments and scientific understanding to the deployment of observers during high-risk events to try to place observers in the best place to mitigate risk.	SDG&E leveraged the latest science to support the deployment of observers during high-risk events in 2021.

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

IV. Grid Design and System Hardening (2021 WMP Section 7.3.3)

SDG&E's grid hardening programs are a set of controls and mitigations that directly address the goals of the wildfire mitigations plans, in the form of reducing wildfires caused by utility equipment and minimizing the societal impacts to customers from mitigations such as PSPS. SDG&E has a number of controls and mitigations including overhead hardening and strategic undergrounding that have demonstrated a measured reduction in risk events on utility equipment, reducing the opportunities for ignitions. SDG&E has a number of protection and equipment programs, such as advanced protection, expulsion fuse replacement program, and the lightning arrestor program. While these programs do not prevent the risk event from occurring, they reduce the chance that a risk event results in an ignition, by utilizing protection settings and/or equipment that addresses a specific failure mode known to lead to the ignition. These result in measured reductions in ignition percentage from risk events. And finally, SDG&E has a number of programs with the purpose of reducing PSPS impacts to customers including the PSPS sectionalizing program, microgrid and generator programs, as well as strategic undergrounding. The impacts of these programs are measured in the number of customers who will no longer be impacted a PSPS event assuming weather conditions similar to previous events.

Below is a financial summary for the programs within the Grid Design and System Hardening category of SDG&E's 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 381,883	\$ 306,856	\$ (75,027)
O&M	\$ 32,978	\$ 28,374	\$ (4,604)

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.3.3 – Covered Conductor Installation
- 7.3.3.8.2 – Microgrids
- 7.3.3.16 – Strategic Undergrounding

O&M:

- 7.3.3.10 – Hotline Clamps
- 7.3.3.11.2 – Fixed Backup Power Program
- 7.3.3.11.3 – Expanded Generator Grant Program

A. SCADA Capacitors (2021 WMP Section 7.3.3.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
32	35	109%	SCADA capacitors

Discussion: SDG&E was able to complete additional SCADA capacitor installations due to available inventory and crew availability to perform the work

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 1,587	\$1,965	\$ 378

Additional spend is due to work performed in excess of original target as noted in Discussion above.

PSPS Impact Reduction: N/A

B. Covered Conductor Installation (2021 WMP Section 7.3.3.3)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
20	20.6	103%	Miles

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 55,000	\$ 39,389	\$ (15,611)
O&M	\$ 1,500	\$ 519	\$ (981)

The underspend in 2021 is related to engineering and design work for 2023 projects starting later than planned. The delays in beginning the engineering/design work were related to finalizing survey and basemaps.

SDG&E hit all construction targets for 2021 but did not complete the amount of engineering/design work for 2023 scope that was originally planned.

PSPS Impact Reduction: While this program cannot be tied to a direct decrease in PSPS impacts, when an entire circuit segment is hardened it should increase the threshold for which the line would experience a PSPS.

C. Pole Replacement and Reinforcement (2021 WMP Section 7.3.3.6)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to continue its mandated and enhanced inspection programs over the next 10 years. Regular inspections and subsequent remediations are a critical way of preventing potential equipment failures, faults, and ignitions. Expected structure replacement forecasts are adjusted annually based on the latest inspection data results, and the location and number of assets contained in specific inspection cycles.</p>	<p>SDG&E continued its mandated and enhanced inspection programs. SDG&E completed planned pole replacements in the HFTD at the following rates:</p> <ul style="list-style-type: none"> • Q1 – 90% • Q2 – 95% • Q3 – 97% • Q4 – 97%

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 2,630	\$ 2,596	\$ (34)

PSPS Impact Reduction: N/A

D. Expulsion Fuse Replacement (2021 WMP Section 7.3.3.7)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
3,970	3,976	100%	Fuses

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 10,178	\$ 6,489	\$ (3,689)

The reduced spend can be attributed to efficiencies gained in the construction process in 2021. In 2021, SDG&E condensed the work of three budgets (Expulsion Fuse Replacement, Hotline Clamp Replacement, and Lightning Arrester Replacement) into one work mobilization resulting in savings on labor and equipment. Prior to 2021, these budgets were designed and issued for construction separately requiring an individual work mobilization for each budget.

PSPS Impact Reduction: N/A

E. PSPS Sectionalizing Enhancements (2021 WMP Section 7.3.3.8.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
10	13	130%	Switches

Discussion: SDG&E was able to complete additional PPS sectionalizing device installations due to available inventory and crew availability to perform the work.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 2,272	\$ 1,911	\$ (361)

PSPS Impact Reduction: PSPS sectionalizing enhancements enable SDG&E to divide the distribution system into smaller segments, which allows for more targeted application of PSPS to the areas of greatest risk and minimizes the impacts to adjacent customers. For the 13 devices installed in 2021, 8,176 customers could potentially see PSPS reduction benefits. During the November 2021 PSPS event, SDG&E estimates that sectionalizing devices reduced PSPS impacts for 7,956 customers. The PSPS sectionalizing devices installed in 2021 could reduce the number of customers impacted by PSPS by 8,176 customers in future events.

F. Microgrids (2021 WMP Section 7.3.3.8.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
1	0	0%	Microgrids

Discussion: The Microgrid target was reduced as part of SDG&E’s Change Order Report filed on November 1, 2021, which was approved for the reduction of 1 microgrid from the original target of 2.²

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 18,943	\$ 12,997	\$ (5,946)
O&M	\$ 1,427	\$ 1,378	\$ (49)

Delays in land acquisitions pushed final design and construction outside of 2021.

PSPS Impact Reduction: By the end of 2021, SDG&E had enabled six microgrids to keep communities energized during PSPS events. This included sites at Ramona Air-Attack Base, Cameron Corners, Butterfield Ranch, Shelter Valley, Julian Town Center, and the Alpine Special Treatment Center. During the November 2021 PSPS event, SDG&E estimates that microgrids reduced the number of customers impacted by PSPS by 340 customers.

² SDG&E 20221 Change Order Report, p. 2:
<https://efiling.energysafety.ca.gov/Search.aspx?docket=2021-WMPs>

G. Advanced Protection (2021 WMP Section 7.3.3.9)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
8	4	50%	Circuits

Discussion: One circuit, C222, was delayed due to issues acquiring Caltrans permits, likely until Q4 2022. Two additional circuits, C974 and C221, were not completed due to timing and unfinished design scoping in coordination with traditional hardening programs.

Several other circuits were placed on design hold based on updated WiNGS analysis and the subsequent decision to rescope these traditional hardening projects with covered conductor and undergrounding, resulting in the removal of these circuits from the original target.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 11,092	\$ 10,825	\$ (267)

Spend for this initiative was on target despite the shortfall in the number of units. This is because the work to install equipment within the substation was completed in 2021, but required work associated with traditional hardening programs was delayed as described above.

PSPS Impact Reduction: N/A

H. Hotline Clamps (2021 WMP Section 7.3.3.10)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
2,250	2,743	122%	Hotline clamps

Discussion: SDG&E was able to complete additional hot line clamp replacements due to available inventory and crew availability to perform the work.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 5,343	\$ 3,714	\$ (1,629)

The reduced spend can be attributed to efficiencies gained in the construction process in 2021. In 2021, SDG&E condensed the work of three budgets (Expulsion Fuse Replacement, Hotline Clamp Replacement, and Lightning Arrester Replacement) into one work mobilization resulting in savings on labor and equipment. Prior to 2021, these budgets were designed and issued for construction separately requiring an individual work mobilization for each budget.

PSPS Impact Reduction: N/A

I. Customer Resiliency Programs (2021 WMP Section 7.3.3.11.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
2,000	2,310	116%	Generators

Discussion: The Customer Resiliency Program’s purpose is to reach as many eligible customers as possible within the approved budget and available program resources. SDG&E was able to distribute additional customer generators in 2021 due to available inventory and program resources.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 7,900	\$ 7,893	\$ (7)

PSPS Impact Reduction: In 2021, the Customer Resiliency Program provided portable battery-powered generators to 2,258 medical baseline customers, improving their ability to use devices during PSPS events.

J. Fixed Backup Power Program (2021 WMP Section 7.3.3.11.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
413	355	86%	Generators

Discussion: Covid-19 delays regarding supply chain management of generators and a high demand of generator orders during severe weather conditions throughout the country delayed generator deliveries.

While 86% of installations were fully complete, it is important to note that many installations were near completion. For instance, at the end of 2021 SDG&E had 406 generators installed in the ground awaiting only safety inspections, propane tank installations, or minor electrical updates. SDG&E had 467 User Agreements signed for the Program.

County permitting also proved to take much longer than expected for commercial customer generator installations. Air Pollution Permit process extended the completion of commercial dates by 3-6 months. A handful of backup power systems also had to be redesigned to comply with new rooftop safety standards. For residential generator installations, contracted installers and residential customers had difficulty coordinating dates with the County to perform Final Safety Inspections in a timely fashion.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 10,350	\$ 8,934	\$ (1,416)

PSPS Impact Reduction: In 2021, the Fixed Backup Power Program provided permanent backup generation to 45 medical baseline customers.

K. Expanded Generator Grant Program (2021 WMP Section 7.3.3.11.3)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
1250	735	59%	Generators

Discussion: While the program provided 1,850 potential rebates to customers, only 735 customers ultimately purchased a generator.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 1,828	\$ 744	\$ (1,084)

The decreased spend for this program is due to fewer customers purchasing a generator than expected.

PSPS Impact Reduction: The Expanded Generator Grant Program provided 1,850 generator purchase rebates to customers within the HFTD. This resulted in 735 customers purchasing a generator.

L. Strategic Undergrounding (2021 WMP Section 7.3.3.16)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
25	25.9	104%	Miles

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 120,256	\$ 69,410	\$ (50,846)

The reduction in expenditures is not related to a change in the scope of the project as SDG&E met its target of 25 miles of completed undergrounding in 2021. The cost reduction is related to two main factors. The first is that SDG&E was able to more efficiently construct the new underground circuits through development of new construction standards, including allowances for a shallower trench, that has helped to reduce undergrounding construction costs on a per-mile basis. The second is that the projects chosen this year did not run into any subsurface conditions that required significant re-routes or alternate construction methods.

PSPS Impact Reduction: For the 25.9 miles of strategic undergrounding completed in 2021, 242 customers could potentially see reduced PSPS impacts. During the November 2021 PSPS event, SDG&E estimates that strategic undergrounding reduced the number of customers impacted by PSPS by 31 customers. The strategic undergrounding work performed in 2021 could reduce the number of customers impacted by PSPS by 242 customers in future events.

M. Distribution Bare Conductor System Hardening (2021 WMP Section 7.3.3.17.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
100	100.4	100%	Miles

Discussion: N/A

Spend:

Bare wire	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 92,000	\$ 94,372	\$ 2,372
O&M	\$ 2,000	\$ 2,596	\$ 596

Spend was higher than planned primarily due to the closeout of legacy traditional hardening projects and WiNGS-Planning project prioritization.

PSPS Impact Reduction: While this program cannot be tied to a direct decrease in PSPS impacts, when an entire circuit segment is hardened it should increase the threshold for which the line would experience a PSPS.

N. Overhead Transmission Fire Hardening (2021 WMP Section 7.3.3.17.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
6.7	6.7	100%	Miles transmission OH
2.7	3.4	126%	Miles distribution underbuilt

Discussion: Several projects were completed ahead of schedule leading to the completion of additional distribution underbuilt.

Spend:

Distribution Underbuilt	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 5,914	\$ 5,469	\$ (445)

PSPS Impact Reduction: While this program cannot be tied to a direct decrease in PSPS impacts, when an entire circuit segment is hardened it can increase the threshold for which the line would experience a PSPS.

O. Cleveland National Forest Fire Hardening (2021 WMP Section 7.3.3.17.3)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
0	0	100%	Miles transmission OH
6.8	6.8	100%	Miles distribution OH
0	0	100%	Miles distribution UG

Discussion: N/A

Spend:

Distribution OH	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 6,965	\$ 6,888	\$ (77)

Distribution UG	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 6,051	\$ 5,653	\$ (398)

PSPS Impact Reduction: While this program cannot be tied to a direct decrease in PSPS impacts, when an entire circuit segment is hardened it can increase the threshold for which the line would experience a PSPS.

P. Distribution Communications Reliability Improvements (2021 WMP Section 7.3.3.18.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
10	10	100%	Stations

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 50,328	\$ 49,458	\$ (870)

PSPS Impact Reduction: N/A

Q. Lightning Arrestor Replacement (2021 WMP Section 7.3.3.18.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
924	1,789	194%	Lightning Arrestors

Discussion: SDG&E was able to complete additional lightning arrestor replacements due to available inventory and crew availability to perform the work.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 1,297	\$ 2,030	\$ 733

Discussion: The additional spend can be attributed to the additional units completed in 2021.

PSPS Impact Reduction: N/A

V. Asset Management and Inspections (2021 WMP Section 7.3.4)

The purpose of SDG&E’s asset management and inspection programs are to promote safety for the general public, SDG&E personnel, and contractors by providing a safe operating and construction environment, while maintaining system reliability. SDG&E’s established inspection and maintenance programs enable SDG&E to identify and repair conditions and components to reduce potentially defective equipment on SDG&E’s electric system to minimize hazards and maintain system reliability. To accomplish this, SDG&E meets or exceeds the requirements of the inspections mandated by Public Resource Code Sections 4292 and 4293 as well as GO 95, GO 128, GO 165, and GO 174.

As discussed in the sections below, SDG&E is continually working to find ways to improve the safety of its system through its asset management and inspection programs. This includes development of new programs such as the distribution and transmission drone programs with a continued focus on existing programs such as the routine and detailed inspections performed for substation, distribution, and transmission assets. In 2021, SDG&E plans to continue its focus on its existing programs as well the new programs being implemented to enhance its inspections.

Below is a financial summary for the programs within the Asset Management and Inspections category of SDG&E’s 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 25,235	\$ 26,573	\$ 1,338
O&M	\$ 40,968	\$ 36,204	\$ (4,764)

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.4.1 – Detailed Corrective Maintenance Program Inspections
- 7.3.4.9.1 – HFTD Tier 3 Inspections
- 7.3.4.9.2 – Drone Assessments of Distribution Infrastructure

O&M:

- 7.3.4.1 – Detailed Corrective Maintenance Program Inspections
- 7.3.4.7 – LiDAR Inspections of Distribution Equipment
- 7.3.4.9.2 – Drone Assessments of Distribution Infrastructure

A. Detailed Corrective Maintenance Program Inspections (2021 WMP Section 7.3.4.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
22,269	22,354	100%	Inspections

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 7,484	\$ 9,378	\$ 1,894
O&M	\$ 2,852	\$ 1,464	\$ (1,388)

Discussion: The increase in capital spend is attributed to the acceleration of projects for HFTD pole inspections program.

O&M spend was lower than planned primarily due to a reduction in the number of crossarm repairs required in 2021.

PSPS Impact Reduction: N/A

B. Detailed Inspections of Transmission Equipment (2021 WMP Section 7.3.4.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
1,680	1,957	116%	Inspections

Discussion: SDG&E currently completes detailed inspections on all structures including HFTD structures on a three-year cycle. For detailed inspections, tielines are given a target completion date. Inspections of all structures are started and finished within a six-month window based on this target date. The increase in structure count over the program target is a result of being ahead of the proposed 2021 inspection date and completing detailed inspections with target dates of 2022 in the later part of 2021.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 787	\$ 337	\$ (450)

Discussion: The allocation of distribution spend for issues found as part of the transmission equipment inspections is based on the number of distribution issues while performing transmission inspections. SDG&E found less infractions on transmission infrastructure with distribution equipment than originally forecasted.

PSPS Impact Reduction: N/A

C. Infrared Inspections of Distribution Infrastructure (2021 WMP Section 7.3.4.4)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
18,000	17,068	95%	Inspections

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 175	\$ 146	\$ (29)

PSPS Impact Reduction: N/A

D. Infrared Inspections of Transmission Infrastructure (2021 WMP Section 7.3.4.5)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
6,565	6,239	95%	Inspections

Discussion: N/A

Spend: Transmission costs are subject to FERC jurisdiction and are not reported within the WMP.

PSPS Impact Reduction: N/A

E. Intrusive Pole Inspections – Distribution (2021 WMP Section 7.3.4.6)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
9,796	8,721	89%	Inspections

Discussion: SDG&E did not fully complete the initial target of 9,796 inspections in 2021 because 700 intrusive inspections planned for 2021 were completed early in 2020.

Of the 14,450 intrusive inspections performed in 2020, 700 were initially planned for 2021 but completed in 2020 through a special request process. These inspections were canceled for 2021, reducing SDG&E’s WMP target for 2021. This change was not discovered until after the Change Order deadline of November 1st. Using the modified target of 9,096 intrusive inspections, SDG&E would have completed 96% of this initiative in 2021.

Spend: Costs for this program are tracked within the Pole Replacement and Reinforcement program.

PSPS Impact Reduction: N/A

F. LiDAR Inspections of Distribution Equipment (2021 WMP Section 7.3.4.7)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E continues to use LiDAR inspections to supplement grid hardening efforts and post-construction analysis, where possible. SDG&E plans to implement vegetation risk analysis within the HFTD and potentially expand into non-HFTD projects. Additionally, SDG&E plans to use the results of these analyses for emergency operations during red flag and other extreme events.	SDG&E's LiDAR vendor started data collection process of all distribution lines within the HFTD Tier 2 and 3. Through the end of 2021, the vendor completed approximately 1,936 miles out of 4,370 miles (44%). Processing of the data and delivery are underway.

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 1,800	\$ 1,151	\$ (649)

Discussion: The underspend for 2021 is related to timing of the LiDAR data capture and milestone payments associated with the vendor payment structure. The 75% data capture milestone was completed on January 4th, 2022 and will be reflected in 2022. The expenditure related to this milestone would have put 2021 spend at 95% of target.

PSPS Impact Reduction: N/A

G. LiDAR Inspections of Transmission Equipment (2021 WMP Section 7.3.4.8)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E continues to use LiDAR inspections to supplement grid hardening efforts and post-construction analysis, where possible. SDG&E plans to implement vegetation and clearance checks within the HFTD and potentially expand into non-HFTD projects. Additionally, SDG&E plans to use the results of these analyses for emergency operations during red flag and other extreme events.</p>	<p>SDG&E Transmission continued to use previously processed LiDAR to proactively model transmission lines that our meteorology department had identified as likely to experience high winds during red flag events, as well as lines that had previously seen high winds during red flag events in 2020. SDG&E Transmission Engineering acquired approximately 17 miles of post construction LiDAR for various transmission lines in the HFTD & continued to provide support to the vendors to obtain the previously requested new LiDAR for 50 miles of transmission in HFTD Tier2 for our 230kV system.</p>

Discussion: N/A

Spend: Transmission inspection costs are subject to FERC jurisdiction and are not reported within the WMP.

PSPS Impact Reduction: N/A

H. HFTD Tier 3 Inspections (2021 WMP Section 7.3.4.9.1)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
10,815	11,535	107%	Inspections

Discussion: The increase in inspections occurred in November and December at the request of the operational districts. Those additional inspections didn't contribute to the increase in costs since the work is due in 2022.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 2,459	\$ 3,082	\$ 623
O&M	\$ 381	\$ 49	\$ (332)

Discussion: The increased capital spend is related to additional poles identified for replacement (161 vs. 147) through the HFTD pole inspections. The reduced O&M spend was lower than planned primarily due to spend embedded within 7.3.4.1 (Detailed Corrective Maintenance Program Inspections).

PSPS Impact Reduction: N/A

I. Drone Assessments of Distribution Infrastructure (2021 WMP Section 7.3.4.9.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
22,000	21,420	97%	Inspections

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 13,595	\$ 12,636	\$ (959)
O&M	\$ 35,358	\$ 33,108	\$ (2,250)

PSPS Impact Reduction: N/A

J. Circuit Ownership (2021 WMP Section 7.3.4.9.3)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to evaluate the Circuit Ownership Program. This initiative has the potential to expand to all users in SDG&E’s Electric Regional Operations or even outside departments to submit concerns.	Zero submissions were received. The project has been removed from the 2022 WMP due to other Company initiatives that rendered this redundant.

Discussion: The circuit ownership initiative was stopped in 2021 due to lack of participation and the presence or development of other initiatives that provided alternative opportunities for employees to discover and report fire-related concerns. For instance, SDG&E performs additional inspections in the HFTD to identify fire-related infractions, and SDG&E’s Near Miss application added a new category for “Potential for Fire Ignition” to allow any SDG&E employee to report items of concern.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 125	\$ 0	\$ (125)

Discussion: No expenditures were recorded, and this initiative was retired in 2021.

PSPS Impact Reduction: N/A

K. Drone Assessments of Transmission Infrastructure (2021 WMP Section 7.3.4.9.4)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
1,200	1,028	86%	Inspections

2021 Plan	2021 Actual
SDG&E will continue to develop the program to enhance its existing inspection efforts of transmission structures in HFTD areas starting in 2020. SDG&E plans to focus on inspecting select transmission structures in both Tier 2 and Tier 3 HFTD areas in 2021, as part of an initial pilot effort.	By the end of 2021, SDG&E performed 1,215 drone flights of transmission structures in the HFTD by our Responsible Pilot in Command (RPIC) and Qualified Electric Worker (QEW) teams. During those flights, photographs of the structures were collected and the QEW completed their initial assessment. That assessment then goes through QA/QC with our intelligent image processing models and a QEW Supervisor. The full QA/QC process was completed for 1,028 transmission structures in the HFTD by the end of 2021. The issue rate continued to be low, averaging 2% with no emergency issues identified in 2021.

Discussion: SDG&E completed 1,215 flights of transmission structures during 2021, exceeding the planned flights. However, the QA/QC process contains multiple stages and takes several weeks to complete. As a result, 187 transmission structures remained in the QA/QC process at the end of 2021 and are not included in the completed total above.

Spend: Transmission inspection costs are subject to FERC jurisdiction and are not reported within the WMP.

PSPS Impact Reduction: N/A

L. Aerial 69kV Inspections of Transmission Infrastructure (2021 WMP Section 7.3.4.9.5)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
1,654	1,652	100%	Inspections

Discussion: N/A

Spend: Transmission inspection costs are subject to FERC jurisdiction and are not included within the WMP.

PSPS Impact Reduction: N/A

M. Patrol Inspections of Distribution Poles – CMP (2021 WMP Section 7.3.4.10)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
86,000	86,490	101%	Inspections

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 910	\$ 1,140	\$ 230
O&M	\$ 277	\$ 286	\$ 9

Discussion: The increase in spend is related to projects accelerated into 2021 from the HFTD pole inspections program. Additionally, this is a reactive budget dependent on the actual number of poles identified for replacement during patrol inspections.

PSPS Impact Reduction: N/A

N. Visual Inspections of Transmission Equipment (2021 WMP Section 7.3.4.11)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
7,024	6,423	91%	Inspections

Discussion: SDG&E completed the inspection of all transmission lines that were required in 2021. To forecast plan targets, SDG&E converted the target for transmission inspections from “transmission lines inspected” to “transmission structures inspected” in 2021, and an average structure count per transmission line was used. The actual structure count of the transmission lines due in 2021 was lower than the average, thus the forecasted target did not accurately capture the completed inspections.

Spend: Transmission inspection costs are subject to FERC jurisdiction and are not included within the WMP.

PSPS Impact Reduction: N/A

O. Monitoring and Auditing of Inspections (2021 WMP Section 7.3.4.13)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E does not currently plan on implementing any improvements to this initiative. SDG&E will continue its current process of auditing its inspection and maintenance results on a quarterly basis.	SDG&E completed 100% of the QA/QC audits for the electric distribution system in 2021. SDG&E performed 1,446 audits on the OH distribution system, with 36 additional findings found.

Discussion: N/A

Spend: The costs for monitoring and auditing inspections are embedded within operational costs and are not split by HFTD and Non-HFTD.

PSPS Impact Reduction: N/A

P. Substation System Inspections (2021 WMP Section 7.3.4.14)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
330	405	123%	Inspections

Discussion: In 2021, SDG&E performed more substation inspections than originally forecasted for two reasons.

- Extra inspections were performed on substations that served hospitals, emergency services facilities, or other customers providing care to COVID patients.
- Additional Substation inspections were performed, exceeding the frequency of inspections outlined in the maintenance practice.

Spend: Substation inspection costs are subject to FERC jurisdiction and are not reported within the WMP.

PSPS Impact Reduction: N/A

VI. Vegetation Management Inspections (2021 WMP Section 7.3.5)

As part of its efforts to make its electric system more resistant to wildfires, and to comply with relevant Commission rules and state law, SDG&E’s vegetation management program was designed with the goal of keeping trees and brush clear of electric infrastructure. SDG&E’s vegetation management program involves several components including but not limited to: tracking and maintaining a database of inventory trees and poles, routine and enhanced patrolling, pruning and removing hazardous trees, replacing unsafe trees with more situationally compatible species, pole brushing, and training first responders in electrical and fire awareness. These program components are discussed in detail in the Sections below.

SDG&E’s strategy for conducting its vegetation management program focuses on annual routine and enhanced inspections. Routine operations are driven by regulatory requirements by following an annual, master schedule that includes pre-inspection activities, trimming, auditing, and pole brushing. During routine and off-cycle inspections in the HFTD SDG&E pursues enhanced clearances on its targeted species. The off-cycle inspections provide a second assessment of all trees within the HFTD during the annual cycle. The criteria for determining target species include factors such as growth rate and characteristics, failure potential, outage frequency history, and other environmental factors. Targeted species include eucalyptus, palm, oak, pine, and sycamore. Species alone does not necessarily trigger the need for enhanced trimming but must consider the risk based on multiple site-specific conditions. Many of these trees, such as eucalyptus and sycamore, are fast-growing and have the propensity to shed branches during wind conditions.

Below is a financial summary for the programs within the Vegetation Management Inspections category of SDG&E’s 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ -	\$ -	\$ -
O&M	\$ 71,639	\$ 61,877	\$ (9,762)

Initiatives with the greatest effect on the above table include:

O&M:

- 7.3.5.2 – Detailed Inspections of Vegetation Around Distribution Infrastructure – Inventory Tree Inspections
- 7.3.5.5 – Fuels Management

A. Vegetation Management - Community Engagement (2021 WMP Section 7.3.5.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to work with multiple internal departments toward the goal of providing comprehensive outreach and education regarding its vegetation management activities including web content, specific literature, and public events	Vegetation Management participated in multiple company outreach and fire preparedness events such as wildfire safety fairs and webinars. Vegetation Management is integrated in monthly meetings such as with SDG&E's Environmental Services Dept, State Parks, and US Forest Service to review ongoing and planned company activities, mitigation measures, special use permits updates, and protocols for species protection.

Discussion: N/A

Spend: The costs for this program are embedded within routine operations as well as Community Outreach/Engagement programs due to Vegetation Management's involvement in the 2021 SDG&E Wildfire Safety Fairs.

PSPS Impact Reduction: N/A

B. Detailed Inspections of Vegetation Around Distribution Infrastructure – Inventory Tree Inspections (2021 WMP Section 7.3.5.2)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
455,000	502,132	110%	Inspections

Discussion: The 2021 plan reflects the estimated inventory tree count at the end of 2020 and does not include new trees added during the 2021 pre-inspection cycle. The 2021 actual reflects the number of inspection activities performed throughout the year. Each inspection activity reflects one update to an inventory tree. The number of inventory trees changes daily as new trees are added and removed from SDG&E’s system.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 49,765	\$ 42,016	\$ (7,749)

PSPS Impact Reduction: N/A

C. Fuels Management (2021 WMP Section 7.3.5.5)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
500	463	93%	Poles Cleared

2021 Plan	2021 Actual
<p>SDG&E plans to complete expanded vegetation (fuels) thinning within a 50-foot radius on 500 poles within the HFTD and State Responsibility (SRA). The methodology for determining which poles to include in the project included using risk modeling, environmental impact analysis, and targeting poles where brushing is required for Public Resources Code 4292. This activity will be managed by Vegetation Management.</p> <p>SDG&E additionally plans to continue the SDG&E-sponsored funding grants to third-parties for the creation of fuel breaks. This activity will be managed by the Fire Science and Climate Adaptation (FSCA) Department. The 2021 grant program of work includes:</p> <ul style="list-style-type: none"> - Fire Safe Council Grant: Conduct defensible space to rural homes within the Tier 3. Conduct roadside brushing adjacent to high-risk electrical infrastructure within Tier 3. - Campo Memo of Understanding (MOU): Build a fuel break to protect TL50001 (SWPL). - Viejas MOU: Conduct defensible space and roadside mowing adjacent to high-risk electrical infrastructure within Tier 3. 	<p>The fuels thinning work did not begin until late Q3, 2021 as it was precluded prior to that due to environmental constraints (nesting birds). Property owner authorization was a pre-requisite for the work, and delays in positive notification with customers postponed actual commencement of some of the planned work sites. SDG&E completed fuels thinning on 203 poles associated with the planned 500 poles in 2021. The scope of the SDG&E-sponsored funding grant program administered by the FSCA Department referenced below included fuels thinning and removal around an additional 260 poles.</p> <p>The FSCA Fuels Modification funding grant initiative utilized multiple avenues in 2021. The first was a grant to the Greater Fire Safe Council of San Diego County which was redistributed into smaller awards for fuels management projects prioritizing defensible space. The projects targeted 15 zones that had been impacted by PSPS and contain 1,079 poles along 56 circuit miles. In total this program was able to treat approximately 190 acres with 600,000 cubic feet of material removed. The programs were also aided by property owners who contributed approximately 1,300 hours of their time to enhance the fire resiliency of their communities. The other avenue where a grant was used was through tribal MOUs where in 2021 1 ¼ miles of fuel break were created along multiple Tier 3 circuits with the added benefit of the protection of 20 homes.</p> <p>Another significant accomplishment in 2021 for the grant program was the completion of an MOU with the Pala Tribe in the SDG&E service territory. While no projects were accomplished through the grant program with the tribe in 2021</p>

	this MOU will facilitate future cooperative efforts.
--	--

Discussion:

There was a shift in focus midway through the year from agency lands to private properties which required customer permission to enter prior to conducting work. The process of acquiring permission led to some delays in work. Moving forward, notification to customers will be initiated well before work is scheduled to occur to ensure permissions are in place and reduce unnecessary delays.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 6,206	\$ 4,350	\$ (1,856)

Lower spend is primarily timing related due to lack of customer permission to complete work in 2021.

PSPS Impact Reduction: N/A

D. LiDAR Inspections of Vegetation Around Distribution Infrastructure and Vegetation Management Technology (2021 WMP Section 7.3.5.7)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to research LiDAR as a tool for post-trim auditing and change detection in trees and equipment, though the latter appears still in the early stages of advancement. SDG&E expects to use LiDAR technology to some degree across multiple Company initiatives and throughout a larger portion of the HFTD in 2021. As the frequency of flights increase, and data acquisition becomes more efficient, Vegetation Management will continue to pilot LiDAR as a more integrated component of its operations.</p>	<p>SDG&E is in the process of completing acquisition of new territory wide HFTD LiDAR data for use in multiple company applications. VM engaged IOUs to determine current use of LiDAR and satellite imagery to determine best practices for integration into VM operations. Technology Project Manager engaged to further identify and develop proof of concepts for utilization of LiDAR, satellite, and AI technologies.</p>

Discussion: N/A

Spend: The costs for this program are generally embedded within the Distribution Overhead System Hardening program; some specific vegetation management clearance analysis was tracked in SDG&E’s Tree Trim Balancing Account (TTBA). Most LiDAR costs are tracked within the Overhead System Hardening program to support engineering as-builts.

PSPS Impact Reduction: N/A

E. Other Discretionary Inspections of Vegetation Around Distribution Infrastructure – Enhanced Inspections, Patrols, and Trims (2021 WMP Section 7.3.5.9)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
17,000	12,578	74%	Trim/Remove

Discussion: The initial 17,000 target set by SDG&E used a simple methodology rooted in the assumption that all 83,000 inventory trees within the HFTD would require enhanced clearances within 5 years (83,000/5 = 17,000 trees annually). In reality, this assumption has proved not to be the case. SDG&E completed *all inspections* of inventory trees required in 2021, including assessing the 17,000 trees to determine if enhanced clearances were necessary. Upon inspection, SDG&E’s pre-inspection contractor determined that only 12,578 required enhanced clearance work.

Moving forward, the determination of which trees require annual work will incorporate factors such as proximity to the lines, hazards, expected growth rate, and the annual trim cycle. SDG&E has revised its targets for 2022 based on: 1) trim frequency where the tree was trimmed at least 5 of the last 10 years, 2) the tree had no enhanced trim in last 10 years, and 3) the current line clearance of the tree is less than eight feet will be used moving forward. This new methodology has the target set at 12,500 trees, as reflected in SDG&E’s 2022 WMP Update.

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 10,235	\$ 9,955	\$ (280)

PSPS Impact Reduction: N/A

F. Quality Assurance/Quality Control of Inspections (2021 WMP Section 7.3.5.13)

Risk Reduction:

2021 Plan	2021 Actual
Over the next 5 years, SDG&E will work to develop a comprehensive audit program to continue to assess and quantify the state of compliance of the Vegetation Management program with regulatory requirements. These audits will inform on overall success of the program, state of compliance, and procedural integrity	SDG&E continued its QA/QC program of completing 15% audit on all completed routine VM activities, and nearly* 100% audit on all completed tree work resulting from the off-cycle HFTD patrols. The QA/QC contractor was utilized to augment the off-cycle HFTD inspection activities to meet schedule goals in advance of and during peak fire season.

*Some trees may not get audited due to property inaccessibility, or a change in the required work identified during the Pre-inspection activity.

Discussion: N/A

Spend: The costs for this program are embedded within the Tree Trim Balancing Account (TTBA).

PSPS Impact Reduction: N/A

G. Recruiting and Training of Vegetation Management Personnel (2021 WMP Section 7.3.5.14)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue working with the stakeholders to expand the Utility Arborist Trainee program to colleges in Southern California by early 2021. SDG&E is also collaborating to develop and implement a “Pre-Inspection” curriculum in 2021 with a goal of developing a career path for local students into the utility workforce.	Planning and coordination was performed for the next session of the utility-sponsored Line Clearance Tree Trimming training program. Based on the success and positive feedback from the inaugural training in Q3, SDG&E decided to continue this collaborative effort with labor, utilities, and the green industry.

Discussion: N/A

Spend: The costs for this program are embedded within the Tree Trim Balancing Account (TTBA).

PSPS Impact Reduction: N/A

H. Removal and Remediation of Trees with Strike Potential to Electric Infrastructure - Hazard Tree Removal and Right Tree-Right Place (2021 WMP Section 7.3.5.16)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to continue its robust hazard tree inspection and trimming operations. SDG&E will begin implementing an internal workforce of internal SDG&E inspectors to perform its off-cycle, enhanced inspections and hazard tree assessments within the HFTD. SDG&E requires contractors to perform annual hazard tree training for their field personnel as a refresher and to learn the latest evaluation techniques. Additionally, SDG&E will continue its outreach and collaboration with cities and other stakeholders to increase the number of tree plantings as a sustainability initiative.</p>	<p>Routine and off-cycle hazard tree inspections in the HFTD continued with the use of ISA-Certified Internal Patrollers and contractors. SDG&E had no reportable ignitions on distribution lines as a result of tree contact throughout 2021.</p>

Discussion: N/A

Spend: The costs for this program are embedded within the Tree Trim Balancing Account (TTBA).

PSPS Impact Reduction: N/A

I. Vegetation Inventory System - Tree Database (2021 WMP Section 7.3.5.19)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to investigate the integration of its new work management system with other inter-departmental systems to streamline workflows. SDG&E will research opportunities to share its inventory data with external stakeholders for cross-activity initiatives.	VM continued modification and process improvements to its inventory system (Epoch) through system enhancements, additional tree attributes, additional mapping layers, and improved upload capabilities. SDG&E completed two analyses with external vendors on tree-line clearances and outage events related to its tree inventory data. The use of the data corroborated the reduction of outage frequency with expanded post-trim clearances.

Discussion: N/A

Spend: The costs for this program are embedded within the Tree Trim Balancing Account (TTBA).

PSPS Impact Reduction: N/A

J. Vegetation Management to Achieve Clearances Around Electric Infrastructure – Pole Brushing (2021 WMP Section 7.3.5.20)

Risk Reduction:

2021 Plan	2021 Actual	% of Target	Units
35,500	35,102	99%	Poles brushed

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 5,433	\$ 5,556	\$ 123

PSPS Impact Reduction: N/A

VII. Grid Operations and Protocols (2021 WMP Section 7.3.6)

SDG&E’s grid operations and protocols consist of mitigations that reduce risk through changing the way SDG&E operates during periods of elevated and extreme wildfire risk. This includes the disabling of reclosing in the HFTD, the enabling of fast recloser settings, restricting work in the HFTD during extreme fire potential and Red Flag Warnings, and sending contract fire resources with crews during elevated days in the HFTD. These operational decisions have led to reduced ignitions on the electric system, and just as importantly reduced ignitions during operational periods where an ignition is more likely to lead to a catastrophic fire.

Below is a financial summary for the programs within the Grid Operations and Protocols category of SDG&E’s 2021 Wildfire Mitigation Plan. Variances in spend of over 20% of target or \$10MM are discussed within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 10,185	\$ 13,461	\$ 3,276
O&M	\$ 10,546	\$ 9,921	\$ (625)

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.6.6.1 – Aviation Firefighting Program

O&M:

- 7.3.6.6.1 – Aviation Firefighting Program

A. Recloser Protocols (2021 WMP Section 7.3.6.1.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E’s reclosing operations continue to represent a standard best practice for California utilities. SDG&E plans to continue to look for innovative system protection settings for its automated reclosers and other automated sectionalizing devices, such as the fast trip settings to reduce fault energy.	SDG&E continues to leave reclosing disabled in the HFTD on its distribution circuits. A single wildfire risk event occurred in Q4 that required disabling reclosing in part of the WUI located outside the HFTD during the event.

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

B. Sensitive / Fast Protection Settings (2021 WMP Section 7.3.6.1.2)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to enable sensitive/Fast protection settings on more devices within the HFTD. This program has synergies with SDG&E's PSPS sectionalizing enhancement program and the Advanced Protection program. As more remote sectionalizing devices are deployed and upgraded system protection equipment is installed on the distribution system, then these fast protection settings can be enabled/	SDG&E continues its practice of enabling sensitive/Fast protection setting capabilities on new sectionalizing devices installed in the HFTD and areas of coastal risk. SDG&E had 1 wildfire risk event trigger activation of sensitive relay profiles in 2021.

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

C. Wildfire Infrastructure Protection Teams - Contract Fire Resources (2021 WMP Section 7.3.6.2)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to regularly refine this initiative with the training qualifications of personnel serving on CFRs and utility activities are being reviewed annually.	CFR crews supported SDG&E and its contractors for at risk activities throughout the year. There were no large wildfires that originated from activities being performed by SDG&E or our contractors.

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 2,936	\$ 3,071	\$ 135

PSPS Impact Reduction: N/A

D. Other Special Work Procedures (2021 WMP Section 7.3.6.3)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to update procedures and review training annually with feedback from attendees. Additionally, the feedback will be incorporated into future training.	SDG&E performed training sessions focused on fire preventing and emergency response for 3,532 students. Additionally, gas and electric documents guiding the fire prevention standards for SDG&E have started their review process so that updates can be incorporated into future training.

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

E. Protocols for PSPS Re-energization (2021 WMP Section 7.3.6.4)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to look for ways to reduce post-event patrol times in an effort to reduce the impacts of PSPS events on its customers. Some of these ideas include leveraging drone pilots to perform patrols on areas that can only be accessed by helicopter, when wind conditions delay the use of helicopter-only patrols.	SDG&E exercised its ICS process for prioritizing, planning, and deploying resources to the single PSPS event in Q4.

Discussion: N/A

Spend: The costs for this program are embedded within Emergency Management Operations.

PSPS Impact Reduction: This program does enable a reduction of the duration of a PSPS event.

F. Mitigating the Public Safety Impact of PSPS Protocols (2021 WMP Section 7.3.6.5)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E will continue refining the activities associated with reducing PSPS impacts	SDG&E had one PSPS event in Q4, and a detailed report of the event is provided in the public post event report located on the CPUC website. The event impacted 5,858 customers. PSPS mitigations including sectionalizing devices, micro grids, and grid hardening ensured that 8,327 customers did not experience a PSPS during this event.

Discussion: N/A

Spend: The costs for this program are embedded within Cooperation and Best practice Sharing with Outside Agencies.

PSPS Impact Reduction: PSPS mitigations including sectionalizing devices, micro grids, and grid hardening ensured that 8,327 customers did not experience a PSPS during this event.

G. Aviation Firefighting Program (2021 WMP Section 7.3.6.6.1)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to take ownership of a Sikorsky S-70M (Firehawk), which will serve as one of SDG&E's lead aerial firefighting resources once it is outfitting with firefighting capability. Once the Firehawk is in service, which is expected to be in 2022, the Blackhawk will be available as a backup if needed. Operations with the S-70M (Firehawk) will be more capable and safer for firefighting compared to the current Blackhawk due to the platforms advanced safety systems and enhanced performance characteristics.</p>	<p>Under SDG&E's Aerial Firefighting Program, two aerial firefighting assets have been made available seven days a week, 365 days per year. The acquisition of the S-70M has been delayed until 2023. Availability is measured in days. Any days that an asset is not available for immediate dispatch degrades the availability. Additionally, the number of dispatches is equal to a response to need.</p> <p>For 2021, SDG&E provided the following availability and dispatches:</p> <ul style="list-style-type: none"> • Air Crane - zero days unavailable • Blackhawk - zero days unavailable <p>Totals:</p> <ul style="list-style-type: none"> • 64 dispatches, 40 with fire attack

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 10,185	\$ 13,461	\$ 3,276
O&M	\$ 7,610	\$ 6,850	\$ (760)

Helicopter milestone payment and HD/IR cameras payments accelerated into 2021 from 2022.

PSPS Impact Reduction: N/A

VIII. Data Governance (2021 WMP Section 7.3.7)

In 2021, SDG&E began centralizing its WMP-related measures and metrics in a central repository to gain insights and assess progress on WMP programs and initiatives.

During the establishment of the centralized measures and metrics reporting process, SDG&E inventoried required data metrics and identified data owners and data sources. Through subsequent interviews of data owners, SDG&E determined that each specific data metric would need to be clearly defined and a repeatable and verifiable processes established to accumulate and track the data to ensure its integrity and auditability.

Initially, SDG&E almost exclusively collected data metrics and measures manually. In addition, data definitions were inconsistent, some data was untimely, and preliminary and final data metrics could vary. To enhance data quality and improve the efficiency of the data gathering process, SDG&E began developing a WMP Data Governance Framework (DGF) and an automated Central Data Repository (CDR) for wildfire-related data, which can be used by multiple internal and external stakeholders in the future. These changes will improve data collection by moving away from manual collection to a more uniform, electronic format that will provide data metrics in a searchable format, similar to a GIS data structure.

The DGF will define a set of repeatable standards, policies, processes, and controls for wildfire-related data. Similar to the WSD's GIS Data Standards, the vision of SDG&E's DGF is to make its wildfire-related data actionable, accessible, aligned, and auditable.

In response to the WSD GIS Data Standards and other related regulatory initiatives, SDG&E is making significant enhancements to the CDR that will make it scalable and sustainable to accommodate future regulatory requirements. SDG&E will pursue technology solutions to automate these data requests where possible.

To date, SDG&E has completed approximately 25% of the effort needed to implement the DGF and CDR and anticipates the completion of data related to the all the metrics tables contained in the WMP by the end of 2021.

Below is a financial summary for the programs within the Data Governance category of SDG&E's 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 19,004	\$ 12,014	\$ (6,990)
O&M	\$ -	\$ -	\$ -

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.7.1 – Centralized Repository for Data

A. Centralized Repository for Data (2021 WMP Section 7.3.7.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to continue to further develop and maintain the EAMP program. The EAMP program will continue to maintain and improve currently integrated assets, while expanding to integrate other asset attributes from other asset types as the data quality and availability improves.	Incrementally automating the data gathering process <ul style="list-style-type: none"> • Processing of additional data attributes for Asset Point, Asset Line, and Inspection Feature Classes • Consolidating OEIS-required data in the SAP Hana data repository for Overhead Structures, Overhead Conductors, and Inspections • Implementing tools for testing, development, and data quality / availability processes to incrementally automate the data submission process • Enabling data quality visibility by developing Data Quality / Availability Scorecards for transmission and distribution inspection data

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 19,004	\$ 12,014	\$ (6,990)

Partial variance relates to \$2.1M that was budgeted for hardware and software. It was determined in the 3rd qtr. that neither were required to support the project. For WMP Advanced Analytics, the project started later in the year than planned, mid-September 2021.

PSPS Impact Reduction: N/A

B. Collaborative Research on Utility Ignition and/or Wildfire - Innovation Lab and Other Collaboration (2021 WMP Section 7.3.7.2)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to establish even stronger partnerships and relationships with the academic community to sponsor ongoing wildfire mitigation-related collaborative research through internships programs where SDG&E further exposes graduate-level academic students to wildfire mitigation within utility companies. This will serve as a mechanism to begin training the next generation of scientists to support this growing problem.</p>	<p>The FSCA department has been establishing long-term partnerships with academia to continue to push forward weather science, fire science and climate science. Specific academic partners in 2021 have been Scripps Institution of Oceanography, San Jose State University and the San Diego Supercomputing Center and major accomplishments have been publishing a new publicly available data sharing portal (https://wifire-data.sdsc.edu/dataset?organization=sdge) as well as a new public weather mapping system (https://wxmap.sdsc.edu/)</p>

Discussion: N/A

Spend: The costs for this program were embedded within the Fire Science and Climate Adaptation Department.

PSPS Impact Reduction: N/A

C. Ignition Management Program (2021 WMP Section 7.3.7.4.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E aims to further refine process documents and connect mitigation owners with data repositories.	SDG&E's Ignition Management Program followed up on evidence of heat reports and continued to work through the process of refining the data gathering procedures. During Q4, SDG&E continued to enhance the automated process for gathering ignition and near ignition information was enhanced with a new integrated data flow process. The IMP is also supporting the efforts to meeting the new "Investigation and Compliance" reporting requirements from CAL OEIS for notifications of 4hrs, 12 hrs, and 30-day incident reports. A template has been created and a workflow put in place.

Discussion: N/A

Spend:

The costs for this program were embedded within the Fire Science and Climate Adaptation Department.

PSPS Impact Reduction: N/A

D. Reliability Database (2021 WMP Section 7.3.7.4.2)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to migrate the current database to an Oracle IT supported OUA application which allows for easier viewing of data by a broader internal audience.	SDG&E continues to work towards migrating the current database to an Oracle IT supported OUA application. The SAIDIDAT+ initiative was re-kicked off late in the year and has a target implementation date of Late Q2 2022

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

IX. Resource Allocation Methodology (2021 WMP Section 7.3.8)

SDG&E’s enterprise risk management process includes a step focused on risk-informed investment decision-making. As addressed in SDG&E’s 2019 RAMP, the capital planning process is the Company’s current annual process for prioritizing funding based on risk-informed priorities and input from operations. The capital allocation planning sessions begin with input from functional capital committees that comprise subject matter experts who perform high level assessments of the capital requirements based on achieving the highest risk mitigation at the lowest attainable costs. These requirements are presented to a cross-functional team representing each functional area with capital requests.

This committee reviews the resource requirement submissions from all functional areas, and projects are evaluated against priority by assessing a variety of metrics including safety, cost effectiveness, reliability, security, environmental, strategic, and customer experience. Recommendations for capital spending are then presented to an executive committee for approval. Once the capital allocations are approved, each individual operating organization is chartered to manage their respective capital needs within the capital allotted by the plan. This includes re-prioritizations as necessary to address imminent safety concerns as they arise. As with the Company’s risk evaluation processes, the capital planning process is continuing to evolve as the Company endeavors to achieve the goal of more quantitatively determining the risk reduction per dollar invested, also referred to as risk spend efficiency or RSE.

Below is a financial summary for the programs within the Resource Allocation Methodology category of SDG&E’s 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 2,845	\$ 1,700	\$ (1,145)
O&M	\$ 4,542	\$ 5,299	\$ 757

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.8.1 – Asset Management

O&M:

- 7.3.8.1 – Asset Management
- 7.3.8.4.1 – Wildfire Mitigation Personnel

A. Asset Management (2021 WMP Section 7.3.8.1)

Risk Reduction:

2021 Plan	2021 Actual
<p><u>Investment Prioritization</u> As the Investment Prioritization matures, performance evaluation and continuous improvement capabilities will be developed. The performance evaluation capability will create business processes around identifying objectives and key performance indicators and determining action plans to monitor the effectiveness of the Investment Prioritization. The continuous improvement capability will produce business processes on developing the approach and collaboration to address the recommended corrective or improvement actions.</p> <p><u>WiNGS</u> As far as the WiNGS model, SDG&E’s team will continue to improve the data that is used to evaluate the risks at the segment level and will work on assessing the need and approach for expanding the use of the model to other areas across the system and other initiatives that could benefit a more granular approach to prioritization.</p>	<p><u>Investment Prioritization</u> - Completed programming the prototype of the FERC T&S value framework and risk calculations into the software solution tool.</p> <p>- Completed drafting the associated business processes to implement the tool with transmission and substation business units</p> <p>- Commenced working with the electric distribution business units in developing the prototype for the CPUC electric distribution value framework and risk calculations.</p>

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 2,845	\$ 1,700	\$ (1,145)
O&M	\$ 387	\$ 5,299	\$ 4,912

Capital: Project starting later than planned.

O&M: Higher than planned primarily due to 2021 spend embedded within 7.3.8.4.1 Wildfire Mitigation Personnel. 7.3.8.1 and 7.3.8.4.1 combined total spend higher than planned primarily due to new regulatory requirements for WMP Independent Evaluator costs, not included in original target.

PSPS Impact Reduction: N/A

B. Wildfire Mitigation Personnel (2021 WMP Section 7.3.8.4.1)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E's wildfire mitigation team personnel continues to review feedback from external stakeholders including WSD and intervenors so that SDG&E's WMP, WMP Updates, and WMP Quarterly Reports meet or exceed expectations.	SDG&E filed all required quarterly reports successfully and on-time. SDG&E completed the two required supplemental reports due on November 1st: 2021 WMP Action Statement Progress Report, and 2021 WMP Change Order Report. SDG&E also finalized the 2022 WMP Update filed on February 11th, 2022, after receiving final guidance from OEIS on December 16th.

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 4,155	\$ 0	\$ (4,155)

Lower than planned primarily due to 2021 spend embedded within 7.3.8.1 Asset Management.

PSPS Impact Reduction: N/A

X. Emergency Planning and Preparedness (2021 WMP Section 7.3.9)

The mission of the SDG&E's Emergency Management department is to coordinate safe and effective emergency preparedness for the Company, SDG&E's customers, and emergency response personnel. That mission extends to safely and efficiently preparing for, responding to, and recovering from all threats and hazards through strategic planning, training, and exercising, and a sustained Quality Assurance and Improvement process.

Below is a financial summary for the programs within the Emergency Planning and Preparedness category of SDG&E's 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 5,473	\$ 2,981	\$ (2,492)
O&M	\$ 12,153	\$ 12,907	\$ 754

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.9.7 – Other – Emergency Management Operations

O&M:

- 7.3.9.7 – Other – Emergency Management Operations

A. Adequate and Trained Workforce for Service Restoration (2021 WMP Section 7.3.9.1)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to continue future improvements in this area, which include exercises and tabletops in partnership with various SDG&E departments such as: Emergency Services, Electric Distribution Operations, Substation, Transmission Construction and Maintenance, and Grid Operations. In addition to the AR/VR and 2.5 D inspection testing programs, in December 2020, SDG&E began construction on a physical infractions test yard with a target of 25-30 infractions that will be changed regularly for Journeyman to identify and properly code.</p>	<p>SDG&E Skills Training completed finalizing all outstanding initiatives and training to meet internal WMP goals and ESCMP requirements. In addition, below is a summary of classes run to support our 3-year Lineman Apprenticeship program. Skills training has built a Journeyman Lineman forecast model to meet our goal of building the optimal pool of Line Assistants and Apprentices. Additionally, we have partnered with Human Resources on recruiting external Journeyman Lineman to include in this Journeyman Lineman pool. All of this, in supporting our continued efforts to improve timely response, restoration, and improving reliability.</p> <p>Journeyman Lineman graduated and classes competed:</p> <p>Class of 2021 – Completed apprenticeship and reached journeyman lineman status – 9 employees</p> <p>Class of 2022A – Completed Hot stick/Rubber glove school – 9 employees</p> <p>Class of 2022A – Completed Underground/Phase 3 school – 8 employees</p> <p>Class of 2022B – Completed Hot stick/Rubber glove school – 12 employees</p> <p>Class of 2023A – Completed Advanced Secondary school – 16 employees</p> <p>Class of 2024A – Completed Climbing/Beginning Secondary school – 15 employees</p> <p>Class of 2024B – Completed Climbing/Beginning Secondary school – 16 employees</p>

Discussion:

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

B. Community Outreach, Public Awareness, and Communication Efforts (2021 WMP Section 7.3.9.2)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to expand its AFN campaigns to reach and communicate with a greater number of hard-to-reach vulnerable populations. SDG&E will continue to host Webinars to educate the communities through collaboration with both CAL FIRE and 2-1-1. Additionally, the Company is considering and evaluating additional efforts including, but not limited to, working with local school districts to enhance public education efforts. The Company is also examining new opportunities within its established partnerships with local Tribal Councils as well as focusing on strengthening and expanding partnerships with other CBOs who represent customers with access and functional needs.</p> <p>SDG&E plans to continue future improvements in this area, which include exercises and tabletops in partnership with various SDG&E departments such as: Emergency Services, Electric Distribution Operations, Substation, Transmission Construction and Maintenance, and Grid Operations. In addition to the AR/VR and 2.5 D inspection testing programs, in December 2020, SDG&E began construction on a physical infractions test yard with a target of 25-30 infractions that will be changed regularly for Journeyman to identify and properly code.</p>	<p>SDG&E provided timely, accessible and easy to understand emergency, wildfire and PSPS communications in 21 prevalent languages and PSPS notifications were also provided in American Sign Language in Q4. Enhanced partnerships and increase coordination with CBO partners to provide support to communities in the HFTD, providing enhanced resources and training to facilitate effective support of customers during a wildfire emergency or a PSPS event. Achieved a customer satisfaction rating of 79% for PSPS notification content, meaning messaging was easy to understand and found to be helpful with 83% of customers recalling receiving a notification. Additionally, 61% of customers were either satisfied or extremely satisfied with the frequency of PSPS notifications. To date, nearly 9,000 downloads of the PSPS app have taken place for a total of 31,000+ downloads further ensure expanded communications. Nearly 88% of research respondents considered messaging and public education relevant and meaningful. PSPS communications were the most recalled topics by customers with awareness recall rate increasing from 14% in Q1 to 30% in Q4. To ensure messaging was quickly deployed while also connecting with hard-to-reach customers, SDG&E utilized more than 20 diverse communication platforms, including but not limited to message amplification by regional partners, SDG&E's PSPS mobile app, SDG&E website, targeted social media outreach through NextDoor and dedicated community Facebook pages, broadcast media, TV and radio PSA's, in-community signage, in-community publications, direct customer mailers and targeted outreach to medical baseline and customers with access and functional needs. Public education and community engagement is supplemented with partnerships of more than 200 community-based organizations (CBO's) to enhance customer</p>

	awareness and share information using established, trusted communication channels by the constituents served by these CBOs. SDG&E launched an enhanced PSPS notification effort with ~40 of its CBOs within the Energy Solutions Partner Network that are either located in or serving customers in the HFTD, specifically customers with Access and Functional Needs.
--	--

Discussion: N/A

Spend: Costs for this program are tracked within initiative 7.3.9.7.

PSPS Impact Reduction: N/A

C. Overview of Customer Support in Emergencies (2021 WMP Section 7.3.9.3)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to continue to evaluate new partnerships, programs, and service offerings both directly provided by the Company, as well as provided through community partnerships. Central to SDG&E’s planning will be collaboration with 2-1-1 San Diego and 2-1-1 Orange County on continued ways to support AFN customers in 2021.</p>	<p>SDG&E continued to leverage the strong partnership with 211 San Diego to support during a PSPS. Provided customers robust support during the single PSPS event in 2021 over the Thanksgiving holiday, including hotel stays, accessible transportation, generators delivered on-demand, provided warm meals on Thanksgiving Day at Community Resource Centers, and significantly affected areas while also providing resiliency items (e.g., blankets, care charger inverters, solar lamps). SDG&E continued providing backup power to Medical Baseline, low income, and PSPS-prone customers. More than 3400 generators were provided to eligible customers through Q4, exceeding the year-end target of 3000.</p>

Discussion: N/A

Spend: Costs for this program are tracked within Emergency Management Operations.

PSPS Impact Reduction: This mitigation does not have a measurable impact on reducing PSPS impacts but does help customers access information to assist them during PSPS events.

D. Overview of Emergency Preparedness Plan (2021 WMP Section 7.3.9.4)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E plans to update its CERP based on lessons learned. Processes and standards are enhanced, and training exercises are designed to stress test lessons learned and improvements to support a continuously improved response.	The CERP has been finalized and codified with CEO approval.

Discussion: N/A

Spend: Costs for this program are tracked within Emergency Management Operations.

PSPS Impact Reduction: N/A

E. Preparedness and Planning for Service Restoration - Mutual Assistance and Contractors (2021 WMP Section 7.3.9.5)

Risk Reduction:

2021 Plan	2021 Actual
<p>Mutual assistance is an essential part of the energy industry’s contingency planning and restoration process. SDG&E plans to continue to make improvements in this area. Future improvements to the Mutual Assistance program will include transitioning from cash advances to a debit card system for per diem disbursements. Debit card systems are safer for COVID-19 purposes as handling cash is discouraged by the Centers for Disease Control.</p>	<p>Mutual assistance has been finalized and utilized in Oct 2021 and Jan 2022 to provide assistance to PG&E.</p>

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: Mutual assistance potentially helps to reduce the potential for prolonged PSPS events.

F. Protocols in Place to Learn from Wildfire Events - After Action Reports (2021 WMP Section 7.3.9.6)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E plans to continue to review all significant incidents and activations to identify potential improvements and establish a comprehensive and measurable After-Action Report. Additionally, SDG&E will evaluate if the AAR program can align and integrate the processes with SDG&E's Safety Management System (SMS).</p> <p>SMS will provide a systematic, cohesive framework which builds upon SDG&E's strong safety culture and integrates new and existing processes; it will promote improved communication, better documentation, enhanced coordination, and continuous improvement. Where the AAR focuses on emergency incidents and events involving SDG&E's EOC, the SMS will provide an enterprise-wide approach to risk and safety and allow for cross-functional learning and information sharing on all events.</p>	<p>SDG&E's After-Action Review program provided input to shape the Safety Management System (SMS) Governance Team's Continuous Process Improvement guidance document. In turn, the AAR process was reviewed for potential enhancements and changes to be in lockstep in 2022 with each new safety standard.</p> <p>Additionally, the After-Action Review application is in the final stages of beta testing. Additional end-user testing and modifications for increased ease of use will be completed before formal launch.</p>

Discussion: N/A

Spend: Costs for this program are embedded within normal operations.

PSPS Impact Reduction: N/A

G. Other - Emergency Management Operations (2021 WMP Section 7.3.9.7)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E's Training and Exercise Division in Emergency Management will continue to work with the AAR team to ensure lesson learned are incorporated into all trainings and exercises for continual improvement.</p> <p>Additionally, SDG&E plans to implement a 24/7 Watch Desk program. This program is the natural evolution of developing a world class emergency management program. This capability will increase the capacity of Emergency Management for situational awareness.</p>	<p>SDG&E conducted or participated in a total of 15 emergency exercises and 30 trainings in 2021. In coordination with the After-Action Program, the Training & Exercise Team standardized SDG&E's Emergency Capabilities to ensure consistent capability tracking across After Action, Improvement Planning and Exercise Design cycle. SDG&E also launched an EOC evaluator process to document EOC responder performance during PSPS and other responses as a part of our credentialing goal.</p>

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 5,473	\$ 2,981	\$ (2,492)
O&M	\$ 12,153	\$ 12,907	\$ 754

Capital: Delay in design and construction of joint Wildfire and Climate Resilience Center (WCRC)/Emergency Operation Center (EOC).

PSPS Impact Reduction: Emergency Management operations do not directly impact PSPS thresholds, or reduce the scope, scale, or duration of PSPS events. Instead, the department contributes to efficient operations during PSPS events.

XI. Stakeholder Cooperation and Community Engagement (2021 WMP)

Section 7.3.10)

A first-class level of engagement and cooperation amongst all wildfire stakeholders is extremely important to SDG&E, as it endeavors to fulfill its commitment to mitigate the risk of wildfires and adverse impacts of PSPS events. SDG&E remains dedicated to partnering with utility customers, elected officials, nonprofit support organizations, first responders and all other public safety and community partners, understanding they all play a unique and important role in achieving wildfire prevention and mitigation in SDG&E’s service territory. SDG&E provides an essential service, and it takes its role within the communities it serves very seriously. This is especially true during PSPS events, when communities – neighborhoods in which SDG&E’s employees, families and friends live – depend on complete, accurate, and timely information for their well-being.

SDG&E will continue to strive to provide all stakeholders up-front awareness and information, using available channels to educate the public on wildfire preparedness and PSPS events. It is SDG&E’s goal to equip those it serves with the information and resources to navigate the adversity of an emergency, wildfire, or PSPS event. Through thoughtful education campaigns and strategic partnerships, SDG&E has implemented a robust, external communication strategy, which is continuously analyzed to identify areas of improvement. SDG&E also leverages its broadened and increased relationships with CBOs and stakeholders to amplify and disseminate critical, sometimes life-saving information.

One of the pillars of SDG&E’s wildfire and PSPS awareness lies within its Energy Solutions Partner network, which consists of nearly 200 CBOs. In addition, key to SDG&E’s stakeholder engagement are its relationships with emergency response agencies, both locally and at the state-level. SDG&E is widely recognized as a world-class innovator with its Fire Science and Climate Adaptation department. This team is routinely asked – and happily provides – best practices to other national utilities, as well as internationally. This cooperation, in addition to communication practices lays the foundation for SDG&E’s success in stakeholder cooperation and community engagement.

SDG&E remains committed to fostering productive collaboration and engaging the communities it serves. Endeavoring to collaboratively identify fresh ways to better serve our communities will remain a top priority in 2021 and beyond.

Below is a financial summary for the programs within the Stakeholder Cooperation and Community Engagement category of SDG&E’s 2021 Wildfire Mitigation Plan. Variances over 20% of target or \$10MM spend are discussed further within each initiative.

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 3,302	\$ 5,186	\$ 1,884
O&M	\$ 9,834	\$ 10,787	\$ 953

Initiatives with the greatest effect on the above table include:

Capital:

- 7.3.10.1.1 – PSPS Communication Practices

O&M:

- 7.3.10.1.1 – PSPS Communication Practices

A. Community Engagement - Community Outreach and Public Awareness (2021 WMP Section 7.3.10.1)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E will continue to host webinars in 2021 to provide communities with additional educational efforts and collaboration with both CAL FIRE and 2-1-1. Pending the pandemic in 2021, SDG&E's past open house events will be scheduled to continue to bring rural customers together to educate, share updated information as well as build relationships.</p> <p>Additionally, SDG&E will continue to have Wildfire Safety Fairs to serve the communities with information, education, resiliency, and opportunities to help before, during and after a PSPS activation and/or any other emergency situation.</p>	<p>SDG&E has set up new annual MOUs with CBO partnership networks and expanded to include wildfire preparedness and PSPS support/amplification. In addition, added 10 new partnerships supporting AFN constituents. SDG&E utilized direct mail to Life Support customers update best contact information on file to notify them of PSPS events and available support and has met with the Indian Health Councils to identify areas of needed support.</p> <p>SDG&E hosted 6 Wildfire Safety webinars for customers and the public. These events provided an online opportunity for attendees to learn about current and new efforts SDG&E is implementing to keep the region safe. Some of these events were also held in collaboration with CAL FIRE and the 2-1-1 San Diego and Orange County organizations. 2-1-1 efforts and service offerings mainly target AFN communities and were also shared during the webinar events.</p> <p>Additionally, SDG&E hosted 5 Wildfire Safety Fairs and performed 5 trainings for more than 400 attendees, with key community and stakeholder partners to enhance resiliency and share plans for the upcoming fire season.</p>

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
O&M	\$ 448	\$ 579	\$ 131

Higher than planned primarily due to expansion of prevalent languages and notifications including American Sign Language, increased partnerships with Community Based Organizations (CBOs), and increased accessibility for Access and Functional Needs (AFN) customers.

PSPS Impact Reduction: N/A

B. PSPS Communication Practices (2021 WMP Section 7.3.10.1.1)

Risk Reduction:

2021 Plan	2021 Actual
<p>In 2021, SDG&E will be investing in improvements that enhance both the wildfire safety and PSPS communications. Future improvements will be available and utilized for both communications initiatives. These efforts include the expansion of the AFN campaign to better communicate with hard-to-reach populations. The public education campaign will start sooner in the year and will work to expand the reach of communications within the service territory.</p> <p>The Company will also review and assess the prevalent languages identified, as well as explore other accessibility enhancements to PSPS notifications.</p> <p>Additionally, the Company is considering and evaluating additional efforts including, but not limited to, working with local school districts to enhance public education efforts.</p> <p>SDG&E is also examining new opportunities within its established partnerships with local Tribal Councils and other resources that serve Native American communities.</p>	<p>SDG&E exceeded its year-end targets. Achieved more than 310 million impressions (touchpoints) by the start of Q4, exceeding the goal of 200 million impressions through year-end. A principal call to action of the PSPS campaign is to update contact information, sign up for PSPS notifications and download the SDG&E PSPS app. Achieved a customer satisfaction rating of 79% for PSPS notification content, meaning messaging was easy to understand and found to be helpful. To date, nearly 9,000 downloads of the PSPS app have taken place for a total of 31,000+ downloads. The nexus of 2021 PSPS communication campaign is to connect PSPS to wildfire safety - why it's done, how it's done and how to prepare for it, in a manner that was understandable to customers and the general public. The campaign ran year round, beyond the HFTD, across the entire service territory. Achieved PSPS communications customer favorability rating of 67% in the HFTD, an increase from 55% in 2020 and a 57% favorability rating in non-HFTD, as the campaign was expanded beyond the HFTD in 2021. Nearly 88% of research respondents considered messaging and public education relevant and meaningful. PSPS communications were the most recalled topics by customers with awareness recall rate increasing from 14% in Q1 to 30% in Q4. To ensure messaging was quickly deployed while also connecting with hard to reach customers, SDG&E utilized more than 20 diverse communication platforms, including but not limited to message amplification by regional partners, SDG&E's PSPS mobile app, SDG&E website, targeted social media outreach through NextDoor and dedicated community Facebook pages, broadcast media, TV and radio PSA's, in-community signage, in-community publications, direct customer mailers and targeted outreach to medical baseline and customers with access and functional needs. Public education and community engagement is supplemented with partnerships of more than 200 community-based</p>

	<p>organizations (CBO's) to enhance customer awareness and share information using established, trusted communication channels by the constituents served by these CBOs. SDG&E launched an enhanced PSPS notification effort with ~40 of its CBOs within the Energy Solutions Partner Network that are either located in or serving customers in the HFTD, specifically customers with Access and Functional Needs. These CBOs received training and resources to assist with the amplification of notifications and emergency communications before, during and after a PSPS. We also learned that Spanish was the predominant language outside of English, therefore, all public awareness communications were provided in English and Spanish and made available in 21 prevalent languages with more than 74 million in-language impressions achieved. All PSPS notifications were provided in the 21 prevalent languages and in American Sign Language. To ensure communications were effective, easy to understand, meaningful and useful, conducted research throughout the year in the form of multiple customer surveys, focus groups and customer insight panels to ensure our messaging was resonating with customers and make necessary adjustments real time to communication practices, where needed.</p>
--	--

Discussion: N/A

Spend:

	2021 Target (\$000)	2021 Actual (\$000)	\$ Change (\$000)
Capital	\$ 3,302	\$ 5,186	\$ 1,884
O&M	\$ 9,386	\$ 10,208	\$ 822

PSPS Impact Reduction: N/A

C. Emergency Management and Fire Science & Climate Adaptation (2021 WMP
Section 7.3.10.2.1)

Risk Reduction:

2021 Plan	2021 Actual
<p>To continue to build comprehensive resilience to wildfire and other climate hazards, SDG&E will expand its proven formula of cooperation and best practice sharing and collaborating with agencies. This will be achieved by combining the best available science (spearheading the development of that science where it is lacking), cutting-edge situational awareness technology, and subject matter expertise dedicated to solving complex climate change-related issues.</p>	<p>SDG&E was successful in anticipating, preparing for, reacting to and recovering from periods of high fire risk. We collaborated across all stakeholder groups from local to international and worked towards assisting our communities in their resilience building efforts.</p>

Discussion: N/A

Spend:

The O&M 2021 Target for this line item is embedded within the Fire Science & Climate Adaptation (FSCA) program.

PSPS Impact Reduction: N/A

D. International Wildfire Risk Mitigation Consortium (2021 WMP Section 7.3.10.2.2)

Risk Reduction:

2021 Plan	2021 Actual
The consortium plans to continue to add utilities interested in participating and contribute to the collaboration and learnings. It is hoped experiences with various mitigation approaches and implementations will inform future SDG&E wildfire risk mitigation related work. In the future, more details regarding the progress of the various activities from this consortium may be shared.	SDG&E continued to be an active participant in the International Wildfire Risk Mitigation Consortium in 2021.

Discussion: N/A

Spend:

The O&M 2021 Target for this line item is embedded within the Fire Science & Climate Adaptation (FSCA) program.

PSPS Impact Reduction: N/A

E. Cooperation with Suppression Agencies (2021 WMP Section 7.3.10.3)

Risk Reduction:

2021 Plan	2021 Actual
SDG&E is constantly refining training and solicits input from training officers for topics that firefighters are interested in knowing more about. These topics, as well as lessons learned on incidents, are incorporated into training.	In addition to interacting on incidents and attending regular meetings with local agencies, SDG&E performed 3 trainings and began creating a 2022 training plan. Training was focused on utility safety and evacuation/repopulation processes in the SDG&E service territory.

Discussion: N/A

Spend:

The O&M 2021 Target for this line item is embedded within the Fire Science & Climate Adaptation (FSCA) program.

PSPS Impact Reduction: N/A

F. Non-Conductive Balloon Initiative (2021 WMP Section 7.3.10.5)

Risk Reduction:

2021 Plan	2021 Actual
<p>SDG&E is pursuing the development of a non-conductive balloon with a major manufacturer in the balloon industry. Both companies are working collaboratively to develop a prototype non-conductive balloon, which will not cause an electrical fault when it comes in contact with overhead distribution power lines. If the prototypes continue to have success in the high voltage tests, the balloon manufacturer may seek improvements to lower the production costs and apply the technology to complex balloon designs.</p>	<p>SDG&E continued the development of a non-conductive balloon with a major manufacturer in the balloon industry. Balloons were tested at 33kv under conditions similar to SCE's overhead power lines and they passed. A commercial agreement was executed, to license SDG&E's patents and intellectual property (IP) on non-conductive balloons with Anagram International, Inc. The license agreement will allow Anagram to use SDG&E's IP in manufacturing non-conductive balloons, with the right to sublicense the IP to other companies in the balloon industry. As required, SDG&E submitted the commercial agreement by Advice Letter (AL, SDGE-3841-E) to the California Public Utilities Commission for approval. The Advice Letter is proceeding according to the normal regulatory process. The IEEE task force on the draft trial standard for testing balloons in overhead distribution power lines (P-2845) made good progress. The task force is comprised of several electric utilities, a senior engineer from the CPUC, Anagram, and another balloon-industry consultant, and representatives from a high voltage test lab. The task force has agreed on multiple topics and narrowed the open items from the earlier drafts. Christian Henderson from SDG&E is the lead on the task force.</p>

Discussion: N/A

Spend:

The O&M 2021 Target for this line item is embedded within the Fire Science & Climate Adaptation (FSCA) program.

PSPS Impact Reduction: N/A