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Caroline Thomas Jacobs, Director

November 25, 2025

**Subject: Office of Energy Infrastructure Safety's Draft Decision for San Diego Gas & Electric Company's 2026-2028 Base Wildfire Mitigation Plan**

Dear Wildfire Mitigation Plan Stakeholders:

Enclosed is the Office of Energy Infrastructure Safety's Draft Decision for San Diego Gas & Electric Company's (SDG&E)'s 2026-2028 Base Wildfire Mitigation Plan.

This Draft Decision is published for public review and comment. Opening comments must be submitted no later than December 16, 2025. Reply comments must be submitted no later than December 29, 2025.

Comments must be submitted to Energy Safety's e-filing system in the 2026-2028 Wildfire Mitigation Plans docket (#2026-2028-Base-WMPs).[1] Energy Safety's Policy Division Process Guidelines provides more information on submitting opening and reply comments.[2]

Sincerely,

/s/ Tony Marino

Tony Marino
Deputy Director | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

[1] Submit comments via the 2026-2028-Base-WMPs docket on Energy Safety's e-filing system, URL:(https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2026-2028-Base-WMPs).

[2] ESPD Process Guidelines, URL:(https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58025&shareable=true), pages 2-3.

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

# DRAFT DECISION

## SAN DIEGO GAS & ELECTRIC COMPANY

## 2026-2028 BASE WILDFIRE MITIGATION PLAN

November 2025

# 1. Executive Summary

The San Diego Gas & Electric (SDG&E) 2026-2028 Base Wildfire Mitigation Plan (WMP) is approved.

The Office of Energy Infrastructure Safety (Energy Safety) works to ensure electrical corporations construct, maintain, and operate electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment. Pursuant to Public Utilities Code section 8386.3(a), this Decision serves as Energy Safety's assessment and approval of the SDG&E 2026-2028 Base WMP, dated September 30, 2025, which is inclusive of all changes resulting from the previously submitted errata.

In its 2026-2028 Base WMP, SDG&E continued to make commitments to improve mitigation activity selection and reduce wildfire risk by setting specific targets for its initiatives and activities. For example, SDG&E makes Quality Assurance and Quality Control (QA and QC) commitments for intrusive pole inspections, substation inspections, and protective equipment and device settings (Advanced Protection Program). SDGE set a microgrid target, with a timeline for installing one remote grid by 2028. In addition, SDG&E has evaluated the grounding configurations and impacts on fault current magnitudes of its three idle transmission lines. These leading efforts demonstrate SDG&E is making continued progress in its wildfire mitigation plan.

In addition, SDG&E is exploring new methodologies and technologies in its inspections for improved effectiveness in wildfire risk reduction. For example, SDG&E is evaluating the use of drones and helicopters for inspecting transmission lines. SDG&E is also planning to use its risk modeling approach to prioritize its off-cycle High Fire Threat District (HFTD) inspections. Energy Safety expects SDG&E to continue reporting its progress in using these new approaches as well as their impact on lowering wildfire risk.

However, SDG&E has areas where it needs to improve. SDG&E needs to improve its risk models so that the transmission level modeling is included. In addition, SDG&E did not prioritize the risk mitigation work in its top 20 percent of its riskiest areas, which are 15 circuit segments. SDG&E's understanding of the effectiveness of its mitigations needs further refinement. SDG&E also scaled back its pole clearing program by clearing only non-exempt poles, which might leave a significant number of risks unaddressed. Thus, Energy Safety expects SDG&E to further enhance risk modeling capacity for its mitigation strategy selection and associated decision-making process to continuously reduce the wildfire risk.

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# 2. Introduction

Energy Safety approves the SDG&E's 2026-2028 Base Wildfire Mitigation Plan (2026-2028 Base WMP), R2, which includes revisions resulting from the Rejection and Order to Resubmit and previously submitted errata.

SDG&E submitted its 2026-2028 Base WMP on May 2, 2025. In response to Energy Safety's Rejection and Order to Resubmit, SDG&E resubmitted its 2026-2028 Base WMP R1 on July 18, 2025. SDG&E's Base WMP covers a three-year period from 2026 through the end of 2028 (the WMP cycle). SDG&E prepared its Base WMP in accordance with the requirements set forth in the Energy Safety WMP Guidelines.

## 2.1 2026-2028 Base WMP Submission and Publication Summary

This section provides a list of the 2026-2028 Base WMP submissions and publications by SDG&E and Energy Safety. Information regarding the submission types can be found in the Energy Safety WMP Guidelines.

- 3/21/2025 – SDG&E submitted its 2026-2028 Base WMP Pre-Submission
- 4/4/2025 – Energy Safety issued the Pre-Submission Check Sufficiency Determination for the SDG&E 2026-2028 Base WMP Pre-Submission
- 5/2/2025 – SDG&E submitted its 2026 Maturity Survey
- 5/2/2025 – SDG&E submitted its 2026-2028 Base WMP R0
- 5/16/2025 – SDG&E submitted its Substantive and Non-Substantive Errata to 2026-2028 Base WMP
- 6/16/2025 – SDG&E submitted its Non-Substantive Errata to 2026-2028 Base WMP
- 6/24/2025 – Energy Safety issued a Rejection and Order to Resubmit for SDG&E's 2026-2028 Base WMP
- 7/18/2025 – SDG&E submitted 2026-2028 Base WMP R1
- 9/16/2025 – Energy Safety issues Errata Notice for SDG&E's 2026-2028 Base WMP
- 9/30/2025 – SDG&E submitted 2026-2028 Base WMP R2

## 2.2 Consultation with California Department of Forestry and Fire Protection

The Office of the State Fire Marshal is part of the California Department of Forestry and Fire Protection (CAL FIRE). Public Utilities Code section 8386.3(a) requires Energy Safety to consult with the Office of the State Fire Marshal in reviewing electrical corporation WMPs. The Office

of the State Fire Marshal provided meaningful consultation and input on the evaluation, but this Decision is solely an action of Energy Safety and not the Office of the State Fire Marshal or CAL FIRE.

## 2.3 Public Comment

In rendering its decision, Energy Safety considered comments on the SDG&E 2026-2028 Base WMP submitted pursuant to Public Utilities Code section 8386.3(d).

### 2.3.1 Comments on the SDG&E 2026-2028 Base WMP

Energy Safety invited members of the public to provide comments on the SDG&E 2026-2028 Base WMP. The following individuals and organizations submitted comments:

- The Green Power Institute (GPI), on SDG&E 2026-2028 Base WMP R0
- Mussey Grade Road Alliance (MGRA), on SDG&E 2026-2028 Base WMP R0 and R1

Energy Safety considered all comments prior to issuing this Decision. Appendix D contains a summary of the comments Energy Safety concurred with and incorporated into this Decision.

## 2.4 Environmental Compliance

An approved WMP shall not be construed as relieving any electrical corporation from complying with all applicable local, state, or federal environmental requirements. A list of selected examples of state environmental requirements is available on Energy Safety's website for reference.[1] Electrical corporations should reach out to the primary agency responsible for an environmental requirement for any additional information.

## 2.5 Area for Continued Improvement Reporting

Reporting of required progress for areas for continued improvement in this Decision fall into the categories of due by next WMP Update or next Base WMP. Areas for continued improvement that require progress by the next WMP Update will be due no sooner than a 2027 WMP Update. The timing and period covered by the next Base WMP have yet to be decided. The schedule for upcoming WMP submissions is pending development due to ongoing implementation of 2025 California Legislative Service Chapter 119 (Senate Bill 254, Becker) ("SB 254").

SB 254, which became law on September 19, 2025, impacts WMP cycles, submission schedules, and technical requirements, and imposes new and amended statutory requirements on the existing WMP process. Energy Safety is working to implement the changes from SB 254 and expects to hold at least one public workshop to gather feedback

[1] Examples of State Environmental Requirements.

from electrical corporations and stakeholders on potential changes. Energy Safety plans to issue a WMP submission schedule and to revise its WMP Guidelines to reflect the changes and new requirements.

# 3. Introductory Sections of the WMP

SDG&E provided the required information for the following sections in accordance with Chapter III of the WMP Guidelines:

- Section 1: Executive Summary
- Section 2: Responsible Persons
- Section 3: Overview of the WMP (Primary Goal, Plan Objectives, Prioritized List of Wildfire Risks and Risk Drivers, Performance Metrics, Projected Expenditures, and Climate Change)
- Section 4: Overview of the Service Territory (Service Territory, Catastrophic Wildfire History, and Frequently Deenergized Circuits)

# 4. Projected Expenditures

SDG&E provided the required information[2] regarding projected expenditures in accordance with Chapter III, Section 3.6 of the WMP Guidelines. SDG&E provided additional information regarding projected expenditure in accordance with the Energy Safety Data Guidelines.[3] A summary of this information is presented below.

Table 4-1 presents the territory-wide expenditure per initiative category by large investor-owned utility (IOU). Table 4-2 provides large IOUs' expenditures per initiative category by HFTD vs non-HFTD. Figure 4-1 shows SDG&E's grid design, operations, and maintenance projected expenditures in the HFTD by year. Figure 4-2 illustrates SDG&E's vegetation management and inspection projected expenditures in the HFTD by year. Figure 4-3 shows SDG&E's grid design and system hardening projected expenditures in the HFTD by year.

*Table 4-1. Large IOU Territory-Wide Expenditures per Initiative Category*

| | PG&E | | SCE | | SDG&E | | | |
|---|---|---|---|---|---|---|---|---|
| WMP Initiative Category | Total Territory | % of PG&E Grand Total | Total Territory | % of SCE Grand Total | Total Territory | % of SDG&E Grand Total | Grand Total | % of IOUs Grand Total |
| Wildfire Mitigation Strategy | $26.7M | 0.14% | $7.5M | 0.11% | $16.3M | 1.58% | $50.5M | 0.19% |
| Vegetation Management and Inspections | $3.7B | 19.98% | $2.1B | 29.81% | $257.6M | 24.87% | $6.1B | 22.75% |
| Situational Awareness and Forecasting | $247.6M | 1.33% | $133.7M | 1.91% | $26.2M | 2.53% | $407.6M | 1.53% |
| Risk Methodology and Assessment | $32.5M | 0.17% | $19.7M | 0.28% | $30.5M | 2.94% | $82.6M | 0.31% |
| Grid Design, Operations, and Maintenance | $13.8B | 74.05% | $4.4B | 62.62% | $543.8M | 52.49% | $18.7B | 70.21% |
| Enterprise Systems | $246.3M | 1.32% | $93.2M | 1.33% | $27.8M | 2.68% | $367.3M | 1.38% |
| Emergency Preparedness, Collaboration and Public Awareness | $557.7M | 3.00% | $275.7M | 3.94% | $133.8M | 12.91% | $967.2M | 3.63% |
| **Grand Total** | **$18.6B** | **100.00%** | **$7.0B** | **100.00%** | **$1.04B** | **100.00%** | **$26.6B** | **100.00%** |

[2] Energy Safety's WMP evaluation and decision on a WMP is not an approval of, or agreement with, costs listed in the WMP.

[3] Data Guidelines, Pages 165-167.

*Table 4-2. Large IOU Expenditures per Initiative Category, HFTD vs non-HFTD*

| WMP Initiative Category | PG&E HFTD | PG&E Non-HFTD | PG&E % Spend in HFTD | SCE HFTD | SCE Non-HFTD | SCE % Spend in HFTD | SDG&E HFTD | SDG&E Non-HFTD | SDG&E % Spend in HFTD |
|---|---|---|---|---|---|---|---|---|---|
| Wildfire Mitigation Strategy | $26.7M | $0 | 100.00% | $7.5M | $0 | 100.00% | $16.3M | $0 | 100.00% |
| Vegetation Management and Inspections | $2.0B | $1.7B | 53.60% | $1.4B | $710.2M | 65.97% | $166.0M | $91.6M | 64.45% |
| Situational Awareness and Forecasting | $123.6M | $124.0M | 49.93% | $133.7M | $0 | 100.00% | $25.4M | $795000 | 96.97% |
| Risk Methodology and Assessment | $27.3M | $5.2M | 84.05% | $19.7M | $0 | 100.00% | $30.5M | $0 | 100.00% |
| Grid Design, Operations, and Maintenance | $9.4B | $4.3B | 68.44% | $4.4B | $0 | 100.00% | $538.6M | $5.3M | 99.03% |
| Enterprise Systems | $246.1M | $220954 | 99.91% | $93.2M | $0 | 100.00% | $27.8M | $0 | 100.00% |
| Emergency Preparedness, Collaboration and Public Awareness | $485.1M | $72.6M | 86.99% | $275.7M | $0 | 100.00% | $133.8M | $0 | 100.00% |
| **Grand Total** | **$12.3B** | **$6.3B** | **66.27%** | **$6.3B** | **$710.2M** | **89.86%** | **$938.4M** | **$97.6M** | **90.58%** |

*Figure 4-1. SDG&E Grid Design, Operations, and Maintenance Projected Expenditures in the HFTD by Year*

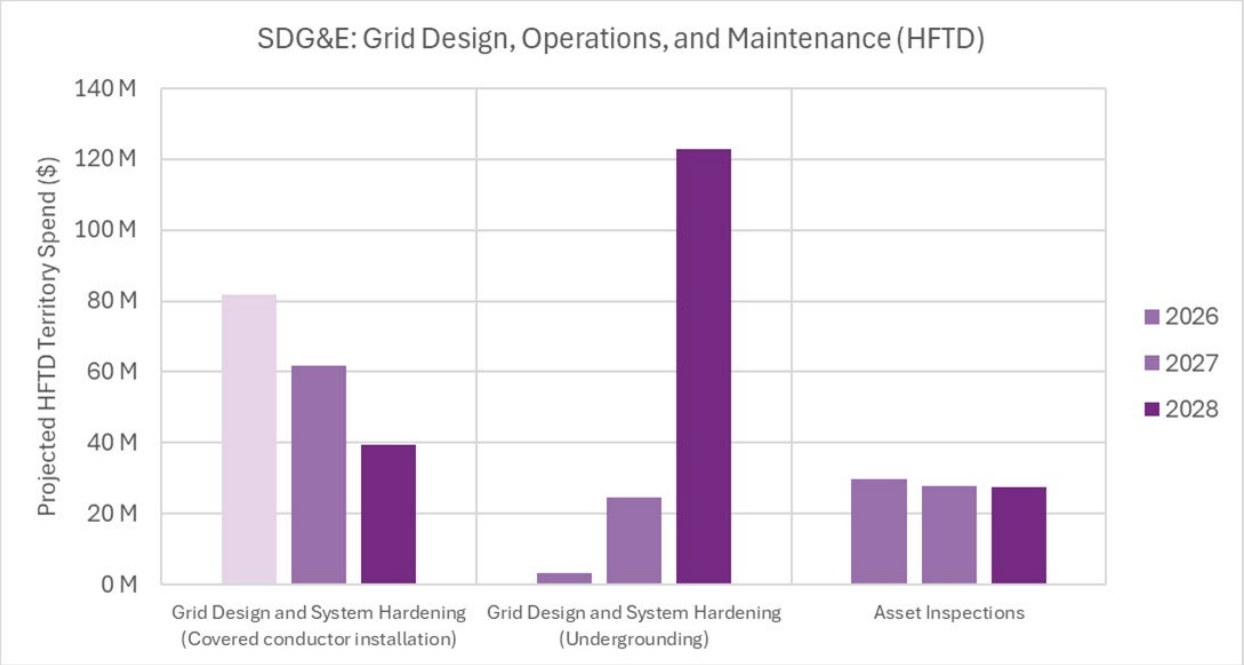


*Figure 4-2. SDG&E Vegetation Management and Inspection*
*Projected Expenditures in the HFTD by Year*

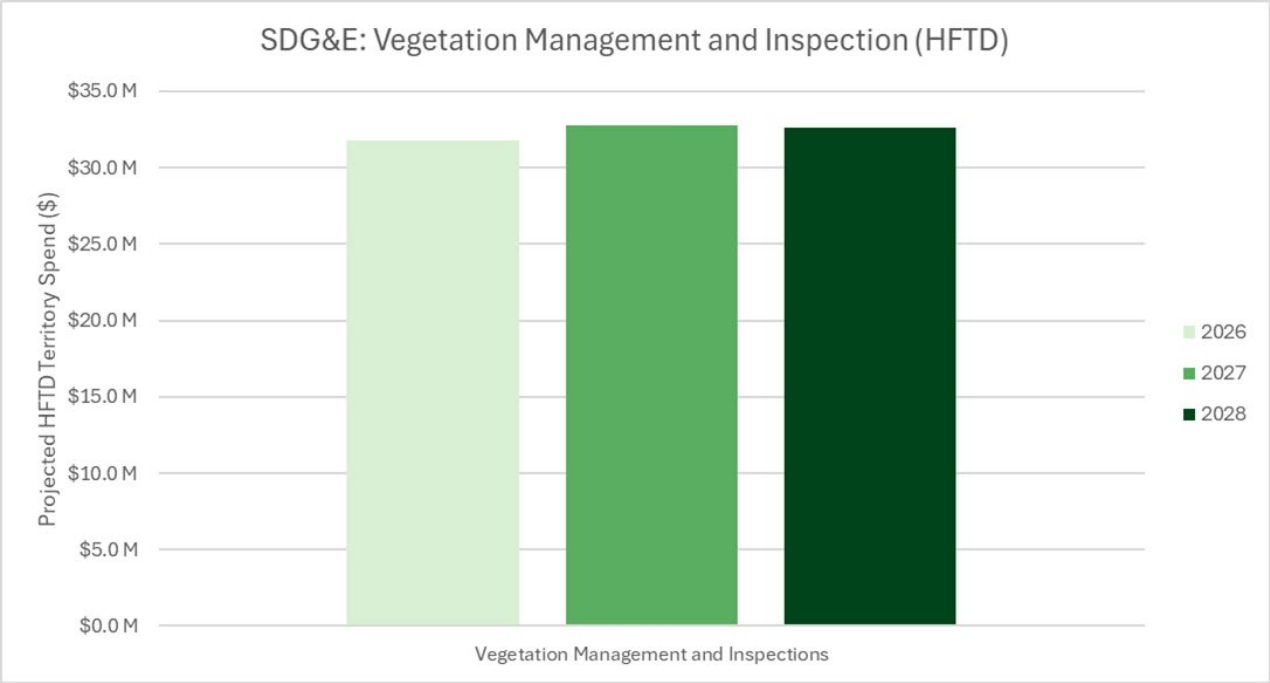
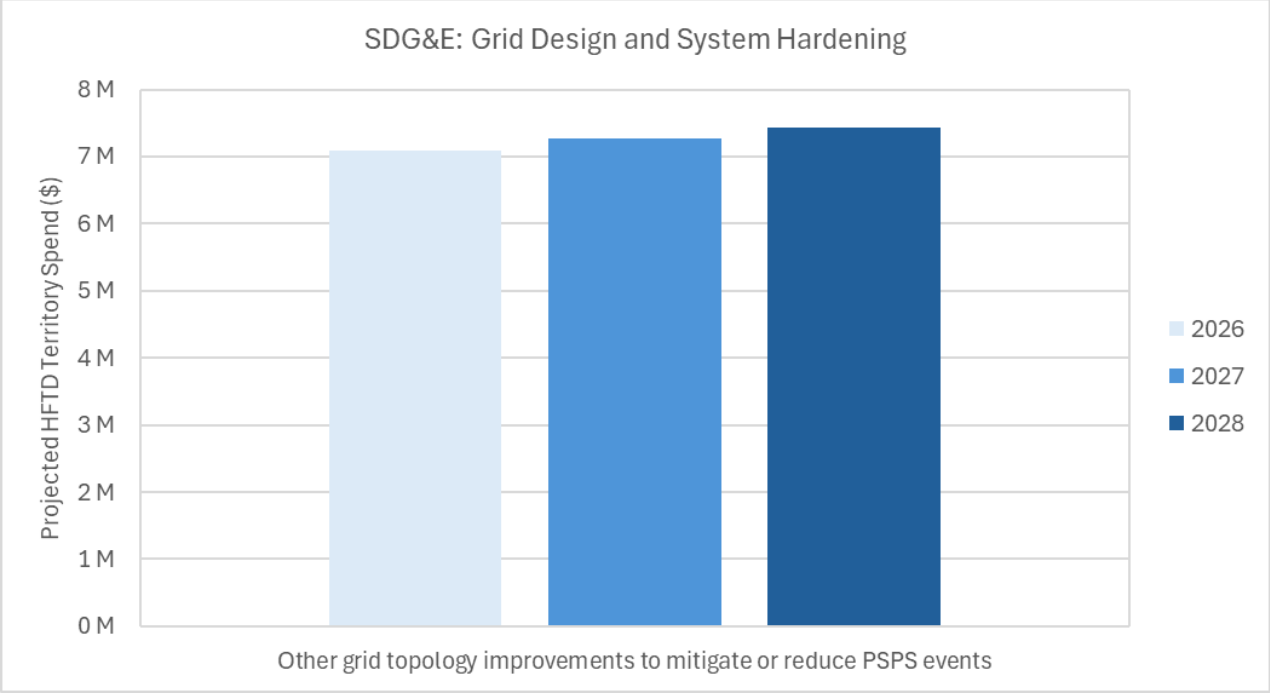



*Figure 4-3. SDG&E Grid Design and System Hardening*
*Projected Expenditures in the HFTD by Year*



# 5. Risk Methodology and Assessment

Chapter III, Section 5 of the WMP Guidelines requires the electrical corporation to provide an overview of its risk methodology, key input data and assumptions, risk analysis, and risk presentation (i.e., the results of its assessment).[4] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 5.1 Discussion

SDG&E provided information on how it quantifies its risk at the enterprise level to support its wildfire mitigation strategy. SDG&E utilizes its Wildfire Next Generation System (WiNGS) models to determine overall wildfire and outage program risk and support the planning and prioritization of grid hardening initiatives. SDG&E continues to advance its risk modeling capabilities. In 2024 SDG&E added the ability for its WiNGS planning model to use machine learning models developed with historical electrical outage and ignition data to capture the influence of wind gust and wind direction at the time of the outage and ignition.[5] Additionally, by presenting its risk analysis results with dollar value, SDG&E demonstrates progress in the transition to the cost-benefit framework and aligns its risk methodologies and quantification in its 2026-2028 Base WMP with its 2025 Risk Assessment Management Phase (RAMP). These efforts show continual growth in SDG&E's ability to assess the risk on its system, but more progress should be made to its risk modeling capabilities including its scaling of wildfire consequence and further consideration of climate and weather as discussed below.

### 5.1.1 Methodology

SDG&E stated that it quantifies risk at the enterprise level by estimating the likelihood of a risk event (LoRE) and consequence of a risk event (CoRE).[6] The enterprise CoRE model is based on monetized risk scores, and follows the Cost-Benefit Approach defined in the California Public Utilities Commission (CPUC) Risk-based Decision-making Framework (RDF)

[4] Pub. Util. Code §§ 8386(c)(3), (8), (12)-(13), (17)-(18).

[5] SDG&E, 2026-2028 Base WMP R2, Page 41.

[6] SDG&E, 2026-2028 Base WMP R2, Page 27.

proceeding.[7] SDG&E provided the dollar conversion for safety, reliability, and financial attributes and sub-attributes in SDGE Table 5-1.[8]

### 5.1.2 Risk Analysis Framework

SDG&E's risk analysis framework includes two important components that require further analysis: SDGE's use of a risk-averse scaling function and SDGE's lack of accounting for wildfire vulnerability in the framework.

SDG&E employs a risk-informed decision-making framework to evaluate the impacts of risk events and adopts a risk-averse scaling function to modify wildfire and Public Safety Power Shutoff (PSPS) consequences.[9] SDG&E's risk-averse approach might have substantive impacts on wildfire and PSPS consequences by applying different societal costs associated with safety, reliability and affordability instead of a 1:1 risk-neutral cost.[10] SDG&E noted that its risk-averse approach can better capture devastating events and their consequences to help prioritize mitigation measures in the riskiest areas.[11]

MGRA[12] and GPI[13] both provided comments that raised concerns over the magnitude of the impact of an SDG&E-determined risk-averse scaling function. SDG&E's risk-averse function could amplify the calculated risk, which may skew planning towards prioritizing additional risk mitigation in the highest risk areas where a more effective solution could be to accept the residual risk from a more resource efficient mitigation and divert remaining resources to other risky areas.[14,15] Thus, SDG&E must collaborate with large electrical corporations to evaluate the impact of attribute function scaling on mitigation planning. This will help determine the methodology that should be used for attribute scaling function through collaboration given the wide variance across the electrical corporations. See area for continued improvement SDGE-26B-01 Sensitivity Analysis for Risk Averse Scaling in Section 5.3.

Additionally, while SDG&E uses an egress factor for wildfire consequences based on its egress model, its risk framework does not currently account for wildfire vulnerability (e.g., Access

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[7] SDG&E, 2026-2028 Base WMP R2, Page 27.

[8] SDG&E, 2026-2028 Base WMP R2, Pages 27-29.

[9] SDG&E, 2026-2028 Base WMP R2, Pages 43-44.

[10] GPI Comments, Page 4.

[11] SDG&E, 2026-2028 Base WMP R2, Pages 43-44.

[12] MGRA Comments on R0, Pages 12-21.

[13] GPI Comments, Pages 4-6.

[14] GPI Comments, Page 4.

[15] MGRA Comments on R0, Page 19.

and Functional Needs [AFN] customers, Social Vulnerability Index [SVI], age of structures, firefighting capacities), as required by the WMP Guidelines.[16,17] SDG&E clarified that scaling factors for AFN customer impacts are applicable only to PSPS, and that the wildfire consequence simulations performed by its third-party contractor do not include any population demographics such as AFN.[18] In response to a data request, SDG&E indicated that it plans to incorporate SVI into its framework by 2026.[19] SDG&E also does not include any analysis or scaling that accounts for suppression.

Inclusion of wildfire vulnerability and suppression considerations in the risk analysis framework is essential in estimating damage or loss of life resulting from wildfire, while methods adopted in large electrical corporations are quite different. For example, Pacific Gas and Electric Company (PG&E) is considering the use of TDI (terrain difficulty index) factor[20] as a proxy for suppression and use of AFN as a proxy for egress, and Southern California Edison (SCE) is considering BLF (building loss factor)[21] instead. As it is essential to capture the realistic casualties and number of buildings destroyed to estimate wildfire consequence scores, SDG&E must provide its methods that account for egress challenges and social vulnerability as well as its methods that account for suppression impacts within its wildfire consequence framework and collaborate with other large electrical corporations on an analysis of consequence scores. See area for continued improvement SDGE-26B-02 Quantification of Wildfire Consequence Scaling Factors.

## 5.1.3 Risk Scenarios

### 5.1.3.1 Climate Change

In its 2026-2028 Base WMP, SDG&E stated that it is undergoing a Climate Adaptation Vulnerability Assessment (CAVA) that includes leveraging results from the Coupled Model Intercomparison Project Phase 6 (CMIP6) global climate simulations once available in 2026.[22] The CAVA analysis looks at long-term climate change projections and impacts on wildfire risk and mitigation activities.[23] SDG&E's participation in CAVA will help SDG&E reach a better understanding of its future wildfire risk over its complex terrains.

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[16] SDG&E, 2026-2028 Base WMP R2, Page 38 (Figure 5-6: WiNGS-Planning and Ops Calculation Schematic).

[17] WMP Guidelines, Page 33.

[18] Response to Data Request 06, Question 6.

[19] SDG&E, 2026-2028 Base WMP R2, Page 84.

[20] PG&E, Consequence Model Documentation, Page 7.

[21] SCE, 2026-2028 Base WMP R2, Pages 90-91.

[22] SDG&E, 2026-2028 Base WMP R2, Pages 18-19.

[23] SDG&E, 2026-2028 Base WMP R2, Pages 18-19.

Currently, large electrical corporations and SMJUs, including SDG&E, are only looking at forecasts up to 2030. SDG&E should evaluate climate change with extreme weather patterns that at a minimum cover the lifetime of mitigations to best quantify and allocate maximum risk reduction over time, given that the mitigations being implemented should reduce risk past 2030. Additionally, many climate change scenarios presented in these electrical corporations' WMPs are limited to evaluating impacts of a drying landscape based on increasing temperatures. This narrow evaluation may oversimplify various impacts of climate change such as changing weather patterns. Changing weather patterns may result in extreme wind events and increase invasive species representations in vegetation landscapes, both of which affect wildfire risk.

Given the ongoing need to advance climate change research, it is important that SDG&E and other large electrical corporations and SMJUs work together to understand what risks will exist across their systems. A collaborative effort will help SDG&E better understand the risk benefits over an asset's lifetime. Thus, SDG&E must collaborate with other electrical corporations to establish further outlooks and metrics for integrating climate change into its wildfire risk model. See area for continued improvement SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios in Section 5.3.

#### 5.1.3.2 Extreme Wind Events

Further, SDG&E's current historical period of weather and fuel data and fire weather days do not fully account for extreme weather and wind. In its 2026-2028 Base WMP, SDG&E described using models trained on a two-year historical period of weather and fuel data, along with a set of 125 extreme fire weather days spanning 2013 to 2022, to predict probability of failure and ignition, and to evaluate of wildfire impacts.[24] SDG&E stated that incorporation of extreme fire weather days through the Monte Carlo simulation creates a probabilistic framework that "enables the assessment of a broader distribution of potential outcomes, including high-consequence events that extend beyond the range of historically observed weather conditions."[25] However, it is unclear how the approach will extend beyond the range of historically observed weather conditions since only observed weather days are used. This data set may not properly capture extreme weather events because SDG&E does not evaluate weather scenarios beyond what was observed in the existing 10-year history used. Not appropriately capturing extreme weather events may result in neglecting potential risk from these extreme events or high uncertainty scenarios.

See area for continued improvement SDGE-26B-04 Collaboration on Meteorological Scenarios.

[24] SDG&E, 2026-2028 Base WMP R2, Page 52.

[25] Response to Data Request 06, Question 05.

### 5.1.4 Summary of Risk Models

Overall, SDG&E discusses its risk models that it uses to determine areas of highest overall utility risk across its service territory. However, SDG&E did not include transmission-level risk modeling in its risk model development. Its current risk model focuses only on distribution level for risk score calculation and risk analysis. SDG&E stated its risk model enhancements have focused on distribution lines in part because it had already completed traditional hardening (e.g., undergrounding and covered conductor) of its transmission system.[26]

It is important for SDG&E to understand and quantify risks at the transmission level to allocate proper resources based on the understanding of risk along the entirety of its system. While SDG&E is considering including assessment of its transmission risk based on asset health,[27] this is especially essential given that ignitions at the transmission level have led to catastrophic fires. For example, SDG&E had 10 outages and two ignitions at the transmission level in 2024, and two of these outages and one of the ignitions were attributed to equipment failure.[28] SDG&E must provide risk modeling and analysis for its transmission system in its next Base WMP. See area for continued improvement SDGE-26B-05 Quantification of Transmission Risk in Section 5.3.

### 5.1.5 Risk Analysis Results and Presentation

SDG&E considers safety, electric reliability, gas reliability, and financial attribute when calculating its risk scores and presents these risk scores in dollar value.[29] This is because SDG&E replaced the methods of calculating risk scores from the Multi-Attribute Value Function (MAVF) method to a Cost-Benefit Approach as required by CPUC.[30] The Cost-Benefit Approach uses standardized dollar valuation to evaluate risk event consequences.[31]

The risk scores SDG&E reported are highly reliant on the number of buildings burned. About 90 percent of risk considered within the risk scores are from financial scores, which are based on the number of simulated buildings burned (which alone accounts for 83 percent of the risk) and acres burned.[32] In response to a data request, SDG&E clarified that to estimate risk scores, its risk model uses buildings burned to estimate the financial attribute of serious

[26] SDG&E, 2026-2028 Base WMP R2, Page 168.

[27] SDG&E, 2026-2028 Base WMP R2, Page 168.

[28] SDG&E, QDR 2024 Q4, Table 5 and Table 6.

[29] SDG&E, 2026-2028 Base WMP R2, Pages 28-29.

[30] SDG&E, 2026-2028 Base WMP R2, Page 94.

[31] SDG&E, 2026-2028 Base WMP R2, Page 94.

[32] Response to Data Request 07, Question 04.

injuries and fatalities.[33] In addition, SDG&E also considers the approximate number of fatalities or injuries based on the number of buildings burned when calculating safety scores.

Due to the reliance on the number of buildings burned for multiple components of wildfire risk calculation, any errors or uncertainty in the determination of that number would have a substantial impact on the accuracy of the wildfire risk calculation. SDG&E should be conscious of this issue as it further develops its risk analysis, validation, and its transition to the Cost-Benefit Approach. See area for continued improvement SDGE-26B-02 Quantification of Wildfire Consequence Scaling Factors in Section 5.3.

### 5.1.6 Quality Assurance and Quality Control

While SDG&E has conducted multiple third-party studies looking into areas for improving its modeling capacity, it must improve its documentation process to track the recommendations and efforts addressed in its models. SDG&E provided high-level descriptions of model purpose, assumptions, and calculation procedures in Section 5 and Appendix B of its 2026-2028 Base WMP. However, the model documentation provided did not offer sufficient detail for the evaluation of the methodologies, verification, and validation of the models. As required in the WMP Guidelines,[34] SDG&E must be able to provide this detailed documentation.

In 2022, SDG&E underwent third-party independent reviews of data and model infrastructure and provided a summary of recommendations and anticipated adoption timelines.[35] The recommendations covered the updates in data and model governance, with process to standardize the coding and convert the platform to Python.[36] SDG&E indicated these recommendations have been implemented or are in progress.[37] Specifically, SDG&E plans to complete “Initiation Stage Documentation” as well as “Data Documentation and Dictionaries” in 2026.[38] SDG&E also began a third-party study in 2025 to further document findings and recommendations to improve its WiNGS-Planning and WiNGS-Ops models.[39]

These reviews are important because they help SDG&E better understand its system and provide comprehensive model documentation to Energy Safety, which will demonstrate SDG&E’s progress towards implementing documented recommendations and further enhance SDG&E’s modeling capacity and confidence. In response to a data request for

[33] Response to Data Request 06, Question 01.

[34] WMP Guidelines, Appendix B, Page B-6.

[35] SDG&E, 2026-2028 Base WMP R2, Pages 64-80; Appendix D, Pages 7-29.

[36] SDG&E, 2026-2028 Base WMP R2, Pages 64-65.

[37] SDG&E, 2026-2028 Base WMP R2, Page 65.

[38] SDG&E, 2026-2028 Base WMP R2, Page 66.

[39] SDG&E, 2026-2028 Base WMP R2, Page 65.

detailed model documentation, SDG&E provided a spreadsheet that contained SDG&E's high-level response to the recommendations.[40] However, the information presented in the spreadsheet does not have sufficient detail to evaluate the methodologies, verification, and validation of the model.

Detailed documentation is an important step in completing an effective third-party review of SDG&E's modeling approach. SDG&E must include detailed technical documentations for all models and data sets as required in the area for continued improvement SDGE-26B-06 Development of Substantive Model Documentation in Section 5.3.

## 5.2 Previous Areas for Continued Improvement

In the Energy Safety Decision for the SDG&E 2025 WMP Update, Energy Safety identified areas related to risk methodology and assessment where SDG&E must continue to improve its wildfire mitigation capabilities. This section summarizes the requirements imposed by those areas for continued improvement, SDG&E's response to those requirements, and Energy Safety's evaluation of the response.

### 5.2.1 SDGE-25U-01. Calculating Risk Scores Using Maximum Consequence Values

For this area for continued improvement, Energy Safety required SDG&E to continue to report on its progress transitioning to using probability distributions in its 2026-2028 Base WMP.[41] Energy Safety required SDG&E to include an overarching roadmap of its wildfire risk planning model updates when reporting its progress. In addition, Energy Safety required SDG&E to report changes to its transition plan and to update its target implementation dates.[42]

#### 5.2.1.1 SDGE-25U-01. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported that it began developing a framework using probability distribution to leverage a stochastic approach for its wildfire risk planning model in quarter three 2024.[43] It noted that it completed a Monte Carlo simulation-based risk event framework in quarter one 2025.[44] SDG&E indicated that it will incorporate probability

[40] Response to Data Request 06, Attachment 1.

[41] Decision for SDG&E 2025 WMP Update, Page 67.

[42] Decision for SDG&E 2025 WMP Update, Page 67.

[43] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 1.

[44] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 1.

distribution outputs and statistical distribution metrics from that framework for future optimal mitigation prioritization decisions.[45]

#### 5.2.1.2 SDGE-25U-01. Energy Safety Evaluation

SDG&E provided the required updates on its progress for moving toward a stochastic (probability distribution) approach. The updates show SDG&E is advancing at completing its goals. While it did not provide a concrete timeline for continued progress and its next steps, SDG&E stated generally that its progress will "continue to be updated" and it will use the new approach to inform "future optimal mitigation prioritization decisions."[46] In addition, SDG&E stated that it "has begun adopting" risk event probability distributions as of quarter one 2025, and that it has been implementing these distributions within its Cost-Benefit Ratio (CBR) framework.[47] SDG&E first reported on these distributions in the 2026-2028 Base WMP.[48,49]

As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

### 5.2.2 SDGE-23B-04. Incorporation of Extreme Weather Scenarios into Planning Models

For this area for continued improvement, Energy Safety required SDG&E to report on its progress developing statistical estimates of potential wind events over at least the maximum asset life for its system its 2026-2028 Base WMP.[50] Energy Safety required SDG&E to evaluate results from incorporating these estimates into WiNGS-Planning when developing its mitigation initiatives portfolio or explain why the approach would not serve as an improvement to its mitigation strategy.[51]

#### 5.2.2.1 SDGE-23B-04. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported the WiNGS-Planning model incorporated a probabilistic framework and utilized statistical and machine learning models to capture the influence of wind events by the end of 2024.[52] SDG&E stated that the model includes the

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[45] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 2.

[46] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 1-2.

[47] Response to Data Request 03, Question 03.

[48] Response to Data Request 03, Question 03.

[49] SDG&E, 2026-2028 Base WMP R2, Page 34.

[50] Decision for SDG&E 2025 WMP Update, Page 68.

[51] Decision for SDG&E 2025 WMP Update, Page 68.

[52] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 3.

ability to estimate rare and extreme scenarios, which ensures data on wind conditions representing the past 13 years covers the worst fire days.[53] SDG&E further reported that the WiNGS-Planning model allows SDG&E to generate statical estimates for wind events over the maximum asset life.[54]

#### 5.2.2.2 SDGE-23B-04. Energy Safety Evaluation

SDG&E stated that it has incorporated an evaluation of tail risks within its risk modeling and that its approach covers the potential wind events over the maximum asset life of its system. However, the statement is not sufficiently supported as it is not clear where or how SDG&E has been implementing the new risk modeling or how such new risk modeling has impacted SDG&E's risk output or decision-making.

Though SDG&E specified that its current risk events account for extreme fire weather days, SDG&E did not demonstrate that its current risk model properly captures extreme weather scenarios, as the timeframe of 13 years may not properly capture potentially more extreme events that could occur in the future. As such, SDG&E must continue to improve in this area for its next Base WMP. See areas for continued improvements SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios and SDGE-26B-04 Collaboration on Meteorological Scenarios in Section 5.3.

## 5.3 Areas for Continued Improvement for Future WMP Submissions

As discussed above, Energy Safety has identified areas pertaining to risk methodology and assessment where the electrical corporation must demonstrate improvement in a future, specified WMP submission. This section sets forth the requirements for improvement.

### 5.3.1 SDGE-26B-01. Sensitivity Analysis for Risk Averse Scaling

Summary: SDG&E employs a risk-averse scaling function to modify wildfire and PSPS consequence risk scores.[55] Given the significant impact such a scaling function may have on a large electrical corporation's decision-making, large electrical corporations must collaborate to evaluate the impact of attribute function scaling on mitigation planning.

Requirements:

[53] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 3.

[54] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 3.

[55] SDG&E, 2026-2028 Base WMP R2, Page 43.

In its next WMP Update, SDG&E must:

- Provide an updated version of *Table 5-5: Summary of Top-Risk Circuits, Segments, or Spans* with an additional column showing the unscaled risk scores.

In its next Base WMP, SDG&E must:

- Collaborate with other large electrical corporations to establish which (if any) attributes are appropriate to apply to scaling functions and an appropriate range or magnitude for each proposed scaling function.
- Complete a sensitivity analysis to determine how risk-averse approaches affect efficacy calculations or impact mitigation selection (e.g., selection of high-risk areas, selection of covered conductor and undergrounding) and report the results of the analysis in the WMP.
- Discuss any differences in its mitigation strategy from using various risk-scaling strategies.

Discussed in: Section 5.1.2, Risk Analysis Framework.

### 5.3.2 SDGE-26B-02. Quantification of Wildfire Consequence Scaling Factors

Summary: Large electrical corporations are currently exploring the use of indices and data to provide a more accurate estimate of damage or loss of life resulting from wildfire reaching a location. These methods vary significantly among electrical corporations and lack documented validation. For example, some large electrical corporations have adopted or are exploring the use of TDI (terrain difficulty index) factor[56] or BLF (building loss factor)[57] to more accurately capture the actual number of buildings destroyed and scale wildfire consequence scores. Large electrical corporations must discuss and benchmark their use of scaling and indices when calculating the consequence of a wildfire at a location while considering social vulnerability and the availability of suppression resources and infrastructure.

SDG&E currently incorporates an egress factor for wildfire consequences based on its egress model.[58] However, SDG&E's method does not account for other characteristics of the population, including but not limited to AFN designation, Social Vulnerability Index, age of structures, or firefighting capacities (as specified in the WMP Guidelines[59]). SDG&E also does not currently include any analysis or scaling that accounts for suppression.

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[56] PG&E, Consequence Model Documentation, Page 7.

[57] SCE, 2026-2028 Base WMP R2, Pages 90-91.

[58] SDG&E, 2026-2028 Base WMP R2, Page 38 (Figure 5-6: WiNGS-Planning and Ops Calculation Schematic).

[59] WMP Guidelines, Page 33.

Requirements:

In its next WMP Update, SDG&E must:

- Provide its methods that account for social vulnerability or population demographics within its wildfire consequence modeling, or demonstrate there is no variability across circuits even if factors such as AFN designation, Social Vulnerability Index, age of structures, or firefighting capacities are included in consequence modeling.
- Provide its methods that account for suppression impacts, such as development or adoption of an index to represent what fraction of impacted buildings will be destroyed.
- Discuss how those methods impact overall risk.

In its next Base WMPs, SDG&E in collaboration with other large electrical corporations must:

- Provide a report summarizing collaboration to benchmark the impacts of adopting consistent factors or indices that represent egress, suppression effectiveness, or realistic damage that adjust consequence scores (such as road constraint indices, terrain difficulty indices, or building loss factors). This summary must include discussions on the following topics:
    - Which factors and indices were evaluated;
    - How the factors and indices evaluated are relevant to the conditions in California and how inclusion of these factors and indices better reflect reality;
    - Minimum considerations or agreed-upon conventions established from collaboration with other electrical corporations for including the index or factor when calculating consequence (i.e., egress analysis accounts for features such as road constraints, AFN, population density, etc.);
    - Why the electrical corporations have not already captured such factors and indices through other implemented risk analyses;
    - The impact that the new factors and indices have on overall utility risk and territory-wide relative distributions of risk, along with implications for mitigation or HFTD selection; and
    - What changes were made or planned for each respective electrical corporations' risk modeling methodologies as a result of the collaboration, including changes to or added implementation of factors and indices, as well as any differences between electrical corporations' methodologies and why such differences persist.

Discussed in: Section 5.1.2, Risk Analysis Framework and Section 5.1.5, Risk Analysis Results and Presentation.

### 5.3.3 SDGE-26B-03. Further Evaluation of Climate Change Impact on Extreme Scenarios

Summary: Many large electrical corporations and SMJUs, including SDG&E, are currently evaluating climate change impacts up to 2030, which is only two years past this 2026-2028 Base WMP cycle. This limits the understanding of maximizing risk benefit over an asset's lifetime, which far exceeds the timeframe in current climate change evaluations. The climate change evaluations are also limited in scope and do not evaluate impacts such as extreme weather event frequency and changes in vegetation species.

SDG&E is undergoing a Climate Adaptation Vulnerability Assessment (CAVA) as required by R.18-04-019.[60] This and other climate change evaluations by the large electrical corporations and SMJUs are relatively limited in scope and do not consider impacts from extreme weather event frequency and changes in vegetation species.

Requirements: In its next Base WMP, SDG&E must

- Provide a joint report with the other large electrical corporations and SMJUs evaluating the potential climate change impacts on wildfire risk over a fifty-year period to better understand potential risk reduction when deciding on and implementing mitigations. This report must identify variables impacted by climate change and how those variables impact the modeling of wildfire risk. At a minimum, these variables must include:
    - Extreme wind events
    - Extreme drought impacts
    - Vegetation pattern changes
    - Wildfire pyrome identification and boundary changes
- As part of the Risk Modeling Working Group (RMWG) and as directed by Energy Safety, SDG&E must contribute to discussions and reports on topics such as how the joint study impacted SDG&E's risk modeling efforts and how SDG&E plans to implement any changes and findings discussed regarding climate change.

Discussed in: Section 5.1.3.1, Climate Change and 5.2.2, SDGE-23B-04 Incorporation of Extreme Weather Scenarios into Planning Models.

### 5.3.4 SDGE-26B-04. Collaboration on Meteorological Scenarios

Summary: Weather scenarios used by the large electrical corporations and SMJUs in the calculation of probability and consequence scores vary significantly. The scenarios vary in the

[60] SDG&E, 2026-2028 Base WMP R2, Page 18.

size of the historical record, how fire weather days are determined, and how the data is pruned for simulations.

SDG&E has adopted the use of machine learning models trained on historical periods and extreme weather days. The SDG&E 2026-2028 Base WMP provided some descriptions of how the fire weather day alternative approach aligns with the design scenarios outlined in the WMP Guidelines.[61] However SDG&E's selected historical periods do not meet the requirements in the WMP Guidelines for developing distributions that account for extreme weather or wind loads.[62]

Requirements: In its next Base WMP, SDG&E must:

- Define the historical period and fire weather days used for developing meteorological scenarios. Describe criteria for selection and justify exclusion of years and days outside of the selected dataset if that data would include historical extreme wind gusts or other extreme conditions.
- Demonstrate how distributions developed using a Monte Carlo simulation method within the consequence risk model account for extreme weather events that are not included within the referenced historical period. For example, demonstrate how SDG&E is matching the distribution of predicted fire size with historical distributions with significant tail risks.
- Collaborate with other electrical corporations via participation in RMWG to develop and summarize standardized extreme event scenarios, common calculation methods on the likelihood of occurrence, and a common approach to selecting weather scenarios (wind, moisture, fuels, etc.) to calculate consequences. Once developed, implement the standardized approaches into the WMP, or discuss why other approaches are taken if not using the agreed upon approaches.
- Evaluate and provide an analysis of the sensitivity of the total risk in its service territory, including the risk impact of extreme event scenarios. This sensitivity analysis must also evaluate the impact of mitigations on extreme events.

Discussed in: Section 5.1.3.2, Extreme Wind Events and Section 5.2.2, SDGE-23B-04 Incorporation of Extreme Weather Scenarios into Planning Models.

### 5.3.5 SDGE-26B-05. Quantification of Transmission Risk

Summary: SDG&E explained that it did not include transmission-level risk modeling in its risk model because it already completed traditional hardening of its transmission system. As

[61] WMP Guidelines, Pages 40-44.

[62] WMP Guidelines, Pages 40-44.

SDG&E noted that it is considering assessments of transmission risk based on asset health,[63] it is vital that SDG&E quantifies risks at a transmission-level because ignitions at the transmission level have led to catastrophic fires.

Requirements: In its next Base WMP, SDG&E must provide transmission-level risk modeling and analysis.

Discussed in: Section 5.1.4, Summary of Risk Models.

### 5.3.6 SDGE-26B-06. Development of Substantive Model Documentation

Summary: Several of the electrical corporations, including SDG&E, did not provide detailed technical documentation for its models and data sets used for risk analysis, including probability of failure and probability of ignition models, consequence models, weather models, and fuel models.

SDG&E provided high-level descriptions of model purpose, assumptions, and calculation procedures in Section 5 and Appendix B of its 2026-2028 Base WMP. However, the model documentation provided did not offer sufficient detail for the evaluation of the methodologies, verification, and validation of the models. As required in the WMP Guidelines[64], SDG&E must be able to provide this detailed documentation upon request by Energy Safety.

Requirements: In its next WMP Update, SDG&E must develop documentation on its risk analysis and modeling to capture the following information:

- A detailed description of its risk models, including assumptions or statistical approaches used for the risk models. This must include an explanation for any assumptions and scaling factors used;
- A detailed description of datasets used for modeling probability of ignition, consequence, weather, and fuels; including sources for data and why each dataset was included; and
- Description of the verification and validation approaches of each model, including any available results.

Discussed in: Section 5.1.6, Quality Assurance and Quality Control.

Appendix C provides a consolidated list of areas for continued improvement and requirements.

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[63] SDG&E, 2026-2028 Base WMP R2, Page 168.

[64] WMP Guidelines, Appendix B, Page B-6.

# 6. Wildfire Mitigation Strategy Development

Chapter III, Section 6 of the WMP Guidelines requires the electrical corporation to provide a high-level overview of the risk evaluation process that informs its selection of a portfolio of initiative activities, as well as its overall wildfire mitigation strategy.[65] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 6.1 Discussion

SDG&E conducts cost-benefit analysis to compare risk reduction and considers the entire lifecycle of costs when it evaluates its wildfire mitigation activities.[66] SDG&E considers grid hardening mitigations that can be used in combination with each other and when it deploys grid hardening activities such as covered conductor, it performs a comprehensive assessment of the existing assets and may install traditional hardening measures in parallel to maximize risk reduction and resource spend efficiency.[67] These considerations demonstrate that SDG&E is approaching its wildfire mitigation strategy as a holistic effort. As discussed below, SDG&E should continue approaching wildfire mitigation as a comprehensive effort by improving its calculation of mitigation effectiveness to better understand what mitigation to deploy and by demonstrating its prioritization of work is targeting the riskiest portions of its system.

### 6.1.1 Risk Evaluation Process

#### 6.1.1.1 "Evidence of Heat" Events in Effectiveness Calculation

SDG&E is using "evidence of heat" events when estimating its effectiveness for covered conductor, in addition to the CPUC-reportable ignitions. "Evidence of heat" events include any "observed signs of arcing, charring, or ignition,"[68] when calculating and determining its mitigation activity effectiveness. SDG&E using "evidence of heat" events increases the number of data points from 122 CPUC-reportable ignitions[69] to 902 total "evidence of heat"

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[65] Pub. Util. Code §§ 8386(c)(3), (12)-(14).

[66] SDG&E, 2026-2028 Base WMP. Page 103.

[67] SDG&E, 2026-2028 Base WMP. Page 106.

[68] Response to Data Request 15, Question 05.

[69] CPUC requires electrical corporations to report ignitions involving with their equipment that meet certain criteria as defined in D.14-02-015. CPUC-reportable ignitions need to meet the following three criteria: it is a self-propagating fire of material other than electrical and/or communication facilities, the resulting fire traveled greater than one linear meter from the ignition point, and the electrical corporation has knowledge that the fire occurred.

events. This additional data may help supplement its understanding of potential ignitions, but SDG&E should evaluate how to best utilize this dataset.

By expanding its dataset, SDG&E could potentially amplify issues in its effectiveness calculation, such as the effectiveness of covered conductor for "Equipment – Non-Conductor" events. The covered conductor effectiveness SDG&E estimated for "Equipment – Non-Conductor" events do not account for full hardening of the utility assets. SDG&E estimated that covered conductor is only 39 percent effective at mitigating "Equipment – Non-Conductor" events, because the equipment is not directly related to conductor.[70] However, this is devaluing the full suite of hardening that occurs when implementing covered conductor, which typically also includes equipment replacements and upgrades. SDG&E only included the additional benefit of covered conductor in evaluating and determining effectiveness, using the baseline asset condition.[71] Relying on the addition of only the covered conductor to evaluate effectiveness of the entire mitigation activity is problematic because it excludes other potential benefits from the full suite of hardening. This decreases the measured effectiveness of covered conductor because the risk drivers related to poles or non-conductor equipment could have been addressed by traditional hardening.

For both CPUC-reportable ignitions and "evidence of heat" events, the "Equipment – Non-Conductor" risk driver accounts for the greatest number of events. CPUC-reportable ignitions include 49 events driven by "Equipment – Non-Conductor," whereas "evidence of heat events" include 412 events.[72] This means the decrease in measured effectiveness of covered conductor, due to excluding the full suite of hardening, is amplified by the inclusion of "evidence of heat" events. Overall, the integration of "evidence of heat" events moves the covered conductor effectiveness from 61.32 percent to 50.45 percent.[73] MGRA also pointed out that SDG&E includes utility-related heat release that does not correspond to actual ignitions when using "evidence of heat" events in calculating risk.[74]

While expanding upon existing datasets is beneficial to having a broader understanding of the potential risks presented across its service territory, SDG&E should further evaluate the impacts of augmenting its datasets with "evidence of heat" events. Use of "evidence of heat" has broad impacts on effectiveness calculations and associated mitigation selection decisions, and therefore requires additional justification and research, including a joint study with other electrical corporations. See area for continued improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates in Section 6.3.

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[70] SDG&E, 2026-2028 Base WMP R2, Page 123.

[71] MGRA Data Request 4, Question 09.

[72] SDG&E, 2026-2028 Base WMP R2, Pages 123-124.

[73] SDG&E, 2026-2028 Base WMP R2, Pages 124-125.

[74] MGRA Comments on R1, Page 19.

#### 6.1.1.2 Rough Proxy Effectiveness for Falling Conductor Protection

SDG&E includes falling conductor protection (FCP) and early fault detection (EFD) as part of its combined effectiveness with covered conductor.[75]

The inclusion of FCP and EFD have significant impacts on the estimation of the effectiveness of combined covered conductor. For example, when including "evidence of heat" events, inclusion of FCP and EFD increases the effectiveness of combined covered conductor from 50.45 percent to 61.71 percent. [76] When looking at only CPUC reportable ignitions, this effectiveness increases to 70.11 percent.[77] In either approach, the inclusion of FCP and EFD added about 10 percent effectiveness on top of effectiveness of covered conductor, which will affect SDG&E's selection of mitigation strategy.

However, when calculating the combined effectiveness, SDG&E uses 8 percent for FCP effectiveness and 16 percent for EFD effectiveness.[78] SDG&E is using a baseline approximation for these effectiveness values instead of a similar breakdown evaluating effectiveness at an ignition risk level basis. SDG&E stated that the methodology of calculating the mitigation effectiveness of FCP is consistent with the methodology for covered conductor, indicating "evidence of heat" events are applied in the calculation. However, as discussed in Section 6.1.1.1, using "evidence of heat" will include data unrelated to potential ignitions, resulting in inaccurate estimation of the effectiveness.

In addition, these two effectiveness scores may not be accurate as they are not accounting for additive effectiveness against specific ignition risks nor are considered at a project-level basis for specific ignition risks. For instance, FCP mitigates the vulnerability of covered conductor, including tree fall-ins,[79] but this specific effectiveness is not allocated as part of SDG&E's estimated effectiveness scores. SDG&E has not conducted a proper evaluation of the overlapping and added benefit from including additional mitigations. Instead, SDG&E is using a rough proxy for the effectiveness of FCP that is likely underestimating mitigation effectiveness and is not granular enough in its evaluation of various risk drivers.

Considering inclusion of FCP and EFD is rough when estimating the effectiveness of combined covered conductor, SDG&E must combine the added benefit of risk reduction from traditional hardening, equipment replacements, and other additional mitigations, as opposed to measuring covered conductor effectiveness on its own, in order to paint a more accurate representation of how risk is handled across SDG&E's entire system. See area for continued

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[75] SDG&E, 2026-2028 Base WMP R2, Pages 124-125.

[76] SDG&E, 2026-2028 Base WMP R2, Page 124.

[77] SDG&E, 2026-2028 Base WMP R2, Page 125.

[78] SDG&E, 2026-2028 Base WMP R2, Page 125.

[79] MGRA comments on R1, Pages 19-20.

improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates in Section 6.3

### 6.1.2 Wildfire Mitigation Strategy

SDG&E does not effectively determine or mitigate its highest-risk circuit segments with its grid hardening projects. Further, given the reduction in scope and delay of projects in its grid hardening program described below, SDG&E must closely monitor and implement additional interim mitigations to reduce risk across its system.

#### 6.1.2.1 Prioritization of Risk Mitigation Work

Energy Safety initially raised the issue of SDG&E not effectively determining or mitigating the most risk with its grid hardening projects as a prioritization concern in its Rejection and Order to Resubmit. Energy Safety found that SDG&E did not prioritize wildfire mitigation activities to address the highest-risk circuits, segments, or spans within its service territory. [80] Energy Safety's concern comes from SDG&E not scoping its top risk circuit segments for grid hardening (either undergrounding or covered conductor) in the 2026-2028 time period.[81]

In its comments on SDG&E's 2026-2028 Base WMP R1, MGRA voiced a similar concern about the prioritization of SDG&E's risk mitigation work.[82] SDG&E's reply comments explained for the first time that it had scoped the work in the 2026-2028 Base WMP with previous risk models.[83] In a Request for Errata, Energy Safety required SDG&E to add to its WMP this and other explanations related to the prioritization of its risk mitigation work.[84] Pursuant to the errata request, SDG&E provided in its revised 2026-2028 Base WMP R2 the following additional explanations for how it prioritized and scoped circuit segments for grid hardening:

- SDG&E prioritized its circuit segments for grid hardening projects for the 2026-2028 period based on previous versions of its risk model, namely WiNGS 2.0 and WiNGS 3.0.[85]
- SDG&E reduced the grid hardening scoped by these risk models after the CPUC's Decision for SDG&E's Test Year (TY) 2024 General Rate Case (GRC) was issued.[86] SDG&E

[80] Rejection and Order to Resubmit, Page 5.

[81] SDG&E, 2026-2028 Base WMP R2, Pages 143-145. OEIS Table 6-4 shows only one of the top 15 circuit segments ranked by overall utility risk have grid hardening scoped for 2026-2028.

[82] MGRA comments on R1, Pages 4-12.

[83] SDG&E, reply comments 2026-2028 Base WMP R1, Page 3.

[84] Notice on Errata.

[85] SDG&E, reply comments 2026-2028 Base WMP R1, Page 3.

[86] SDG&E, 2026-2028 Base WMP R1 Cover Letter, Page 2.

stated that it needed to adjust its projects to reflect the reduced funding authorized in the GRC Decision.[87]

- When SDG&E plans grid hardening projects, it considers bundling circuit segments together that are nearby to one another to avoid redundancies in project costs related to the design, permitting, construction, and crew mobilization.[88]

In its revised 2026-2028 Base WMP R2, SDG&E provided the seven circuit segments with undergrounding projects planned in 2028, which were within SDG&E's riskiest circuits. Specifically, WiNGS 4.0 risk model ranked these seven circuit segments within the top 2.5 percent of SDG&E's 5,219 circuit segments for overall wildfire and outage risk.[89] In addition, SDG&E is planning covered conductor along 19 circuit segments that are in its top 13.35 percent of riskiest circuit segments from 2026 to 2028.[90] With these projects, SDG&E is hardening circuit segments that account for 4.85 percent of SDG&E's total risk from 2026 to 2028.[91]

When using WiNGS 3.0 to rank these circuit segments, which was the risk model SDG&E used to scope many of these projects, the seven circuit segments scoped for undergrounding show a non-significant change in ranking compared to WiNGS 4.0. However, the 19 circuit segments scoped for covered conductor ranked within the top 9.6 percent of riskiest circuit segments under WiNGS 3.0, as opposed to being ranked only within the top 13.4 percent of riskiest circuits under WiNGS 4.0.[92]

While the change of top riskiest circuit percentage appears limited between WiNGS 3.0 and WiNGS 4.0, the median rank for the 19 circuit segments scoped for covered conductor shows the significance of the difference between the two models. The median risk ranking for these 19 circuit segments was 92 in WiNGS 3.0 but it dropped to 274 in WiNGS 4.0. This means the majority of scoped covered conductor projects were targeting circuit segments with a higher concentration of risk when those projects were planned using WiNGS 3.0. This difference in risk ranking resulting from risk model version changes for the aforementioned projects explains why the highest-risk circuit segments displayed in SDG&E's 2026-2028 Base WMP did not appear to align with where mitigations were being prioritized.

Though, as noted above, SDG&E provided some explanation to Energy Safety regarding its prioritization, SDG&E still needs to ensure that it is mitigating risk along its known riskiest

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[87] SDG&E, reply comments 2026-2028 Base WMP R1, Page 3.

[88] Response to Data Request 16, Question 1.

[89] SDG&E, 2026-2028 Base WMP R2, Page 131.

[90] SDG&E, 2026-2028 Base WMP R2, Appendix F, Pages 1-138 (OEIS Table 6-5: Summary of Risk Reduction for Top-Risk Circuits).

[91] SDGE, 2026-2028 Base WMP R2, Page 157-158

[92] Response to Data Request 15, Q4 attachment.

circuit segments given the updated risk rankings from WiNGS 4.0. When evaluating SDG&E's top-risk circuit segments using risk scores, 15 circuit segments, totaling to about 374 miles, make up the top 20 percent of SDG&E's overall risk.[93] SDG&E has only one of its 2026-2028 Base WMP undergrounding projects and none of its covered conductor projects planned within these top 15 circuit segments.[94] Therefore, the underground projects for the seven circuit segments and the covered conductor projects for the 19 circuit segments described above are not targeting SDG&E's current highest-risk circuit segments that make up the top 20 percent of overall risk. SDG&E has no hardening planned in the 2026-2028 WMP cycle for 14 of its top 15 riskiest circuit segments, but it had begun undergrounding work during the 2023-2025 WMP cycle on 9 of the top 15 riskiest circuit segments until that work was suspended after its 2024 GRC Decision.[95] SDG&E stated it plans to complete these projects in 2028 and beyond when funding becomes available.[96]

### Circuits Within the Top 20 Percent of Risk

The WMP Guidelines require a "[t]abular summary of numeric risk reduction for each high-risk circuit within the top 20 percent of overall utility risk, showing risk levels before and after the implementation of activities."[97] Energy Safety's intention with this requirement is to see mitigation activities targeting the highest concentration of risk on an electrical corporation's system, meaning the circuits that make up 20 percent of the overall utility risk. SDG&E interpreted this to mean top 20 percent of circuit segments by count, meaning the riskiest 1,044 circuit segments of its total 5,219 circuit segments.

However, ranking the top 20 percent of circuit segments by count is not an appropriate metric to measure the proper prioritization of projects, given that the concentration of SDG&E's overall utility risk is in a much smaller amount of circuit segments. By focusing on the top 20 percent by circuit segment count as opposed to overall utility risk scores, SDG&E is not effectively determining or mitigating the most risk with its grid hardening projects. See area for continued improvement SDGE-26B-08 Prioritization of Riskiest Areas.

## 6.1.2.2 Interim Mitigation Strategy

SDG&E must provide close monitoring and implement additional interim mitigations on its riskiest circuit segments to address program reduction and delay. SDG&E stated that it reduced its undergrounding program for 2026 and 2027, and that the miles originally planned

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[93] SDG&E, 2026-2028 Base WMP R2, Appendix F, Pages 1-138 (OEIS Table 6-5: Summary of Risk Reduction for Top-Risk Circuits).

[94] SDG&E, 2026-2028 Base WMP R2, Appendix F, Pages 1-138 (OEIS Table 6-5: Summary of Risk Reduction for Top-Risk Circuits).

[95] SDG&E, 2026-2028 Base WMP R2, Page 141.

[96] SDG&E, 2026-2028 Base WMP R2, Page 141.

[97] WMP Guidelines, Page 76.

for 2025 were postponed until 2028 based on the 2024 General Rate Case (GRC) Decision.[98] SDG&E's target for 2025 was initially 150 miles in its 2025 WMP Update,[99] while its 2028 target is only 50 miles. SDG&E has zero miles planned for 2026 and 2027.[100]

SDG&E also stated that it is not using its latest risk model to inform prioritization of undergrounding until 2029.[101] The mitigation activities listed for the top 15 riskiest circuit segments within the 2026-2028 Base WMP are based on WiNGS 4.0, and include standard inspections and patrols, risk-informed drone inspections, Sensitive Ground Fault (SGF) settings, and Sensitive Relay Profile (SRP) settings, with EFD for only one of the top 15 riskiest circuit segments.[102]

Given the reduced grid hardening scope after the Test Year (TY) 2024 GRC Decision and the change in risk rankings between risk model versions, SDG&E must closely monitor and implement additional interim mitigations on its riskiest circuit segments with delayed or paused grid hardening projects in order to reduce known risk across its system. See area for continued improvement SDGE-26B-09 Implementation of Interim Mitigations.

## 6.2 Previous Areas for Continued Improvement

In the Energy Safety Decision for the SDG&E 2025 WMP Update, Energy Safety identified areas related to wildfire mitigation strategy development where SDG&E must continue to improve its wildfire mitigation capabilities. This section summarizes the requirements imposed by those areas for continued improvement, SDG&E's response to those requirements, and Energy Safety's evaluation of the response.

### 6.2.1 SDGE-25U-02. Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in Consequence Modeling, Inclusion of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety

For this area for continued improvement, Energy Safety required SDG&E to continue its collaboration with other electrical corporations and participate in all Energy Safety-organized

[98] SDG&E, Reply Comments 2026-2028 Base WMP R1, Page 3.

[99] SDG&E, 2025 WMP Update, Page 20.

[100] SDG&E, 2026-2028 Base WMP R2, Page 158.

[101] SDG&E, Reply Comments 2026-2028 Base WMP R1, Page 3.

[102] SDG&E, 2026-2028 Base WMP R2, Appendix F, Pages 1-138 (OEIS Table 6-5: Summary of Risk Reduction for Top-Risk Circuits).

activities related to climate change, community vulnerability, and utility vegetation management its 2026-2028 Base WMP.[103]

#### 6.2.1.1 SDGE-25U-02. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported it collaborates with other electrical corporations in monthly meetings, and that it hosted two in-person meetings in 2024.[104] SDG&E indicated that it participated in industry events for best practices and knowledge expansion.[105] It also stated that it plans to participate in all Energy Safety-organized activities related to climate change forecasts in consequence of modeling.[106]

#### 6.2.1.2 SDGE-25U-02. Energy Safety Evaluation

SDG&E has carried out the collaborations required by Energy Safety. In addition, it provided dates and topics for the meetings held in 2024.[107] As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

### 6.2.2 SDGE-25U-03. Third-Party Recommendations for Model Improvements

For this area for continued improvement, Energy Safety required SDG&E to provide updates on its progress of the inclusion of its Vegetation Risk Index, the use of its risk model to inform mitigation work outside of grid hardening, and elimination of double-counting of conductor age and circuit health index in its risk modeling in its 2026-2028 Base WMP.[108] The updates also had to cover the sensitivity analysis for risk buy-down, mitigation, and PSPS models.[109] SDG&E was also required to provide its improvement implementation plan based on the risk model recommendations identified in its consultant's May 2023 report.[110]

[103] Decision for SDG&E 2025 WMP Update, Pages 68-69.

[104] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 5-6.

[105] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 5.

[106] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 6.

[107] Response to Data Request 03, Question 05.

[108] Decision for SDG&E 2025 WMP Update, Page 69.

[109] Decision for SDG&E 2025 WMP Update, Page 69.

[110] Decision for SDG&E 2025 WMP Update, Page 69.

#### 6.2.2.1 SDGE-25U-03. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported the updates to its WiNGS-Planning and WiNGS-Ops models based on the requirements described above.[111] SDG&E provided a summary of recommendations from its consultant's May 2023 report and its implementation status for each of the recommendations.[112]

#### 6.2.2.2 SDGE-25U-03. Energy Safety Evaluation

SDG&E has provided all the updates required by Energy Safety. However, many of the third-party recommendations that relate to implementing and increasing documentation have deadlines at the end of 2026, 2027, or 2028.

These remaining recommendations that SDG&E has not fully implemented and that are related to documentation and validation of models are crucial steps in both transparency and accuracy of the risk models and associated outputs. Without proper development of documentation, it remains difficult to review and understand SDG&E's risk models, both from an external and internal perspective. Without proper validation, such as sensitivity testing, SDG&E cannot know the extent to which its risk model is providing accurate results and what the weaknesses of the risk model are. Given the importance of these remaining items, SDG&E must continue to report on the progress it has made in implementing these recommendations and must demonstrate continued improvement in its risk model.

As such, SDG&E must continue to improve in this area for its next Base WMP. Section 6.3 sets forth the requirements for improvement. See area for continued improvement SDGE-26B-10 Third-Party Recommendations for Model Improvements.

## 6.3 Areas for Continued Improvement for Future WMP Submissions

As discussed above, Energy Safety has identified areas pertaining to wildfire mitigation strategy development where the electrical corporation must demonstrate improvement in a future, specified WMP submission. This section sets forth the requirements for improvement.

### 6.3.1 SDGE-26B-07. Joint Study for Mitigation Activity Effectiveness Estimates

Summary: IOUs[113] have varying methodologies and results when evaluating mitigation initiative effectiveness. These differences include variations in available in-field data, which

[111] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 7-9.

[112] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 10-29.

[113] Here the IOUs include SDG&E, PG&E, SCE, PacifiCorp, and Liberty Utilities.

type of data is used to determine effectiveness, and how effectiveness is calculated. SDG&E uses "evidence of heat" in evaluating the effectiveness of covered conductor, which might include data unrelated to potential ignitions. In addition, the effectiveness for additional mitigations in combination with covered conductor, including FCP and EFD, are rough estimates, lacking a proper evaluation of its overlapping and added benefits.

Requirements: In its next Base WMP, SDG&E must collaborate with the IOUs to determine more consistent methodologies and evaluations of mitigation activity effectiveness. The IOUs must complete and provide a joint study and report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base-WMPs), and include that report in their subsequent Base WMP submission. The report must cover the following topics and summary:

- What type of data could be used to determine mitigation activity effectiveness. This topic must include discussions of the following:
    - How to share available data across IOUs,
    - Evaluation of all mitigation activities performed by IOUs listed out with the various current effectiveness estimations being used by IOUs, and discussion of shortcomings for any mitigation activities that do not currently have effectiveness values calculated,
    - Evaluation of the use of ignition vs. outage vs. other data (such as "evidence of heat" events) for evaluating ignition risk, including a comparison of benefits and weaknesses,
    - Other ways to augment useable data for any limited data sets, including any shortcomings and potential remedies for increasing accuracy when using additional data, and
    - Evaluation of variations on methodologies used by IOUs for translating data into probability of ignition.
- How IOUs measure effectiveness of mitigation activities against various risk drivers. This topic must include reporting on completion of the following:
    - Synchronization among IOUs on ways to calculate effectiveness of various mitigation activities against various risk drivers, including benefits and weaknesses of IOUs' current approaches as a comparison,
    - Weighting of various risk drivers in terms of associated ignition and wildfire risk, and
    - Summation of various risk driver effectiveness values into overarching effectiveness value.
- How mitigation activity effectiveness is used when determining mitigation prioritization and selection. This topic must include the following:

  - A discussion of the granularity in which effectiveness values are used during mitigation selection based on an evaluation of location-specific risk drivers, including how those drivers are selected and weighted for a given area, and
  - An analysis of how mitigation activity informs and impacts cost-benefit analysis, including a discussion and comparison of any differences on scaling across IOUs.
- How to evaluate mitigation activities in combination. This topic must include reporting on completion of the following:
  - Synchronization among IOUs on potential combinations to include when calculating joint effectiveness estimates,
  - Demonstration that electrical corporations have shared measured in-field effectiveness with one another and have integrated it into overall effectiveness calculations, and
  - Measuring overlapping and added benefit based on evaluation of ignition drivers impacted by various mitigations, including a comparison of IOUs' current efforts.

IOUs must also participate in Energy Safety-led activities, such as workshops or working group meetings, to further consider requirements around effectiveness.

Discussed in: Section 6.1.1.1, "Evidence of Heat" Events in Effectiveness Calculation; Section 6.1.1.2, Rough Proxy Effectiveness for Falling Conductor Protection (FCP); and Section 8.2.1.1, Covered conductor installation.

### 6.3.2 SDGE-26B-08. Prioritization of Riskiest Areas

Summary: SDG&E has not properly demonstrated that it is prioritizing its riskiest circuit segments as identified by its latest risk model.

Requirements: In its next WMP Update, SDG&E must:

- Provide an update of its planned grid hardening projects from 2027 to 2029. This should be in the form of a spreadsheet with the following information:
  - Circuit Segment ID,
  - Type of hardening (i.e. undergrounding, covered conductor),
  - Status of the project (scoping, design permitting, etc.),
  - WiNGS 2.0 Risk Score,
  - WiNGS 2.0 Risk Rank,
  - WiNGS 3.0 Risk Score,
  - WiNGS 3.0 Risk Rank,
  - WiNGS 4.0 Risk Score,

  - WiNGS 4.0 Risk Rank,
  - Risk model version used for prioritization (WiNGS 2.0, 3.0, or 4.0),
  - Expected year for implementation, and
  - Planned length.
- For circuit segments in the top 20 percent of riskiest circuit segments based on total overall risk scores represented in the 2026-2028 Base WMP that do not currently have any grid hardening projects planned as covered in the response to part (a), SDG&E must provide a narrative explaining how it is monitoring and reducing risk for those circuit segments, when it will evaluate potential hardening projects for those circuit segments in the future, and why it is not currently scheduled to have any grid hardening.

Discussed in: Section 6.1.2.1, Prioritization of Risk Mitigation Work.

### 6.3.3 SDGE-26B-09. Implementation of Interim Mitigations

Summary: Given the reduced grid hardening scope after the Test Year (TY) 2024 GRC Decision and the change in risk rankings from previous risk models, many of SDG&E's top risk circuits currently do not have risk hardening planned for the 2026-2028 Base WMP cycle, leaving exposure to known risk on its system until grid hardening projects are completed in the future.

Requirements: In its next WMP Update, SDG&E must:

- For planned grid hardening projects where the circuit segment risk ranking (for the risk model version used when the work was prioritized) is below the top 20 percent of riskiest circuit segments based on total overall risk scores, SDG&E must provide a narrative explanation for why it selected that circuit segment over higher risk circuit segments. This narrative must include:
  - Justification for project selection,
  - Demonstration that selection of a lower risk ranked circuit segment is still mitigating adequate risk efficiently, and
  - Explanation as to why it is a more appropriate option than selecting higher risk ranked circuit segments for mitigation work.
- For the top 20 percent riskiest circuits by total overall risk score that do not have hardening planned in 2026 or 2027, as well as circuits that had grid hardening planned in 2026 or 2027 but were put on pause after the TY2024 GRC Decision, SDG&E must provide a demonstration of the following:
  - Risk informed drone inspection (or other additional inspection) coverage,
  - EFD (or other continuous monitoring technology) coverage,
  - FCP coverage, and

- Enhanced asset inspections (e.g., increased frequency or additional technologies over the GO 95 and GO 165 requirements, etc.).

The demonstration must also include the following:

- Circuit mileage of each circuit segment,
- Percentage of each circuit segment covered by the respective mitigation,
- Additional circuit mileage planned for installation in 2026-2028 for the respective mitigation, and
- Date of installation/completion for the respective mitigation.

Discussed in: Section 6.1.2.2, Interim Mitigation Strategy and Section 8.2.1.2, Undergrounding and Covered Conductor for Electric Lines.

### 6.3.4 SDGE-26B-10. Third-Party Recommendations for Model Improvements

Summary: SDG&E provided updates on its implementation of recommendations from a third-party review of its risk models conducted in 2023. SDG&E is still in the process of implementing some of the recommendations, with planned completion for the end of 2026 or later.

Requirements: In its next WMP Update, SDG&E must provide a status update for the third-party recommendations from *Table 4-1: WiNGS-Planning Third Party Recommendations* and *Table 4-2: WiNGS-Ops Third Party Recommendations* with a current status of "In progress" or "Not started." For any recommendations that do not change in status or are delayed, SDG&E must provide an explanation as to why.

Discussed in: Section 6.2.2, SDGE-25U-03 Third-Party Recommendations for Model Improvements.

Appendix C provides a consolidated list of areas for continued improvement and requirements.

# 7. Public Safety Power Shutoffs

Chapter III, Section 7 of the WMP Guidelines requires the electrical corporation to provide an overview narrative of planned initiative actions to reduce the impacts of Public Safety Power Shutoff (PSPS) events.[114] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 7.1 Discussion

This section discusses Energy Safety's evaluation of the PSPS section of the SDG&E 2026-2028 Base WMP.

Despite the suspension of its Strategic Underground Program through 2027, SDG&E has demonstrated a clear action plan to continue reducing the impact of PSPS events with strategies such as grid hardening, situational awareness, and risk analytics initiatives.[115]

SDG&E indicated it will suspend the Strategic Underground Program through 2027 due to lower than anticipated funding from its 2024 GRC Decision.[116] This will significantly delay the PSPS impact reduction as originally planned. However, SDG&E also presented other efforts to mitigate its PSPS risk as discussed below.

SDG&E stated that it can customize wind speed thresholds to allow higher wind speed thresholds for circuit segments with covered conductor installed.[117] This approach considers the criteria of each circuit segment in scope with its "location, historical wind records, vegetation, and asset condition for each circuit segment in scope."[118]

By installing switches, SDG&E's PSPS Sectionalizing Enhancement Program can isolate high-risk areas and reduce potential deenergization in these areas.[119] In addition, SDG&E uses tools such as 30-second read capabilities on weather stations for real-time observation to increase situational awareness.[120] SDG&E further provided that it launches customers resiliency programs to reduce the consequences of PSPS deenergization for vulnerable customers.[121] SDG&E also discussed its lessons learned from two PSPS events in 2024 and identified areas

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[114] Pub. Util. Code, § 8386(c)(8).

[115] SDG&E, 2026-2028 Base WMP R2, Page 149.

[116] SDG&E, 2026-2028 Base WMP R2, Page 152.

[117] SDG&E, 2026-2028 Base WMP R2, Pages 149-152.

[118] SDG&E, 2026-2028 Base WMP R2, Pages 149-152.

[119] SDG&E, 2026-2028 Base WMP R2, Page 152.

[120] SDG&E, 2026-2028 Base WMP R2, Page 152.

[121] SDG&E, 2026-2028 Base WMP R2, Page 152.

of improvements needed related to its Customer Notification System.[122] SDG&E's plan covers its efforts to reduce duration, frequency, and scope for PSPS.

Given SDG&E's efforts as described above and its efforts in making further enhancements with equipment and pole upgrades, and plan to replace bare wire with covered conductor as discussed in Section 8 of this decision, SDG&E has provided comprehensive strategies to continue to mitigate PSPS events and impacts. Energy Safety finds that these strategies will likely reduce PSPS events and impacts.

## 7.2 Areas for Continued Improvement

Energy Safety identifies no previous or new areas for continued improvement in the Public Safety Power Shutoffs section for the SDG&E 2026-2028 Base WMP.



[122] SDG&E, 2026-2028 Base WMP R2, Page 312.

# 8. Grid Design, Operations, and Maintenance

Chapter III, Section 8 of the WMP Guidelines requires the electrical corporation to include plans for grid design, operations, and maintenance programmatic areas in its WMP.[123] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 8.1 Summary of Anticipated Risk Reduction

SDG&E's planned grid design, operations, and maintenance activities for 2026-2028 are expected to reduce wildfire and PSPS risk through a combination of a transmission infrared inspection program and a work order remediation program. These mitigation activities are particularly important given that 64 percent of SDG&E's service territory is within the HFTD that continues to experience increased drought and windy conditions.[124]

SDG&E's transmission infrared inspection may reduce risk. The scope of work exceeds General Order (GO) 95 requirements, covering all transmission assets in SDG&E's High Fire Risk Area (HFRA)[125]/HFTD area. This may allow SDG&E to identify and remediate risky conditions that are otherwise undetectable.

Nonetheless, SDG&E still has room to improve its grid design, operations, and maintenance, as discussed below.

## 8.2 Discussion

This section discusses Energy Safety's evaluation of the grid design, operations, and maintenance section of the SDG&E 2026-2028 Base WMP.

### 8.2.1 Grid Design and System Hardening

#### 8.2.1.1 Covered Conductor Installation

SDG&E must improve its evaluation of the effectiveness of covered conductor to better inform its plan for covered conductor installation. In addition, SDG&E must use its ignition data to estimate mitigation effectiveness (See Section 8.2.1.9 for details).

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[123] Pub. Util. Code §§ 8386(c)(3), (6), (10), (14)-(15).

[124] SDG&E, 2026-2028 Base WMP R2, Pages 21-22.

[125] SDG&E does not use HFRA boundaries. (SDG&E, 2026-2028 Base WMP R2, Page 138.) Thus, SDG&E HFRA boundaries discussed here are equivalent to its HFTD boundaries.

SDG&E reported the effectiveness of the covered conductor is 61.71 percent based on the Joint Investor-Owned Utility (IOU) Grid Hardening Working Group Report.[126] This value is significantly lower than the one reported by Pacific Gas and Electric Company (PG&E), which is about 79 percent.[127] SDG&E did not provide sufficient explanation or supporting data to justify this variance from other large electrical corporations. Additionally, SDG&E's combined covered conductor effectiveness formula appears to lower the benefits of protective equipment and device settings (PEDS). Thus, SDG&E must work with other large electrical corporations and SMJUs to conduct another joint study to develop more consistent methodologies and evaluations of mitigation activity effectiveness. See area for continued improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates in Section 6.3.

The effectiveness calculation of SDG&E's combined covered conductor appears incorrect. The calculation assesses covered conductor alone without incorporating PEDS at the risk-driver level. Specifically, risk drivers from the SDG&E Table 6-10 such as "SDG&E Personnel" and "Non-SDG&E Personnel" included in the "Other Contact"[128] should be excluded as they are not directly mitigated by covered conductor and should instead be addressed by operational standards. Overall, SDG&E must improve its methodology for effectiveness calculation to better capture the effectiveness of various mitigation activities. To do so, it may be helpful to reference the large electrical corporations' discussion of covered conductor risk drivers in their current Grid Hardening Joint Studies. See area for continued improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates in Section 6.3.

#### 8.2.1.2 Undergrounding and Covered Conductor for Electric Lines

SDG&E's planned mileage for undergrounding and covered conductor is lower than CPUC's recommendation in the 2024 GRC Decision though in 2028 it intends to harden more miles.[129] Delaying grid hardening work in higher risk circuit segments and SDG&E's lower mileage targets for undergrounding and covered conductor will potentially leave wildfire risks unaddressed. Thus, SDG&E must take additional mitigation efforts to address the top risk circuit segments in its system.

SDG&E stated that it does not plan to underground any miles in 2026 and 2027 and only has plans to underground 50 miles in 2028.[130] SDG&E further reported that it targets 50 miles per year between 2026 and 2028 for covered conductor even though the 2024 GRC Decision

[126] SDG&E, 2026-2028 Base WMP R2, Page 134.

[127] SDG&E, 2026-2028 Base WMP R2, Attachment A, Page 3.

[128] SDG&E, 2026-2028 Base WMP R2, Page 123.

[129] SDG&E, Reply Comments 2026-2028 Base WMP R1, Page 3.

[130] SDG&E, 2026-2028 Base WMP R2, Page 158.

authorized 100 miles annually in 2026 and 2027.[131,132] The fact that SDG&E's 2026-2028 Base WMP does not include these recommended targets will result in underrepresented potential risk reduction benefits if these projects proceed. In addition, SDG&E stated its undergrounding program may be suspended beginning in 2026 due to the 2024 GRC Decision even though the mileage[133] and risk-reduction targets for 2028 remain as if the program would proceed.

SDG&E must closely monitor and implement additional interim mitigations on circuit segments that had grid hardening projects delayed or paused. See areas for continued improvement SDGE-26B-09 Implementation of Interim Mitigations in Section 6.3.

#### 8.2.1.3 Traditional Overhead Hardening

SDG&E focuses its hardening activities for its Distribution Overhead System Hardening program (WMP.475) in HFTD and Wildland-Urban Interface (WUI).[134] However, for its replacement work, it only includes the "replacement of wood poles with steel" and "replacement of bare conductors with new bare conductor."[135] The replacement of bare conductor with covered conductor is not included. As covered conductor helps mitigate wildfire risk more than bare wire alone, SDG&E should consider updating its engineering standards to require installing covered conductor when replacing any bare wire, as Southern California Edison Company (SCE) has done.[136] By doing so, SDG&E can ensure it is consistently replacing bare wires with covered conductors, which would reduce wildfire risk across its system.

#### 8.2.1.4 Emerging Grid Hardening Technology Installations and Pilots

SDG&E stated that it "does not employ Rapid Earth Fault Current Limiters (REFCL)" as a mitigation strategy."[137] SDG&E determined that Rapid Earth Fault Current Limiter (REFCL) was cost-prohibitive based on a study from 2020 to 2021.[138] As stated in the area for continued improvement SDGE-25U-04, large electrical corporations and SMJUs are required to evaluate new technologies such as REFCL in its joint Grid Hardening Working Group Report.

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[131] SDG&E, 2026-2028 Base WMP R2, Page 157.

[132] GRC Decision D. 24-12-074, Pages 471-483.

[133] SDG&E, 2026-2028 Base WMP R2, Pages 162-163.

[134] SDG&E, 2026-2028 Base WMP R2, Page 166.

[135] SDG&E, 2026-2028 Base WMP R2, Page 166.

[136] SCE, 2026-2028 Base WMP R2, Page 225.

[137] SDG&E, 2026-2028 Base WMP R2, Page 224.

[138] SDG&E, 2026-2028 Base WMP R2, Attachment A, Pages 26-27.

Considering SCE's recent advances,[139] SDG&E must work with the other large electrical corporations and SMJUs to continue participating in a joint analysis of REFCL that incorporates effectiveness and implementation feasibility across its service territory. See area for continued improvement SDGE-26B-18 Grid Hardening and Inspection Joint Studies in Section 8.4.

#### 8.2.1.5 Microgrids

SDG&E is demonstrating forward-looking growth by providing a microgrid target, as microgrids can keep customers energized during PSPS events. SDG&E stated it "plans to install one remote grid by 2028."[140] This is consistent with the Resolution E-5308, as the CPUC granted SDG&E "an initial set of Remote Grids up to one megawatt of historical measured peak customer load."[141] SDG&E is the only one out of the three large electrical corporations (PG&E and SCE) that has a microgrid target. Setting this target will help SDG&E reduce outage program risk as microgrids can "keep customers energized throughout the duration of a PSPS de-energization."[142]

#### 8.2.1.6 Installation of System Automation Equipment

SDG&E has been deploying system automation technologies for more than a decade and has reported that it has installed system automation equipment widely across its overhead electric distribution system. However, SDG&E does not currently provide an analysis assessing the effectiveness of these technologies in reducing ignitions and outages. Such an analysis is necessary to inform future deployment decisions and optimize the integration of these technologies in SDG&E's wildfire mitigation strategy.

While SDG&E provides detailed descriptions of the technologies included in its Advanced Protection program and their risk-reduction intent, SDG&E reported that it cannot perform a trend analysis for its Advance Protection program (WMP.463) that evaluates the systems' historical effectiveness in reducing ignitions and outages.[143] A trend analysis looking into the data dating back to SRP and SGF implementation would validate the benefits of SDG&E's automation system and better inform future decisions regarding integrating these technologies into SDG&E's wildfire mitigation strategy.

The Advanced Protection program covers system automation technologies used for increasing system protection and situation awareness, including FCP, SGF protection, SRP

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[139] SCE, REFCL Projects.

[140] SDG&E, 2026-2028 Base WMP R2, Page 169.

[141] Resolution E-5308, Page 2.

[142] SDG&E, 2026-2028 Base WMP R2, Page 170.

[143] SDG&E, 2026-2028 Base WMP R2, Page 171.

settings, and Supervisory Control and Data Acquisition (SCADA) communications.[144] SDG&E has been deploying some of these technologies for more than a decade and has reported them as mature and widely installed across its overhead electric distribution system.

SDG&E has been implementing SRP settings and SGF protection since 2011 and employs both on its overhead electric distribution system.[145] Of its top 20 riskiest circuit-segments based on overall utility risk, SDG&E has some FCP coverage on seven circuit-segments, with about 11.6 percent being the average FCP coverage. Eighteen of its top 20 riskiest circuit-segments have 100 percent EFD coverage,[146] which is substantial. Additionally, SDG&E has implemented 153.78 circuit-miles of combined covered conductor on its top 20 percent by count circuit segment.[147] SDG&E thus demonstrated that it should have the data to conduct a trend analysis for its Advance Protection program, given that the technologies have been widely installed across its overhead electric distribution system for more than a decade.

SDG&E must complete a trend analysis looking into data dating back to 2011 when SRP and SGF was implemented.[148] See area for continued improvement SDGE-26B-11 System Automation Equipment and Technologies Trend Analysis.

#### 8.2.1.7 Transmission Line Removal in the HFTD

Large electrical corporations and SMJUs must collaborate and improve their de-energized but unremoved transmission lines assessment and mitigation strategy to better manage the wildfire risks from unremoved de-energized transmission lines.

Large electrical corporations and SMJUs have de-energized but have not removed transmission lines within the HFTD for various reasons. Large electrical corporations and SMJUs define, assess, and mitigate risk associated with these de-energized lines differently. These de-energized transmission line segments, especially those that run parallel to energized transmission lines, pose a potential wildfire risk due to inadvertent energization. Risk levels of these de-energized lines are dependent on grounding configurations, proximity to energized lines, and vegetation contact.

SDG&E stated that it maintains three idle transmission lines within the HFTD "that share structures with or parallel (within 1,000 feet) existing energized transmission lines."[149] These idle transmission lines total approximately 14.69 circuit miles. SDG&E currently has no

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[144] SDG&E, 2026-2028 Base WMP R2, Page 171.

[145] SDG&E, 2026-2028 Base WMP R2, Page 232; Attachment A, Page 25.

[146] Response to Data Request 16, Question 03.

[147] Response to Data Request 15, Q2 Attachment.

[148] Utility Benchmarking of Fast Trip Schemes and Relay Technologies for Fire Mitigation, Table 2 & 3.

[149] Response to Data Request 10, Question 01.

removal plans.[150] Of the 14.69 miles, SDG&E is evaluating about 7.3 miles for reuse or replacement. SDG&E also indicated it inspects and maintains its idle transmission lines regularly to ensure they are not energized.[151]

As compared to other large electrical corporations and SMJUs, SDG&E is the only one that has evaluated the grounding configurations and impacts on fault current magnitudes of its three idle transmission lines[152,153,154]; the other large electrical corporations and SMJUs are required to put together a similar evaluation.

To ensure large electrical corporations and SMJUs are managing wildfire risks from unremoved de-energized transmission lines, all large electrical corporations and SMJUs must provide a terminology framework, provide a circuit level risk assessment, incorporate lessons learned from existing studies, provide a comprehensive mitigation strategy, and report its inspection and maintenance protocols for unremoved de-energized transmission lines in the HFTD through area for continued improvement SDGE-26B-12 De-energized Transmission Line Assessment and Removal.

#### 8.2.1.8 Other Grid Topology Improvements to Mitigate or Reduce PSPS Events

SDG&E stated it plans to install 18 sectionalizing switches from 2026-2028, which will reduce number of customers impacted by isolating high-risk areas.[155] SDG&E did not report the expected risk reduction from this program and stated the program mainly focuses on reducing PSPS risk. However, calculation and analytics of the risk reduction impacts of its PSPS Sectionalizing Enhancement Program will support SDG&E to further plan the installation strategically for effective risk mitigation. Thus, Energy Safety recommends that SDG&E calculate and analyze the risk-reduction impacts of its PSPS Sectionalizing Enhancement Program (WMP.461), across its service territory in its HFTD, and reports its findings by its next WMP Update.

#### 8.2.1.9 Other Technologies and Systems Not Listed Above

SDG&E indicated that its Ignition Management Program (IMP) (WMP.558) supports its overall wildfire mitigation efforts.[156] The program tracks ignition data for estimating mitigation

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[150] Response to Data Request 10, Question 01.

[151] Response to Data Request 10, Question 01.

[152] Response to Data Request 10, Attachment 1

[153] PG&E, Response to Data Request 15, Question 01.

[154] SCE, Response to Data Request 04, Question 11.

[155] SDG&E, 2026-2028 Base WMP R2, Page 157; Pages 173-174.

[156] SDG&E, 2026-2028 Base WMP R2, Pages 177-178.

effectiveness.[157] However, SDG&E did not report a trend analysis evaluating mitigation effectiveness. As its IMP should support and allocate resources for trend analysis on all grid design, operations, and maintenance activities, SDG&E must conduct trend analysis on the impacts of wildfire risk reduction and outage mitigation. See area for continued improvement SDGE-26B-11 System Automation Equipment and Technology Trend Analysis.

## 8.2.2 Asset Inspections

### 8.2.2.1 Distribution Overhead Detailed Inspection

SDG&E stated that it will perform only the minimum detailed overhead inspections required by CPUC GO 165 on a five-year interval.[158] The minimum CPUC GO 165 requirement will result in inspections on only 20 percent of its HFTD and HFRA assets every year,[159] which may leave dangerous conditions unidentified and on the system.

SDG&E reported the find rate of its Distribution Overhead Detailed Inspection is 0.12 percent for Level 1 and 2.39 percent for Level 2 conditions.[160, 161] These find rates are much lower when compared to the detailed inspection find rate of other large electrical corporations (PG&E and SCE). In their respective 2026-2028 Base WMPs, PG&E reported a detailed distribution inspection find rate of 15.96 percent,[162] and SCE reported a find rate of 32.5 percent.[163] This might suggest that SDG&E's assets are in better repair than its peers. However, SDG&E reported the find rate of its risk informed drone inspection as 0.44 percent for Level 1 and 21.68 percent for Level 2 conditions,[164] indicating that there are conditions or issues on SDG&E's system and SDG&E is finding them through these other inspections. The high drone inspection find rates therefore suggest weaknesses in SDG&E's detailed inspections that are leaving dangerous conditions unidentified.

In addition, SDG&E's other inspection programs may not fully meet inspection needs across its distribution system. For example, its Distribution Overhead Patrol Inspections only demonstrate a 0.24 percent find rate for Level 2 conditions.[165] In contrast, its risk-informed

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[157] SDG&E, 2026-2028 Base WMP R2, Page 177.

[158] SDG&E, 2026-2028 Base WMP R2, Page 178.

[159] SDG&E, 2026-2028 Base WMP R2, Page 180.

[160] SDG&E, 2026-2028 Base WMP R2, Page 180.

[161] Based on GO 95, Rule 18, Level 1 condition refers to these with immediate safety and/or reliability risk with high probability for significant impact; and Level 2 condition refers to the with non-immediate high to low, or variable safety and/ or reliability risk.

[162] PG&E, 2026-2028 Base WMP R2, Page 230.

[163] SCE, 2026-2028 Base WMP R2, Page 274.

[164] SDG&E, 2026-2028 Base WMP R2, Page 180.

[165] SDG&E, 2026-2028 Base WMP R2, Page 180.

drone inspection demonstrate a 21.68 percent find rate for Level 2 conditions but only cover 11 percent of its HFTD and HFRA assets annually.[166] Given that SDG&E performs detailed inspections on a 5-year interval, and that SDG&E only inspects 11 percent of its assets in the HFTD Tiers 2 and 3 per year via the risk informed drone inspection program, approximately 69 percent of SDG&E's assets in the HFTD are not subject to thorough inspection each year. Given SDG&E's remediation timeframe for Level 2 conditions is 6 months in the HFTD Tier 3, and 12 months in the HFTD Tier 2,[167] Level 2 conditions may remain unidentified and uncorrected in the HFTD for longer than the safe remediation timeframes.

Given the lower Levels 1 and 2 condition find rates reported by SDG&E for distribution detailed inspections as compared with the find rates from its own drone assessments and other large electrical corporations' detailed inspections, SDG&E must compare its detailed inspections to its drone assessments to identify any missing findings in its detailed inspections. See area for continued improvement SDGE-26B-13 Distribution Detailed Inspection Comparative Analysis in Section 8.4.

As the large electrical corporations have matured, their detailed distribution inspection programs have diverged in the frequency of their inspections, and the methods used to identify conditions on their assets. Given that most electric corporation assets are monitored through visual inspection[168,169,170] and only repaired or replaced when a condition is identified during an inspection,[171,172,173] it is critical that detailed distribution inspections effectively identify Level 1 and 2 conditions for remediation to minimize wildfire risk. As noted above, SDG&E has lower Levels 1 and 2 condition find rates for its distribution detailed inspections than other large electrical corporations' detailed inspections, which may be indicative of weakness in its detailed inspections that may result in unidentified dangerous conditions on its system. A cross-utility benchmarking study comparing the SDG&E, SCE, and PG&E detailed inspection programs will be required in area for continued improvement SDGE-26B-18 Grid Hardening and Inspection Joint Studies.



[166] SDG&E, 2026-2028 Base WMP R2, Page 180.

[167] SDG&E, 2026-2028 Base WMP R2, Pages 208-209.

[168] PG&E, 2026-2028 Base WMP R2, Pages 264-304.

[169] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[170] SDG&E, 2026-2028 Base WMP R2, Pages 206-207.

[171] PG&E, 2026-2028 Base WMP R2, Pages 264-304.

[172] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[173] SDG&E, 2026-2028 Base WMP R2, Pages 206-207.

#### 8.2.2.2 Transmission Infrared Inspection

SDG&E's transmission infrared inspection demonstrates forward-looking growth. It exceeds GO 95 requirements and reduces additional risk by conducting annual transmission infrared inspections. SDG&E stated that it performs infrared inspections on all energized transmission lines in the HFTD and HFRA on an annual basis, exceeding GO 95 requirements.[174] SDG&E also performs non-routine infrared inspections prior to extreme weather events.[175] This will likely result in reducing additional wildfire risk by identifying conditions that are undetectable by other inspections methods.

#### 8.2.2.3 Risk-Informed Drone Inspection

SDG&E reduced the targets of distribution risk-informed drone inspection (RIDI) in its 2026-2028 Base WMP by approximately 33 percent when compared to its 2023 and 2024 targets.[176,177] SDG&E stated that it utilizes an Inspection Prioritization Model that identifies the highest risk structures based on probability of failure and consequence of failure, and the number of planned inspections is determined by balancing risk reduction and cost efficiency.[178] In its 2026-2028 Base WMP, SDG&E RIDI covers 11 percent of its HFTD/HFRA annually with a find rate of about 22 percent for level 2 conditions.[179]

The RIDI demonstrates the highest find rates for Level 1 and Level 2 conditions when compared to other distribution inspections programs, including patrol inspections, intrusive pole inspections, and distribution detailed inspections, as shown below:

- Patrol inspections cover SDG&E's entire HFTD/HFRA and demonstrate less than 0.3 percent find rates for Level 2 conditions;[180]
- Intrusive pole inspections cover up to 10 percent of SDG&E's HFTD/HFRA annually and demonstrate less than one percent find rates for Level 2 conditions;[181]
- Distribution detailed inspections cover 20 percent of SDG&E's HFTD/HFRA annually and demonstrate less than 2.5 percent find rates for Level 2 conditions;[182] and

[174] SDG&E, 2026-2028 Base WMP R2, Page 180.

[175] SDG&E, 2026-2028 Base WMP R2, Page 187.

[176] SDG&E, 2026-2028 Base WMP R2, Page 180.

[177] SDG&E, 2023-2025 Base WMP, Page 150.

[178] SDG&E, 2026-2028 Base WMP R2, Pages 192-193.

[179] SDG&E, 2026-2028 Base WMP R2, Page 180.

[180] SDG&E, 2026-2028 Base WMP R2, Page 180.

[181] SDG&E, 2026-2028 Base WMP R2, Page 180.

[182] SDG&E, 2026-2028 Base WMP R2, Page 180.

- Risk-informed drone inspection (RIDI) covers the highest risk overhead structures within the HFTD and WUI and demonstrates about 21.7 percent find rates for Level 2 conditions.[183] By conducting RIDI, SDG&E is exceeding GO 95 requirements and will likely reduce wildfire risk.

Given the relatively low find rates of the other inspection types compared to RIDI inspections and the low percentage of HFTD/HFRA annually inspected by more thorough inspection types, it is likely that SDG&E's RIDI program plays a critical role in identifying high wildfire risk conditions for remediation. While SDG&E is evaluating the effectiveness of its detailed distribution inspection program through comparison to RIDI and benchmarking with other large electric corporations, it may be prudent to increase the number of RIDI inspections performed annually to better reduce the wildfire risk associated with unidentified Level 2 conditions.

#### 8.2.2.4 Transmission Switch Inspections

SDG&E is demonstrating forward-looking growth by reducing additional risk by adding transmission switch inspections as a new initiative. SDG&E introduced this new initiative, Transmission Switch Inspections, in its 2026-2028 Base WMP. SDG&E stated it will inspect its transmission switches in the HFRA over a three-year interval and inspect approximately 3.7 switches per year.[184] This new initiative will likely reduce the wildfire risk associated with transmission switch failures by inspecting switches' function and performance.

#### 8.2.2.5 Discontinued Inspection programs

SDG&E reported that it is discontinuing two inspection programs.

##### Distribution infrared inspection

The discontinuation of distribution infrared inspections may leave conditions on SDG&E's system that would otherwise have been identified and corrected.

SDG&E stated that it has discontinued its distribution infrared inspections due to low find rates, high cost, operational challenges, and availability of more efficient alternatives.[185] SDG&E reported that infrared inspections require specialized equipment and trained personnel, leading to high costs. Also, SDG&E claimed that its infrared inspections are most effective when the equipment has higher load potential and is under load when inspected.[186] However, the HFTD areas are usually the areas with less population, resulting in lower circuit

[183] SDG&E, 2026-2028 Base WMP R2, Page 180.

[184] SDG&E, 2026-2028 Base WMP R2, Page 181.

[185] SDG&E, 2026-2028 Base WMP R2, Page 203.

[186] SDG&E, 2026-2028 Base WMP R2, Page 203.

load.[187] This could reduce the effectiveness of using infrared inspections for identifying potential issues.

SDG&E also indicated it uses traditional visual inspection methods, such as annual patrol inspections and annual detailed inspections, and continuous monitoring systems, such as EFD, APP, and SRP, as alternatives.[188] However, thermal conditions identified by distribution infrared inspections are unlikely to be identified and corrected through other inspections, such as SDG&E's visual inspections and continuous monitoring techniques, as indicated below:

- Of the 27 structures with thermal conditions identified in 2024, visual conditions were identified on 2 structures during the visual component of the infrared inspection. Three of these 27 assets were inspected by detailed inspection less than 50 days prior to the infrared inspections without identifying the condition that distribution infrared inspection found.[189]
- For the 25 structures where only thermal conditions were identified using infrared inspection in 2024, no inspections were triggered by continuous monitoring technology, even though 23 were monitored by power quality (PQ) sensors at (at least) the substation or bus level.[190] These structures were not monitored by other continuous monitoring technology, such as advanced radio frequency sensor (ARFS) sensors, which could potentially trigger inspection.[191]

For SDG&E's 85,639 structures in the HFTD, 69 percent are monitored by PQ sensors, 8.9 percent are monitored by ARFS, and 8.1 percent are monitored by both.[192] SDG&E does not have formal documentation of the process for triggering inspections as a result of ARFS or PQ data; although it initiated 40 inspections due to ARFS data, and 20 inspections due to PQ data in 2024.[193] SDG&E did not track findings associated with these inspections, as it did with distribution infrared inspections.[194]

Energy Safety finds SDG&E's discontinuation of distribution infrared inspections will likely result in the failure to identify and correct issues that would have otherwise been identified and corrected for the three following reasons: 1) none of the assets with thermal findings in

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[187] SDG&E, 2026-2028 Base WMP R2, Page 204.

[188] SDG&E, 2026-2028 Base WMP R2, Page 204.

[189] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 39-41.

[190] Response to Data Request 05, Question 02.

[191] Response to Data Request 05, Question 02.

[192] Response to Data Request 05, Question 03.

[193] Response to Data Request 05, Question 02.

[194] Response to Data Request 05, Question 04.

2024 were flagged for inspection by continuous monitoring programs, 2) a significant percentage of SDG&E's HFTD assets are not covered by continuous motoring technologies, and 3) SDG&E has no formal documented process for initiating inspections as a result of continuous monitoring programs. SDG&E must continue reporting on conditions its distribution infrared inspections identified in 2025, provide the required analysis on that reporting, and provide a plan to identify and remediate thermal conditions after the discontinuation of infrared inspections. See area for continued improvement SDG&E-26B-14 2025 Distribution Infrared Inspection Data in Section 8.4.

#### Transmission 69 KV Tier 3 Visual Inspections

SDG&E also discontinued its Transmission 69 KV Tier 3 Visual Inspections due to low find rates.[195] Transmission 69 KV Tier 3 Visual Inspections only identified three conditions out of 7,360 inspections between 2020-2024, indicating a 0.04 percent find rate. Further, the conditions identified can be identified by other inspections, and SDG&E demonstrated in its 2026-2028 Base WMP that its other programs, such as Transmission Overhead Detailed Inspections and the PSPS activation 72-hour protocol, are mitigating the risks that were mitigated by these now discontinued inspections.[196]

### 8.2.3 Equipment Maintenance and Repair

SG&E is demonstrating forward-looking growth and seeking resource use efficiency by considering enhanced technology that may increase the efficiency of its transmission line inspections. SDG&E stated that it will explore helicopter and drone technology for transmission line inspections.[197] Drone inspections may demonstrate higher find rates of certain conditions than ground inspections and may be more efficient than climbing transmission towers.

SDG&E did not provide any timelines or qualitative or quantitative targets related to exploring these technologies at this time. Timelines and qualitative and quantitative targets can help SDG&E establish a plan and milestones to better measure the technology's effectiveness and the evaluations progress. SDG&E must provide further information such as pilot timelines, pilot scope, and success criteria in its next WMP Update. See area for continued improvement SDGE-26B-15 Helicopter and Drone Transmission Inspections.

SDG&E committed to performing a transmission asset health analysis to explore proactive replacement strategies for shield wire, insulators, and hardware.[198] Performing a transmission asset health analysis may allow SDG&E to identify opportunities to improve its equipment

[195] SDG&E, 2026-2028 Base WMP R2, Page 205.

[196] SDG&E, 2026-2028 Base WMP R2, Page 205.

[197] SDG&E, 2026-2028 Base WMP R2, Page 207.

[198] SDG&E, 2026-2028 Base WMP R2, Page 207.

replacement strategies, subsequently reducing the wildfire risk associated with transmission equipment failure. SDG&E provided a qualitative target and stated the analysis will begin in 2026 and continue into 2028,[199] demonstrating a commitment to better understanding and potentially improving the health of its transmission system. To better understand SDG&E's equipment replacement strategies and the results of its exploration into proactive replacement strategies, SDG&E must provide a summary of the analysis results and discuss any equipment replacement strategies that changed as a result in its next Base WMP. See area for continued improvement SDGE-26B-16 Transmission Asset Health Analysis.

### 8.2.4 Quality Assurance and Quality Control

SDG&E is demonstrating forward-looking growth by committing to performing QA and QC on 14 initiatives or activities and by providing pass rate targets for 12 of these activities. SDG&E is the only electrical corporation to establish QA and QC commitments for its intrusive pole inspections, substation inspections, and protective equipment and device settings (Advanced Protection Program), in the 2026-2028 Base WMP cycle.[200] Setting QA and QC targets for these activities will ensure the quality of the work is evaluated, which may reduce wildfire risk by identifying quality issues for remediation.

SDG&E stated that its QA and QC process for Distribution Detailed Inspections includes auditing five percent of inspections with no findings within one month of the inspection.[201] Although this is an improvement, SDG&E currently does not have pass rate targets associated with this QA and QC process. SDG&E must assess the results from the QA and QC process and establish targets associated with this initiative to better ensure its progress in this process. Specifically, given that audits of detailed inspections with no findings are new to SDG&E in 2025, in its 2028 Update SDG&E must report the audit pass rates in 2025 and 2026. If the pass rate is lower than 95 percent, SDG&E must provide an analysis of the most common findings and a plan to increase the pass rate. SDG&E must also set a 2028 pass rate target for distribution detailed inspections with no findings based on its observed maturity from the 2025 and 2026 audit data. See area for continued improvement SDGE-26B-17 Detailed Distribution Inspection Audits in Section 8.4.

### 8.2.5 Work Orders

SDG&E demonstrated an adequate process for addressing its work orders. SDG&E stated in its 2026-2028 Base WMP that 94 work orders are past due, all of which are Level 2 conditions.[202] Ninety-four open work orders is a small amount relative to SDG&E's average 5,110 work

[199] SDG&E, 2026-2028 Base WMP R2, Page 156.

[200] SDG&E, 2026-2028 Base WMP R2, Pages 214-215.

[201] SDG&E, 2026-2028 Base WMP R2, Page 220.

[202] SDG&E, 2026-2028 Base WMP R2, Page 231.

orders created annually from 2022 to 2024.[203] SDG&E stated that it monitors and reassesses open work orders. If the severity increases, it may expedite completion through an emergency process.[204] SDG&E has demonstrated that it can effectively manage the number of work orders it currently creates.

## 8.3 Previous Areas for Continued Improvement

In the Energy Safety Decision for the SDG&E 2025 WMP Update, Energy Safety identified areas related to grid design, operations, and maintenance where SDG&E must continue to improve its wildfire mitigation capabilities. This section summarizes the requirements imposed by those areas for continued improvement, SDG&E's response to those requirements, and Energy Safety's evaluation of the response.

### 8.3.1 SDGE-25U-04. Continuation of Grid Hardening Joint Studies

For this area for continued improvement, Energy Safety required SDG&E to collaborate with other large electrical corporations and SMJUs to evaluate various aspects of grid hardening and provide an updated Joint IOU[205] analysis covering the effectiveness of various grid hardening approaches and evaluation of new technologies its 2026-2028 Base WMP.[206]

#### 8.3.1.1 SDGE-25U-04. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E provided a consulting report addressing the required analysis.[207] The consulting report addressed the effectiveness of covered conductor and undergrounding, evaluation of implementing protective equipment and device settings, new technologies, and overall effectiveness of mitigations and included lessons learned applied for SDG&E.

#### 8.3.1.2 SDGE-25U-04. Energy Safety Evaluation

Even though SDG&E's response in Appendix D largely cross-references to other documentation, SDG&E provided the documentation as Attachment A as part of its 2026-2028 Base WMP submission, as required by Energy Safety. As such, SDG&E sufficiently responded

[203] Response to Data Response 15, Question 01.

[204] SDG&E, 2026-2028 Base WMP R2, Page 229.

[205] Here the joint IOU refer to large electrical corporations and SMJUs, including SDG&E, PG&E, SCE, PacifiCorp, Bear Valley Electric Service, Inc., and Liberty Utilities.

[206] Decision for SDG&E 2025 WMP Update, Pages 69-71.

[207] SDG&E, 2026-2028 Base WMP R2, Appendix D, page 31.

to this area for continued improvement. No further reporting is required for this area for continued improvement.

Large electrical corporations must continue the collaborative efforts to further strengthen evaluation of emerging technologies and effectiveness of key grid hardening strategies through structured data sharing, targeted lessons learned, and evaluation of emerging technologies. See area for continued improvement SDGE-26B-18 Grid Hardening and Inspection Joint Studies in Section 8.4.

### 8.3.2 SDGE-25U-05. Early Fault Detection Implementation

For this area for continued improvement, Energy Safety required SDG&E to analyze the accuracy of its Early Fault Detection (EFD) sensors in identifying issues and incipient faults. The analysis must include the evaluation of the number of correctly identified issues, the number of false positives, and the number of missed issues reported in its 2026-2028 Base WMP.[208]

#### 8.3.2.1 SDGE-25U-05. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported that the effectiveness of EFD has improved based on a third-party evaluation and analysis.[209] The effectiveness of EFD on equipment failures is reported as 52 percent.[210] SDG&E also stated that it will apply machine learning algorithms, other utility data, and evaluations to improve the EFD technology starting in 2025.[211]

#### 8.3.2.2 SDGE-25U-05. Energy Safety Evaluation

SDG&E provided quantified accuracy and analysis of miss and false-alarm data, consistent with the requirement to analyze correctly identified issues, false positives, and missed issues, and to report progress as part of the joint studies. As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

### 8.3.3 SDGE-25U-06. Distribution Communication Reliability Improvement

For this area for continued improvement, Energy Safety required SDG&E to discuss the delays in the development of pole specifications, and identify specific constraints associated with its 2025 target reduction for its Distribution Communications Reliability Improvements initiative

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[208] Decision for SDG&E 2025 WMP Update, Page 71.

[209] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 32.

[210] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 32.

[211] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 33.

in its 2026-2028 Base WMP.[212] Energy Safety required SDG&E to outline its plan to address each constraint.[213]

#### 8.3.3.1 SDGE-25U-06. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported it further reduced its target reduction for its Distribution Communications Reliability Improvements initiative due to the GRC Decision.[214] In addition, the Distribution Communication Reliability Improvement project had delays due to the difference in pole sites. Initially, sites were stand-alone poles or existing telecommunication facilities that needed retrofitting. But there were distribution poles identified in its 2023-2025 WMP cycle, which require SDG&E to develop a different type of construction method with several technical standards.[215] SDG&E has finalized the new construction method along with the mapping process and will begin installation in 2025.[216] SDG&E stated its team is working to find "an alternative communication capability and/or change prioritization of sites" to enable communication.[217]

#### 8.3.3.2 SDGE-25U-06. Energy Safety Evaluation

SDG&E provided the documentation required by Energy Safety. SDG&E explained why it has been delayed in getting pole specifications, explained why it reduced its 2025 target, and provided a plan to address each constraint it identified. As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

### 8.3.4 SDGE-25U-07. Progress on Inspection QA/QC Program Change

For this area for continued improvement, Energy Safety required SDG&E to provide any modifications made to its QA/QC program to properly capture inspection findings in its 2026-2028 Base WMP.[218] SDG&E must describe how it tracks the pass/fail rates and reports observed trends from QA/QC audits performed in 2024.[219]

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[212] Decision for SDG&E 2025 WMP Update, Pages 71-72.

[213] Decision for SDG&E 2025 WMP Update, Pages 71-72.

[214] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 34.

[215] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 34.

[216] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 35.

[217] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 35.

[218] Decision for SDG&E 2025 WMP Update, Page 72.

[219] Decision for SDG&E 2025 WMP Update, Page 72.

#### 8.3.4.1 SDGE-25U-07. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported that it is adding two new audit processes in 2025 for overhead distribution.[220] However, SDG&E stated that it does not have enough data from the audit findings to analyze trends, because it only has two recorded audit findings.[221] SDG&E also noted that it did not track the pass or fail rates for the QA and QC programs conducted in 2024 due to limited time between the initial inspection and the QA and QC activity. SDG&E reported that it is modifying its procedures to ensure that it records the pass or fail rates and identifies trends in 2025.[222]

#### 8.3.4.2 SDGE-25U-07. Energy Safety Evaluation

SDG&E's response was reasonable given that the area for continued improvement asked for information that was not available at the time of its 2026-2028 Base WMP submission. As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

However, SDG&E must submit the actual pass rates of the detailed inspection audits performed in 2025 and 2026 to enable an evaluation of the current quality and maturity of its inspections. SDG&E must continue reporting on actual pass rates, findings, plans for initiatives with low pass rates, and setting pass rate targets for 2028 in a new area for continued improvement.

See area for continued improvement SDG&E-26B-17 Detailed Distribution Inspection Audits in Section 8.4.

### 8.3.5 SDGE-25U-08. Distribution Infrared Inspections

For this area for continued improvement, Energy Safety required SDG&E to report the find rate and number of findings of Level 1, Level 2 and Level 3 conditions identified by new inspection methodology and to record the date of each infrared inspection with a Level 1 or 2 finding in its 2026-2028 Base WMP.[223] Energy Safety also required SDG&E to provide supporting documentation showing the percentage of level 1 and 2 infrared inspection that can be identified by other inspection initiatives.[224]

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[220] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 36-37.

[221] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 37.

[222] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 37.

[223] Decision for SDG&E 2025 WMP Update, Pages 72-73.

[224] Decision for SDG&E 2025 WMP Update, Pages 72-73.

#### 8.3.5.1 SDGE-25U-08. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported that its find rate for infrared inspection is less than one percent for Level 1 and Level 2.[225] SDG&E stated that the Distribution Infrared Inspection initiative will be discontinued in 2026 due to its low find rate.[226]

SDG&E also stated that other visual observation and inspections initiatives such as patrols, detailed overhead visual inspection, and drone inspections can achieve similar effectiveness, reaching a find rate of approximately 52 percent.[227]

#### 8.3.5.2 SDGE-25U-08. Energy Safety Evaluation

While the find rates for infrared inspections are low, the value of infrared inspections comes from their ability to identify conditions that cannot be observed through other inspection methods. For example, of SDG&E's 27 assets on which thermal findings were identified, no visual findings were identified. Additionally, SDG&E inspected three of the 27 assets via detailed inspection less than 50 days prior to the infrared inspection without identifying the infrared-detected conditions. This suggests that detailed inspections do not identify thermal conditions as effectively as infrared inspections.

SDG&E has not demonstrated that discontinuing infrared inspections is a prudent decision. It is unlikely that other inspections and monitoring sensors will be able to identify thermal conditions as reliably as infrared inspections. Thus, SDG&E must continue reporting on its 2025 infrared inspections and establish a documented process for initiating inspections based on real time monitoring, expanding real time monitoring coverage, or both.

SDG&E is targeting 300 infrared inspections in 2025 and must report on its 2025 findings in its next WMP Update. As such, SDG&E must continue to improve in this area for its next WMP Update. See area for continued improvement SDG&E-26B-14 2025 Distribution Infrared Inspection Data.

## 8.4 Areas for Continued Improvement for Future WMP Submissions

As discussed above, Energy Safety has identified areas pertaining to grid design, operations, and maintenance where the electrical corporation must demonstrate improvement in a future, specified WMP submission. This section sets forth the requirements for improvement.

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[225] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 38.

[226] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 39-40.

[227] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 38-41.

### 8.4.1 SDGE-26B-11. System Automation Equipment and Technologies Trend Analysis

Summary: SDG&E's Advanced Protection program (WMP.463) includes system automation technologies such as Sensitive Ground Fault (SGF), Sensitive Relay Profile (SRP), Falling Conductor Protection (FCP), Supervisory Control and Data Acquisition (SCADA), and Early Fault Detection (EFD). While SDG&E provides detailed descriptions of these systems and their risk-reduction intent, it does not present a trend analysis evaluating the systems' historical effectiveness in reducing ignitions and outages.

Energy Safety requires SDG&E to conduct a trend analysis to validate the wildfire risk reduction and outage mitigation benefits of its automation systems. This analysis is necessary to inform future deployment decisions and optimize the integration of these technologies in SDG&E's wildfire mitigation strategy.

Requirements: In its next Base WMP, SDG&E must:

- Provide a trend analysis for SDG&E's Advanced Protection program (WMP.463), and as part of this analysis, include the following:
  - Circuit protection zone-level granularity of equipment deployment, system configuration (e.g., fast trip, non-reclose), and observed impacts.
  - Comparison of circuit segments with automation (e.g., SGF or SRP-enabled) against those without automation, controlling for exposure and system characteristics.
- Provide quantification of its wildfire risk reduction and PSPS mitigation attributable to Advanced Protection systems, expressed in terms of:
  - Customer Minutes Interrupted (CMI) avoided, and Ignitions Prevented.
- Provide its process for and explain how it includes lessons learned or corrective actions stemming from protection mis-operations, device failures, or system limitations observed during field operations.
- Provide its process or plan for incorporating performance-based metrics to support future prioritization and reallocation of automation resources, including how the metrics are used in its prioritization and allocation decision-making.

Discussed in: Section 8.2.1.6, Installation of System Automation Equipment and Section 8.2.1.9, Other Technologies and Systems Not Listed Above.

### 8.4.2 SDGE-26B-12. De-energized Transmission Line Assessment and Removal

Summary: Large electrical corporations and SMJUs have de-energized but unremoved transmission lines within the HFTD for various operational reasons. These de-energized transmission line segments, especially those that run parallel to energized transmission lines,

pose a potential wildfire risk due to inadvertent re-energization. Risk levels of these de-energized lines are dependent on grounding configurations, proximity to energized lines, and vegetation contact.

Large electrical corporations and SMJUs define, assess, and mitigate risk associated with these de-energized lines differently. Some electrical corporations have undertaken detailed circuit level or simulation-based studies to quantify risks, while others have not. Definitions of terms such as "de-energized" and "abandoned" lines also vary across electrical corporations, further complicating comparisons and evaluations across electrical corporations.

SDG&E maintains three de-energized transmission lines within the HFTD lines, and it evaluated the grounding configurations and impacts on fault current magnitudes of its three idle transmission lines.[228]

To ensure large electrical corporations and SMJUs are managing wildfire risks from unremoved de-energized transmission lines, the electrical corporations must provide a terminology framework, provide a circuit level risk assessment, incorporate lessons learned from existing studies, provide a comprehensive mitigation strategy, and report its inspection and maintenance protocols for unremoved de-energized transmission lines in the HFTD.

Requirements: In its next WMP Update, SDG&E must:

- Collaborate with other large electrical corporations and SMJUs to submit a joint cross-utility terminology framework that establishes consistent definitions for the following:
    - De-energized transmission lines.
    - Abandoned transmission lines.
        - If the large electrical corporations' and SMJUs' definition for "abandoned transmission lines" is different from the definition in GO 95, Rule 31.6 for "permanently abandoned lines," the large electrical corporations and SMJUs must explain the difference between the two terms and their usage.
    - Any other types of transmission line designations, such as "idle," that the electrical corporation uses for de-energized or no longer in use transmission lines that have not yet been removed.
- Provide a Circuit Level Risk Assessment. For de-energized, abandoned, or other similarly situated transmission circuits that are located in the HFTD, SDG&E must:
    - Identify potential ignition hazards such as electrostatic or electromagnetic coupling with adjacent energized lines, identify the factors that affect the risk of these hazards causing ignitions, and provide a risk analysis; and

[228] Response to Data Request 10, Question 01.

  - Specify whether the line is grounded (single-point, multi-point, ungrounded), and how grounding configuration affects induction risk.
- Incorporate Lessons Learned from Existing Studies. The methodology for the risk assessment must include, at minimum:
  - Evaluation of grounding configurations and their impacts on fault current magnitudes (as shown in SDG&E's study "Corridor Induction Risk Assessment of Out-of-Service Transmission Lines in SDG&E HFTD"[229] and PacifiCorp's "Idle Line Study"[230]);
  - Spatial distance between energized and de-energized lines and the orientation of line configurations (horizontal vs. vertical stacking); and
  - Sensitivity analysis on variables such as fault location, fault resistance, and line length, especially under fault-current scenarios.
- Provide a Comprehensive Mitigation Strategy. If applicable, each large electrical corporation and SMJU must provide an existing plan or develop a new plan that includes:
  - Identification of de-energized, abandoned, or other similarly situated transmission lines;
  - A decision-making process for the removal, modification of grounding configuration, or other mitigation of de-energized, abandoned, or other similarly situated transmission lines based on ignition risk; and
    - If identified de-energized transmission lines are subject for future use, describe its planned use, its grounding-configuration, and any intermittent mitigation strategies.
  - Timeline for mitigation actions, including short-term and long-term activities.
- Report Inspection and Maintenance Protocols. SDG&E must:
  - Describe its inspection and maintenance process for de-energized, abandoned, or other similarly situated transmission circuits in the HFTD. This description must highlight any differences between the inspection and maintenance of energized versus de-energized, abandoned, or other similarly situated transmission circuits.
    - For each de-energized, abandoned, or other similarly situated transmission circuit in the HFTD, SDG&E must list the frequency and type of asset and vegetation inspections performed, the remediation

[229] Response to Data Request 10, Attachment 1.

[230] PacifiCorp, Idle Line Study.

timeframe for each priority of condition identified during inspection, and any routine maintenance performed.

- For any de-energized, abandoned, or other similarly situated transmission circuit in the HFTD that is not subject to the same frequency and/or type of inspection, condition remediation timeframe, or routine maintenance work as similar, energized circuits, SDG&E must provide its decision-making process for reaching this determination.

- Outline any planned changes to the inspection and maintenance of de-energized, abandoned, or other similarly situated transmission circuits in the HFTD.

Discussed in: Section 8.2.1.7, Transmission Line Removal in the HFTD.

### 8.4.3 SDGE-26B-13. Distribution Detailed Inspection Comparative Analysis

Summary: SDG&E performs less frequent distribution detailed inspections than other large electrical corporations (PG&E and SCE). SDG&E also demonstrates a significantly lower find rate of Level 2 conditions compared with other large electrical corporations' detailed inspections, and compared to its own risk-informed drone inspection find rates. Given that SDG&E performs detailed inspections on a 5-year interval, and that SDG&E only inspects 11 percent of its assets in the HFTD Tiers 2 and 3 per year via the risk informed drone inspection (RIDI) program, approximately 69 percent of SDG&E's assets in the HFTD are not subject to thorough inspection each year. Given the infrequency of SDG&E's thorough inspections, SDG&Es overhead distribution detailed inspections must effectively identify Level 2 conditions to reduce wildfire risk.

Requirements: In its next Base WMP, SDG&E must:

- Provide a comparative analysis of SDG&E's distribution RIDI and distribution Detailed Inspections. For each type of inspection, this analysis must include, at a minimum, a description, comparison, and evaluation of:
  - The training for the identification of GO 95 Rule 18 Level 1, 2, and 3 conditions that are provided to SDG&E's inspectors (including any contractor inspectors).
  - Job aids and reference material provided to SDG&E's inspectors.
  - Feedforward information provided to SDG&E's inspectors, e.g., expected issues on assets and equipment to be inspected.
  - Feedback information provided to SDG&E's inspectors, e.g., quality control on performed inspections.
  - The number and types of Level 1 and Level 2 conditions identified by SDG&E's inspections.

- For any condition code where the risk-informed drone inspection find rate is more than 5 percent higher than the distribution detailed inspection find rate, SDG&E must discuss at least three potential reasons for the discrepancy and identify the most likely.
- For any condition code where the risk-informed drone inspection find rate is more than 10 percent higher than the distribution detailed inspection find rate, SDG&E must provide its plan to adjust its distribution detailed inspection program to better identify such findings. Adjustments may include changes to, or the creation of, training, job-aids, checklists, equipment and/or technology used for inspections. SDG&E must provide a brief discussion of each change. The plan must include milestones for implementation of the changes identified.
  - If SDG&E elects to not adjust its detailed inspection program despite a 10 percent find rate discrepancy, SDG&E must provide its reasoning for this decision. This reasoning must include a discussion of the impact of this condition existing unaddressed on wildfire risk, potential adjustments that would improve SDG&E's detailed inspection's ability to detect the condition, and the feasibility of implementing such adjustments.

Discussed in: Section 8.2.2.1, Distribution Overhead Detailed Inspections.

### 8.4.4 SDGE-26B-14. 2025 Distribution Infrared Inspection Data

Summary: In its 2026-2028 Base WMP, SDG&E discusses its decision to discontinue Infrared distribution inspections, citing low find rates, high costs and scheduling difficulties as the primary motivations.[231] SDG&E did not demonstrate its ability to consistently identify thermal conditions through alternate inspection programs or monitoring technologies in 2024.[232] SDG&E is targeting the completion of 300 infrared inspections in 2025 and must provide its inspection data and an analysis of that data for Energy Safety's review.

Requirements: In its next WMP Update, SDG&E must provide the following information and analysis for distribution infrared inspections completed in 2025:

- An evaluation of the optimal conditions and locations to perform the most effective infrared inspections. The evaluation must include at a minimum consideration of the electrical load and frequency of the electrical load on the lines SDG&E inspected,

[231] SDG&E, 2026-2028 WMP R2, Page 203.

[232] Response to Data Request 05, Question 04.

outside air temperature during the inspection, and research into other large electrical corporation's infrared inspection programs (such as PG&E's Transmission Infrared program).

- The number of distribution infrared inspections performed, find rate, and number of Level 1, Level 2, and Level 3 conditions identified.
- The structure ID, method of finding identification (thermal or visual), date of each infrared inspection resulting in a Level 1 or 2 finding, and the date of the most recently completed detailed ground and aerial inspection prior to the infrared inspection for each infrared Level 1 or 2 finding.
- The percentage of Level 1 and 2 infrared inspection findings SDG&E anticipates it would have identified and corrected through means other than infrared distribution inspections prior to asset failure. SDG&E must provide supporting documentation such as photographs and data analysis for this percentage calculation.
- A plan to identify and remediate thermal conditions in the HFTD/HFRA after discontinuing infrared inspections.

Discussed in: Section 8.2.2.5, Discontinued Inspection programs and Section 8.3.5, SDGE-25U-08 Distribution Infrared Inspections.

### 8.4.5 SDGE-26B-15. Helicopter and Drone Transmission Inspections

Summary: SDG&E states that it is "considering the use of enhance inspection techniques" for transmission lines, including the utilization of helicopters and drones.[233] However, SDG&E does not provide additional detail on what such consideration entails, or set any qualitative or quantitative targets for the evaluation of these technologies.

Requirements: In its next WMP Update, SDG&E must provide the following:

- If no pilot testing is planned,
  - List all of the enhanced inspection techniques considered.
  - For each technique, discuss SDG&E's consideration process, the result of the consideration process, and why no pilot testing is planned.
- If any pilot testing is planned,
  - Provide a timeline including projected start and end dates for the planning, execution, and analysis phases of any transmission helicopter or drone inspection pilots.

[233] SDG&E, 2026-2028 WMP R2, Page 206.

  - Provide and explain the pilot scope, and how the pilot scope is selected to ensure SDG&E achieves usable outputs.
  - Define how SDG&E will determine the success of any pilots, and provide the criteria it will use to determine whether to permanently incorporate such technologies into its transmission inspection program.
- If SDG&E begins the use of enhance inspection techniques without any pilot testing,
  - Discuss how the inspection techniques have been or will be implemented.
  - If the technologies are not rolled into existing inspection programs, provide the Activities (Tracking ID #s) and estimated number of inspections to be performed in 2027 and 2028.

Discussed in: Section 8.2.3, Equipment Maintenance and Repair.

### 8.4.6 SDGE-26B-16. Transmission Asset Health Analysis

Summary: SDG&E has set a qualitative target to analyze transmission line equipment and potentially review and adjust replacement strategies.[234] A review and adjustment of its replacement strategies based on this analysis may further SDG&E's understanding of and help reduce the wildfire risk associated with transmission equipment failure.

Requirements: In its next Base WMP, SDG&E must:

- Provide a summary of the methodology used and results of its transmission health analysis.
- Provide a discussion of any changes made to its replacement strategies.

Discussed in: Section 8.2.3, Equipment Maintenance and Repair.

### 8.4.7 SDGE-26B-17. Detailed Distribution Inspection Audits

Summary: In 2025, SDG&E modified its QA and QC program to audit five percent of its inspections that have no findings within one month of the inspection. SDG&E did not set any 2026-2028 targets associated with this program.

Requirements: In its next Base WMP, SDG&E must:

- Provide the actual pass rates from 2025 to 2027;
- Provide an analysis of the five most common reasons detailed inspections with no findings failed audits;
- If the actual pass rates from 2025 and 2026 are less than 95 percent, provide SDG&E's plan, including timelines and milestones, to improve the pass rate; and

[234] SDG&E, 2026-2028 Base WMP R2, Page 156.

- Set a pass rate target in *Table 8-1: Grid Design, Operations, and Maintenance Targets by Year* for audits of distribution detailed inspections with no findings that reflect SDG&E's observed maturity in 2025 and 2026, and drives quality improvements to its detailed distribution inspections.

Discussed in: Section 8.2.4, Quality Assurance and Quality Control and Section 8.3.4, SDGE-25U-07 Progress on Inspection QA/QC Program Change.

### 8.4.8 SDGE-26B-18. Grid Hardening and Inspection Joint Studies

Summary: Large electrical corporations have continued progress on prior areas for continued improvement through the Joint IOU Grid Hardening Working Group. In response to area for continued improvement SDGE-25U-04, the electrical corporations submitted a comprehensive 2026–2028 update evaluating the effectiveness of key grid-hardening strategies, supported by field observations, degradation studies, and risk modeling results. To further mature and evolve the Grid Hardening Joint Study, Energy Safety has included inspection activities as part of the study. Inspection programs serve as the eyes on the ground, and drive grid hardening activities.

As the large electrical corporations have matured, their detailed distribution inspection programs have diverged. PG&E performs predominantly aerial inspections,[235] SCE performs combined aerial and ground inspections,[236] and SDG&E performs ground inspections. Given that most electric corporation assets are monitored through visual inspection[237,238,239] and only repaired or replaced when a condition is identified during an inspection,[240,241,242] it is critical that detailed distribution inspections effectively identify Level 1 and 2 conditions for remediation to minimize wildfire risk.

This collaborative effort must continue and be further strengthened through structured data sharing, targeted lessons learned, and evaluation of emerging technologies. Continued cross-utility analysis will ensure best practices are identified and implemented across jurisdictions,

[235] PG&E, Response to Data Request 05, Question 1; PG&E, Response to Data Request 19, Question 2.

[236] SCE, 2026-2028 Base WMP R2, Page 275.

[237] PG&E, 2026-2028 Base WMP R2, Pages 264-304.

[238] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[239] SDG&E 2026-2028 Base WMP R2, Pages 206-207.

[240] PG&E, 2026-2028 Base WMP R2, Pages 264-304.

[241] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[242] SDG&E, 2026-2028 Base WMP R2, Pages 206-207.

and that grid hardening investments are informed by robust cost-effectiveness, performance, and risk-reduction analyses.

Requirements: In its next Base WMP, SDG&E must continue collaboration with electrical corporations and provide an updated Joint IOU Grid Hardening Working Group Report. The electrical corporations must complete and provide a joint study report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base-WMPs), and include that report in their subsequent Base WMP submission. The report must include:

- Undergrounding Applications: a joint evaluation of the wildfire and PSPS risk reduction of undergrounding efforts, inclusive of residual risks from service and secondary lines. This must include updated insights on supply chain issues, workforce management, permitting timelines, and new technologies (e.g., Ground-Level Distribution Systems, spider plow methods, fluid-free boring).
- Lessons Learned on Undergrounding Deployment: the incorporation of updated findings on labor and material usage, technological innovations, and cost management practices, particularly those that address high unit costs and scale variability.
- Protective Equipment and Device Settings: a continued evaluation of settings (e.g., downed conductor detection, partial voltage detection), including threshold variation across electrical corporations, effectiveness by equipment type, safety and reliability tradeoffs, and lessons learned.
- Technology Deployment: a joint analysis of REFCL. This must describe observed effectiveness and implementation feasibility across electrical corporations. Additionally, the analysis must include updated insights on supply chain issues (if any), technological innovations, and current capital and maintenance costs of REFCL.
- Distribution Detailed Inspection Benchmarking Study: a benchmarking study comparing SCE, PG&E and SDG&E's detailed inspection job-aids, training, procedures, and checklists. The large electric corporations must be able to provide all documentation created as part of this study upon request from Energy Safety.
    - As part of the benchmarking study, the large electrical corporations must, at a minimum:
        - Review and compare PG&E's Overhead Inspection Job Aid TD-2305M-JA02[243], PG&E's Electric Distribution Preventive Maintenance Manual TD-2305M[244], SCE's Distribution Inspection and Maintenance Program (DIMP)[245], SDG&E's detailed distribution inspection documentation, and

[243] PG&E, TD-2305M-JA02 Overhead Assessment.

[244] PG&E, Electric Distribution Preventive Maintenance Manual TD-2305M.

[245] SCE, DIMP Manual.

any other documentation relevant to the execution of distribution detailed inspections.

- Review and compare each large electrical corporation's detailed distribution inspector training programs, including any feedforward and feedback processes.
- Evaluate how differences in each of the large electrical corporation's detailed inspection programs, including inspection procedures and inspector training, could result in differences in their find rates for level 1 and level 2 conditions.
- Evaluate how differences in each of the large electrical corporation's detailed inspection programs, including procedures and inspector training, could result in differences in due dates assigned to similar level 2 conditions.
- Host at least one joint meeting to discuss differences identified between the detailed distribution inspection programs, and reasons for the differences. Each large electrical corporation must be able to provide the agenda, documenting the topics of discussions, or other similar documentation for the meetings, if requested by Energy Safety.
- Include in the joint study report, the results of the Distribution Detailed Inspection Benchmarking Study including:
  - The differences among SDG&E's, PG&E's, and SCE's detailed distribution inspection job-aids, training, procedures, and checklists, as identified during its evaluation of the large electrical corporation's inspection programs and reasons for the differences.
  - The methodology, result, and conclusions of the joint utility inspection benchmarking study.
  - The changes that SDG&E has made or plans to make to its detailed inspection job-aids, training, procedures, and checklists because of the benchmarking study.
    - If SDG&E elects to make no change to its detailed inspection portfolio after the benchmarking study, it must submit a white paper on its detailed distribution inspection program. The white paper must demonstrate the effectiveness of SDG&E's detailed inspections through conclusions supported by the benchmarking study.

SDG&E must demonstrate it is initiating the development of a trend analysis for its covered conductor program and sharing its structure, assumptions, and early findings with the Joint Working Group.

Discussed in: Section 8.2.1.4, Emerging Grid Hardening Technology Installations and Pilots; Section 8.2.2.1, Distribution Overhead Detailed Inspections; and Section 8.3.1, SDGE-25U-04 Continuation of Grid Hardening Joint Studies .

Appendix C provides a consolidated list of areas for continued improvement and requirements.

# 9. Vegetation Management and Inspections

Chapter III, Section 9 of the WMP Guidelines requires the electrical corporation to include plans for vegetation management in its WMP. [246] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 9.1 Summary of Anticipated Risk Reduction

SDG&E's Vegetation Management activities are likely to continue reducing ignition risk, slowing the propagation of wildfire from vegetation contact, and reducing the probability of ignition near substations.

Wood and slash removal decreases the risk of ignition and slows propagation of wildfire. SDG&E stated that "vegetation debris is generally chipped on site and/or removed from the property the same day the work is performed."[247] This may reduce risk because it limits the amount of time ground fuels remain at a location due to vegetation management activities.

In addition, SDG&E stated that it will continue to perform substation patrol inspections, with a monthly or bimonthly frequency.[248] While the inspections primarily focus on substation assets, SDG&E also addresses vegetation management defensible space during these inspections.[249] Substation inspections and defensible space activities both reduce the risk of fire propagating outside the substation and reduce the risk of wildfire damage to the substation.

SDG&E reported updates on its efforts to identify new proactive inspection opportunities and techniques within the HFTD.[250] SDG&E presented plans for a condition-based approach to selecting off-cycle patrol locations in the HFTD.[251] SDG&E plans to develop "various risk models…to more accurately identify regions of higher relative risk that may require additional non-routine inspections."[252] SDG&E stated that the outcome of its condition-based inspections modeling may include "a risk index that ranks the overall risk at the span level"

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[246] Pub. Util. Code §§ 8386(c)(3), (9).

[247] SDG&E, 2026-2028 Base WMP R2, Page 252.

[248] SDG&E, 2026-2028 Base WMP R2, Pages 200.

[249] SDG&E, 2026-2028 Base WMP R2, Pages 199-200.

[250] Decision for SDG&E 2023-2025 Base WMP, Page 88.

[251] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 43-47.

[252] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 45.

that it would use to "update the inspection schedule."[253] This approach may guide SDG&E towards less reactive and more efficient vegetation-related risk reduction.

SDG&E noted that its detailed inspection, off-cycle patrol, and pole clearing programs will lead to 4.72 percent, 4.58 percent, and 4.59 percent risk reduction, respectively, in each year of the 2026-2028 Base WMP cycle.[254]

Nonetheless, SDG&E still has room to bring back its previous programs and improve its vegetation management and inspection, as discussed below.

## 9.2 Discussion

This section discusses Energy Safety's evaluation of the vegetation management and inspections section of the SDG&E 2026-2028 Base WMP.

### 9.2.1 Inspections

#### 9.2.1.1 Detailed Inspections

SDG&E's Detailed Inspections program demonstrates technical and programmatic effectiveness. The program annually inspects the entire service territory for conductor clearance and to identify hazard tree fall-in risk.[255] Further, SDG&E conducts additional inspections of century plants and bamboo to identify impending encroachment from these rapidly-growing species.[256] The program shows SDG&E understands that vegetation-caused wildfire risk changes annually, is present throughout its service territory, and is influenced by unique vegetation hazards.

#### 9.2.1.2 Off-Cycle Patrols

SDG&E detailed several efforts in its Off-Cycle Patrols program in response to area for continued improvement SDGE-23B-16, as it is considering developing a more condition-based and targeted approach (see Section 9.3). SDG&E also stated that it is considering switching from inspecting all HFTD inventory trees on a fixed schedule to inspecting a subset of HFTD inventory trees selected through risk modeling.[257] Assessment of the program's approach and provision of an implementation plan for the program will help SDG&E to better evaluate the effectiveness of adopting condition-based inspections on a permanent basis.

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[253] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 47.

[254] SDG&E, 2026-2028 Base WMP R2, Pages 245-246.

[255] SDG&E, 2026-2028 Base WMP R2, Pages 247-248.

[256] SDG&E, 2026-2028 Base WMP R2, Page 247.

[257] SDG&E, 2026-2028 Base WMP R2, Page 249.

SDG&E's Off-Cycle Patrols program provides an additional in-depth inspection of trees within the HFTD that are tall enough to strike overhead electrical infrastructure.[258] In addition to technical and programmatic effectiveness, SDG&E's Off-Cycle Patrol program will reduce risk by recognizing the increased consequences of trees located in the HFTD contacting powerlines. This proposed condition-based approach may improve the efficiency of wildfire mitigation activities while lowering the probability that non-compliant vegetation goes undetected. By focusing SDG&E's vegetation management in HFTD locations with the greatest risk, the condition-based approach may also lower the risk of electrical-infrastructure-caused wildfire due to contact with vegetation.

To ensure better program feasibility and effectiveness, Energy Safety is requiring SDG&E to provide an implementation plan for the proposed condition-based inspections and an assessment of this new inspection approach in its next Base WMP; see area for continued improvement SDGE-26B-19 Implementing Proactive HFTD Inspections in Section 9.4.

### 9.2.2 Pole Clearing

SDG&E's decision to scale back its pole clearing program may hinder forward-looking growth and may increase ignition risk. In its 2026-2028 Base WMP, SDG&E decreased its annual pole clearing target (WMP.512) by 11,010 poles, as compared to its 2023-2025 Base WMP.[259, 260] In response to a data request, SDG&E stated that all 11,010 of these poles hold exempt equipment.[261] In its 2026-2028 Base WMP, SDG&E stated that poles with exempt equipment are not subject to pole clearing.[262] Therefore, SDG&E will not clear these poles during its 2026-2028 Base WMP cycle. As a result of SDG&E scaling back the scope of its pole clearing program, SDG&E is reducing its historical pole clearing efforts from exceeding regulatory requirements to only meeting the minimum, statutory requirement.

Despite plans to clear vegetation around fewer poles during the 2026-2028 Base WMP cycle, SDG&E reported an increase in estimated risk reduction, from 2.84 percent to 4.59 percent.[263,264] SDG&E attributes this increase in risk reduction to a change in methodology, stating that it used a cost-benefit approach in its 2026-2028 Base WMP that applies a different

[258] SDG&E, 2026-2028 Base WMP R2, Page 248.

[259] SDG&E, 2023-2025 Base WMP, Page 265.

[260] SDG&E, 2026-2028 Base WMP R2, Pages 245-246.

[261] Response to Data Request 05, Question 11.

[262] SDG&E, 2026-2028 Base WMP R2, Page 252.

[263] SDG&E, 2025 WMP Update, Page 39.

[264] SDG&E, 2026-2028 Base WMP R2, Pages 245-246.

level of granularity and calculation methods than the Multi-Attribute Value Function (MAVF) used in its 2023-2025 Base WMP.[265]

SDG&E explained its decision to stop clearing poles with exempt equipment was based on the evaluation of cost efficiencies, environmental impacts, impacts to customers, and the general absence of ignition data associated with exempt equipment.[266] SDG&E indicated that no ignition was directly associated with Public Resources Code (PRC) § 4292 exempt equipment in its service territory between 2014 and 2024.[267]

SDG&E further stated that the primary driver in its decision to not clear poles with exempt equipment was based on CAL FIRE's classification of the equipment as exempt.[268] SDG&E stated that it has been replacing non-exempt equipment with exempt equipment. SDG&E claims that this measure will achieve risk reduction on its system and compensate for the reduced volume of pole clearing work.[269]

SDG&E's justification to fully stop clearing poles with exempt equipment based on the general absence of ignition data associated with exempt equipment is not supported by existing information. SDG&E cleared more than 75 percent of poles with exempt equipment in 2023 and 2024 and there were no reportable ignitions from exempt equipment during the same period. SDG&E also replaced non-exempt equipment with exempt equipment during this time.

It is unclear if the lack of reportable ignitions during this time was a result of implementation of a successful pole clearing program or replacement of non-exempt equipment. The lack of reportable ignitions is likely the result of both replacing non-exempt equipment and clearing poles with exempt and non-exempt equipment. SDG&E did not conduct and provide an analysis that would distinguish the proportion of risk reduction associated with these two activities. Clearing poles with exempt equipment during the 2023-2025 Base WMP cycle likely reduced the probability of ignitions.

Therefore, SDG&E should consider continuing pole clearing around a subset of poles holding exempt equipment to remove fuel loads that pose an elevated risk. SDG&E should also consider whether some poles outside the SRA that hold non-exempt equipment have meaningful wildfire ignition risk and prioritize them for clearing as necessary.

While SDG&E is meeting the minimum requirements for pole clearing, Energy Safety recommends SDG&E further evaluate the potential ignitions risks posed by exempt

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[265] Response to Data Request 13, Question 01.

[266] SDG&E, 2026-2028 Base WMP R2, Page 252.

[267] Response to Data Request 05, Question 10.

[268] Response to Data Request 05, Question 10.

[269] Response to Data Request 05, Question 11.

equipment and consider clearing poles that hold certain exempt equipment that SDG&E, or other electrical corporations, have associated with ignitions. Considering a comprehensive pole clearing program that includes addressing the risks of exempt equipment can further improve the maturity of SDG&E's plan and better reduce ignition risk throughout its territory.

### 9.2.3 Wood and Slash Management

A lack of formal wood and slash management procedural documents can lead to inconsistent practices, potentially increasing vegetative fuel loads and contributing to fire spread. SDG&E did not provide procedural documents for its wood and slash management activities described in its 2026-2028 Base WMP but referred to the procedure documents used for the pruning and removal program.[270] In response to a data request asking for such documentation, SDG&E referenced a "service agreement" with its tree contractor.[271] This agreement provides criteria for disposal of large wood left on site in association with tree removal operations but stated that it does not have a formal procedural wood and slash management document.[272]

SDG&E's scope for the management of large diameter wood debris (i.e., greater than 6 to 8 inches) is limited in comparison to other large electrical corporations.[273] For example, PG&E's large diameter wood debris management scope may include relocating wood onsite or hauling wood offsite, and typically focuses on wood adjacent to structures, outbuildings, propane tanks, and roads.[274]

The accumulation of woody debris generated by mitigation activities can increase fuel loads and contribute to fire spread. When such debris is left near structures or evacuation routes, it can further compromise public safety. Therefore, having formal procedures in place to address these risks is essential to ensure consistent, compliant, and safe operations.

SDG&E must formalize its wood and slash management procedures and ensure its adherence within its forthcoming Base WMPs. Section 9.4 sets forth the requirements for improvement. (SDGE-26B-20 Creating a Wood and Slash Management Procedural Document).

### 9.2.4 Defensible Space

SDG&E stated that its Substation Patrol Inspections program is conducted primarily for reliability; however, it also provides incidental wildfire mitigation benefits at its

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[270] SDG&E, 2026-2028 WMP R2, Page 252.

[271] Response to Data Request 17, Question 01.

[272] Response to Data Request 17, Question 01.

[273] SDG&E, 2026-2028 WMP R2, Page 252.

[274] PG&E, 2026-2028 WMP R2, Page 387.

substations.[275] SDG&E inspects vegetation to maintain defensible space during its monthly substation asset inspections. SDG&E stated it added the capability to "autogenerate corrective maintenance orders" for substation inspection findings, such as vegetation overgrowth.[276] SDG&E's timely remediation of substation vegetation issues will likely reduce the probability of ignition near substations, demonstrating forward-looking growth.

SDG&E stated that it will continue to perform substation patrol inspections to reduce ignition probability and wildfire consequence.[277] For its "Priority 1" substations,[278] SDG&E's inspection frequency is monthly; for "Priority 2" substations, the frequency is every two months.[279] When issues are identified, SDG&E reported it addresses issues with a severe level immediately (within 7 days).[280] SDG&E's efforts of reducing vegetation contact with substation equipment demonstrate forward-looking growth in reducing ignition probability and wildfire risk.

## 9.2.5 Quality Assurance and Quality Control

### 9.2.5.1 Pass Rate Targets

Energy Safety recommends SDG&E increases its QA/QC pass rate targets as they are lower than they were in its 2023-2025 Base WMP and no longer in line with other large electrical corporations. Returning to the higher "acceptable" pass rates it once committed to can support SDG&E in reducing wildfire risk by avoiding missed trees growing or falling into energized infrastructure.

SDG&E's pass rate targets for all vegetation management audits remain at 90 percent throughout its 2026-2028 Base WMP cycle,[281] while its pass rate targets were 95 percent in its 2023-2025 Base WMP.[282] As required by the Guidelines, electrical corporations must provide justification for each change it made since its last WMP submission.[283] In its response to a data request, SDG&E explained that "…a 90% pass rate is a reasonable and representative target and threshold for work quality performance of the vegetation management contractors" and

[275] SDG&E, 2026-2028 Base WMP R2, Page 199.

[276] SDG&E, 2026-2028 Base WMP R2, Page 201.

[277] SDG&E, 2026-2028 Base WMP R2, Pages 253.

[278] "Priority 1" substations are defined as those that have an operating voltage above 200KV or have four or more transmission lines or generator interconnection points at or above 69KV. (SDG&E, 2026-2028 Base WMP R2, Pages 200)

[279] SDG&E, 2026-2028 Base WMP R2, Pages 200.

[280] SDG&E, 2026-2028 Base WMP R2, Pages 199.

[281] SDG&E, 2026-2028 Base WMP R2, Page 263-264.

[282] SDG&E, 2023-2025 Base WMP, Page 290.

[283] WMP Guidelines, Page 121.

"[it] anticipates no obstacles to potentially increasing its QA/QC pass rate target in the future."[284]

In their 2026-2028 Base WMPs, PG&E targeted a pass rate between 95 and 100 percent depending on the initiatives/activities being audited,[285] and SCE targeted a pass rate of 100 percent for its initiatives/activities being audited.[286]

Although SDG&E has lower pass rate targets than its peers, Energy Safety recognizes that SDG&E sets a higher threshold to achieve a "pass" than other large electrical corporations; see discussion below in Section 9.2.10.2.

### 9.2.5.2 Audit Criteria

SDG&E's extensive list of audit criteria for its work demonstrates its efforts to set a high standard for work quality.

Compared to the other large electrical corporations, SDG&E set a higher threshold in its 2026-2028 Base WMP to achieve a "pass." SDG&E listed 20 criteria for pre-inspection pass/fail, 7 criteria for tree pruning and removal pass/fail, and 11 criteria for pole clearing pass/fail.[287] It further stated that "a failure of one criterion results in the failure of the audit sample unit."[288] In contrast, PG&E's only pass/fail criterion is regulatory compliance,[289] and SCE's only pass/fail criterion is "achievement of regulatory clearance distance."[290]

SDG&E's pass/fail criteria include attributes that are compliance-related such as "missed tree" or "incorrect clearance," and attributes that are human error-related such as "incorrect DBH" and "incorrect tree notes."[291] Including attributes that are human error-related allows SDG&E to capture subtleties of work quality, such as a pre-inspector providing a correct address that may reduce wildfire risk by ensuring tree crews locate hazardous vegetation promptly. Thus, SDG&E sets a higher quality standard, making it more difficult to achieve a "pass" determination than if the only criterion was regulatory compliance. This high standard demonstrates operational effectiveness that may reduce wildfire risk by better ensuring that vegetation does not impact energized infrastructure.

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[284] Response to Data Request 05, Question 08.

[285] PG&E, 2026-2028 Base WMP R2, Pages 418-422.

[286] SCE, 2026-2028 Base WMP R2, Page 367.

[287] SDG&E, 2026-2028 Base WMP R2, Pages 265-266.

[288] SDG&E, 2026-2028 Base WMP R2, Page 265.

[289] PG&E, Quality Control Vegetation Management Business Process Document, Pages 5-77.

[290] SCE, 2026-2028 Base WMP R2, Page 369.

[291] SDG&E, 2026-2028 Base WMP R2, Page 265.

#### 9.2.5.3 QA/QC Scope Reduction

In its 2026-2028 Base WMP, SDG&E changed its QA/QC plans and did not include a commitment it made in its 2023-2025 Base WMP, as SDG&E no longer commits to quality check 100 percent of post-tree crew off-cycle work and tree trim "Memo" work orders.[292, 293] Though the 2023-2025 Base WMP included this commitment, Energy Safety's 2023 Substantial Vegetation Management Audit found that SDG&E "did not complete all [quality assurance and quality control work]."[294] SDG&E quality checked 62 percent of off-cycle patrol and 34 percent of tree trim "Memo" work orders in 2023, well below its 100 percent audit commitment.[295] SDG&E's decision to remove this commitment from its WMP in the absence of other justification may increase the risk that trees identified for work will not be promptly mitigated.

In a data request response, SDG&E stated that it will include a post-trim audit of off-cycle work and complete tree trim "Memo" work orders but did not commit to conducting a 100 percent audit.[296] To demonstrate continued progress in future WMPs, SDG&E can recommit itself to audit 100 percent of off-cycle and "Memo" work orders. Alternatively, SDG&E can select a statistically-valid sample size for each audit using Cochran's sample size formula.[297] Energy Safety also recommends that SDG&E review its processes and identify plans that would allow it to meet its previous commitment. These audits are critical to reducing wildfire risk because they review off-cycle work in the HFTD, and memo work in which trees or poles are "in a non-compliant condition or otherwise require priority action to mitigate the condition."[298, 299]

### 9.2.6 Workforce Planning

The minimum qualifications for SDG&E auditors are lower than those of other large electrical corporations. To qualify for auditing work at an electrical corporation, an auditor usually possesses greater knowledge of utility vegetation management than the inspector that

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[292] SDG&E, 2023-2025 Base WMP, Pages 289-290.

[293] Tree trim "Memo" work orders refer to a tree trim work order issued for a tree found to be near the power lines or that exhibits an elevated hazardous threat. This type of the work orders has a remediation timeline that can be as short as the same day or as long as two weeks of identification. (SDG&E, 2023-2025 Base WMP, Page 272.)

[294] SDG&E 2023 SVM Audit, page 15.

[295] SDG&E 2023 Substantial Vegetation Management Audit, page A-24.

[296] Response to Data Request 02, Question 04.

[297] Cochran, Sampling Techniques (3rd Ed.), pages 75-76.

[298] SDG&E, 2026-2028 Base WMP R2, page 248.

[299] SDG&E, 2026-2028 Base WMP R2, page 267.

prescribed the work. This knowledge typically comes from a combination of experience, certifications, and education.

SDG&E stated that its contract auditors only have at a minimum, a "[b]achelor's degree in Forestry, Biology, Environmental Science, Horticulture, or related field (preferred)," and a "Current Class C Driver's License with clean driver safety record."[300] These minimum qualifications are identical to the minimum qualifications for SDG&E's contract Pre-Inspectors.[301] SDG&E did not report requiring its QA and QC workforce to possess additional relevant minimum qualifications such as certifications and utility vegetation management experience. Employing underqualified staff may reduce the effectiveness of SDG&E's quality management programs, and increase the risk of trees breaching regulatory clearance distances or falling into energized infrastructure.

For comparison, SCE stated that its quality control inspectors have "either an ISA Certification or have a minimum of two (2) years of experience performing utility vegetation inspections and have experience measuring vegetation to conductor clearance using precision measuring tools."[302] PG&E indicated that the minimum qualification across all of its QA and QC workforce is a "[b]achelor's degree or equivalent experience," and a minimum of three years job experience.[303] In contrast with SDG&E, both SCE and PG&E require its QA and QC workforce to have a minimum level of utility vegetation management experience. While SCE considers ISA Certification as an alternative qualification to work experience, the ISA Certified Arborist Exam requires three years of work experience or a combination of education and applied arboriculture experience.[304]

SDG&E can improve its technical and programmatic feasibility and effectiveness by raising the minimum qualifications for its auditors to be on par with those of other large electrical corporations.

## 9.3 Previous Areas for Continued Improvement

In the Energy Safety Decision for the SDG&E 2025 WMP Update, Energy Safety identified areas related to vegetation management and inspections where SDG&E must continue to improve its wildfire mitigation capabilities. This section summarizes the requirements imposed by those areas for continued improvement, SDG&E's response to those requirements, and Energy Safety's evaluation of the response.

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[300] SDG&E, 2026-2028 Base WMP R2, page 270.

[301] SDG&E, 2026-2028 Base WMP R2, page 270.

[302] SCE, 2026-2028 Base WMP R2, page 377.

[303] PG&E, 2026-2028 Base WMP R2, Pages 429-430.

[304] ISA Certified Arborist Program Guide, Page 4.

### 9.3.1 SDGE-23B-16. Updates on Identifying Additional, Proactive HFTD Inspections

For this area for continued improvement, Energy Safety required SDG&E to provide updates on its collaboration efforts and improvement for vegetation inspections or new inspection techniques and their effectiveness in its 2026-2028 Base WMP.[305]

#### 9.3.1.1 SDGE-23B-16. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E reported on the development of its risk-indicator models for identifying new proactive off-cycle HFTD inspection approaches.[306] SDG&E indicated that the effectiveness of these inspections needs additional analysis to justify financial and operational feasibility.[307] SDG&E also noted that it requires additional time to determine if its new risk-indicator model approach to identifying the need for off-cycle HFTD inspections will become a permanent part of its vegetation management program.[308]

#### 9.3.1.2 SDGE-23B-16. Energy Safety Evaluation

SDG&E demonstrates continued progress by describing a risk-indicator model that would identify the need for off-cycle HFTD inspections.[309] If fully implemented, this new approach may improve SDG&E's wildfire mitigation work efficiency and increase the probability that SDG&E detects non-compliant vegetation, thereby reducing wildfire risk.

SDG&E is in the early stages of implementing and validating a risk-informed vegetation inspection procedure. SDG&E is exploring the use of a combination of models and other inputs to create a risk index with span-level granularity. These models include predicting the probability of vegetation contact, hazard tree conditions, and vegetation growth rates. Other inputs that may generate proactive inspections include remote sensing technologies, climatology-related risk factors, and live fuel moisture content.[310] The combination of models and inputs may reduce wildfire risk by accurately identifying power line spans most likely requiring vegetation management mitigations.

SDG&E indicated that it requires additional time to respond to all SDG&E-23B-16 requirements. Specifically, to assess the effectiveness of the risk-indicator model approach

[305] Decision for SDG&E 2025 WMP Update, Page 73.

[306] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 45.

[307] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 47.

[308] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 47.

[309] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 47.

[310] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 45.

and to determine whether it plans to implement this new approach on a permanent basis.[311] Energy Safety finds it reasonable that SDG&E needs additional time to evaluate the new inspection approach as a risk-informed vegetation inspection strategy is novel to the industry.

As such, SDG&E must continue to improve in this area for its next Base WMP. Section 9.4 sets forth the requirements for improvement. (SDG&E-26B-19 Implementing Proactive HFTD Inspections)

## 9.3.2 SDGE-23B-17. Continuation of Effectiveness of Enhanced Clearances Joint Study

For this area for continued improvement, Energy Safety required SDG&E, along with PG&E and SCE, to include a white paper that discusses large electrical corporations' evaluation of effectiveness of enhanced clearances and recommendations for updates and changes to utility vegetation management operations and best management practices for wildfire safety in its 2026-2028 Base WMP.[312] Energy Safety also required SDG&E to provide a plan for implementing the results and recommendations from the white paper and third-party contractor analysis.

### 9.3.2.1 SDGE-23B-17. SDG&E Response Summary

In its 2026-2028 Base WMP, SDG&E provided the white paper that addressed the effectiveness of enhanced clearance.[313] SDG&E also included an implementation plan based on the third-party recommendations and results from the white paper.[314]

### 9.3.2.2 SDGE-23B-17. Energy Safety Evaluation

SDG&E provided the required white paper to Energy Safety on the large electrical corporations' joint evaluation of the effectiveness of enhanced clearances in reducing tree-caused outage and ignitions.[315] Energy Safety determined that the recommended updates and changes to utility vegetation management operations and best management practices for wildfire safety are supported by the joint study.[316] Although the large electrical corporations were unable to analyze the effectiveness of enhanced clearances combined with

[311] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 47.

[312] Decision for SDG&E 2025 WMP Update, Pages 73-74.

[313] SDG&E, 2026-2028 Base WMP R2, Attachment C.

[314] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 49-51.

[315] SDG&E, 2026-2028 Base WMP R2, Attachment C.

[316] SDG&E, 2026-2028 Base WMP R2, Attachment C.

other mitigations due to an insufficient amount of data,[317] SDG&E included trackable milestones and timelines in its implementation plan to collect the data needed for such an analysis in the future.[318]

As such, SDG&E must continue to improve in this area for its next Base WMP. See area for continued improvement SDGE-26B-21 Quantifying Enhanced Clearances Effectiveness and SDGE-26B-22 Implementation of Enhanced Clearances Joint Study Recommendation. Section 9.4 sets forth the requirements for improvement.

### 9.3.3 SDGE-25U-09. Third-Party Contractor's Assessment of the Effectiveness of Enhanced Clearances

For this area for continued improvement, Energy Safety required SDG&E to provide the third-party contractor's assessment of the effectiveness of enhanced clearances no later than the submission of its 2026-2028 Base WMP.[319]

#### 9.3.3.1 SDGE-25U-09. SDG&E Response Summary

SDG&E provided the third-party contractor's assessment of the effectiveness of enhanced clearances with its 2026-2028 Base WMP submission.[320]

#### 9.3.3.2 SDGE-25U-09. Energy Safety Evaluation

The third-party contractor's technical report provides the detail needed to assess the effectiveness of enhanced clearances including, but not limited to, the effectiveness of enhanced clearances in reducing tree-caused outages and ignitions with the consideration of limited data availability.[321] As such, SDG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

## 9.4 Areas for Continued Improvement for Future WMP Submissions

As discussed above, Energy Safety has identified areas pertaining to vegetation management and inspections where the electrical corporation must demonstrate improvement in a future, specified WMP submission. This section sets forth the requirements for improvement.

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[317] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 48.

[318] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 49-50.

[319] Decision for SDG&E 2025 WMP Update, Pages 74-75.

[320] SDG&E, 2026-2028 Base WMP R2, Attachment C.

[321] SDG&E, 2026-2028 Base WMP R2, Attachment C.

### 9.4.1 SDGE-26B-19. Implementing Proactive HFTD Inspections

Summary: In its response to SDGE-23B-16, SDG&E conceptualized a condition-based approach using risk modeling to prioritize off-cycle HFTD vegetation management inspections. This condition-based approach may improve the efficiency of wildfire mitigation activities while lowering the probability that non-compliant vegetation goes undetected. By focusing SDG&E's vegetation management on HFTD locations with the greatest risk, the condition-based approach may also lower the risk of electrical-infrastructure-caused wildfire due to contact with vegetation.[322]

Requirements: In its next Base WMP, SDG&E must report on the following:

- The effectiveness of its condition-based approach in identifying areas within the HFTD that require inspections, including:
  - An effectiveness assessment comparing quality check compliance pass rates resulting from condition-based inspections to compliance pass rates resulting from conventional schedule-based inspections, and
  - A cost-benefit analysis comparing condition-based inspections to schedule-based inspections.
  - An interpretation of the effectiveness assessment and cost-benefit analysis that either justifies permanent implementation plans, or describes why SDG&E is forgoing plans to permanently implement a condition-based approach.
- Any plans to implement condition-based inspections on a permanent basis, including, but not limited to:
  - How SDG&E will share results from its condition-based inspection approach with other electrical corporations,
  - How SDG&E will perform quality checks to verify the effectiveness of its condition-based inspection approach, and
  - SDG&E's efforts to incorporate condition-based inspections into procedural documents.

Discussed in: Section 9.2.1.2, Off-Cycle Patrols and Section 9.3.1, SDGE-23B-16 Updates on Identifying Additional, Proactive HFTD Inspections.

[322] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 44-47.

### 9.4.2 SDGE-26B-20. Creating Wood and Slash Management Procedural Documents

Summary: In its 2026-2028 Base WMP, SDG&E does not reference any formal procedures that align with the wood and slash management activities described in Section 9.5 of its WMP.

Requirements: In its next Base WMP, SDG&E must provide formal, documented procedures for SDG&E's management of wood and slash that:

- Include procedural statements provided in Section 9.5 of its WMP; and
- Mitigate the impacts of leaving woody debris onsite, especially in regard to, but not limited to:
    - Blocking, hindering, or potentially blocking (e.g., rolling or blowing into) ingress or egress (roads, driveways, walkways, etc.),
    - Increasing fuel loads in close proximity to structures,
    - Impeding watercourses and drainages, and
    - Otherwise creating a hazard.

Discussed in: Section 9.2.3, Wood and Slash Management.

### 9.4.3 SDGE-26B-21. Quantifying Enhanced Clearances Effectiveness

Summary: In its response to SDGE-23B-17, SDG&E stated that the data used in the Effectiveness of Enhanced Clearances Joint Study did not allow for analysis of the enhanced clearances combined with additional grid hardening measures.

Requirements: In its next Base WMP, SDG&E must report on its continued evaluation of the effectiveness of enhanced clearances. This report must include continued analysis for the following:

- Effectiveness of enhanced clearances on contact from vegetation ignition likelihood.
- Effectiveness of enhanced clearances on PEDS outage likelihood.
- Effectiveness of enhanced clearances on PSPS likelihood.
- Effectiveness of non-enhanced clearances on PEDS outage likelihood.
- Effectiveness of non-enhanced clearances on PSPS likelihood.
- The effectiveness of enhanced clearances in combination with other mitigations including, but not limited to: overhead system hardening (covered conductor and traditional hardening), pole and hardware replacement, situational awareness mitigations, and equipment settings to reduce wildfire risk (as defined in Section 8.7.1

of the WMP Guidelines[323]). This evaluation must include a comparison of cost-benefit ratios for each combination and how the combinations impact effectiveness for contact from vegetation ignition likelihood, PEDS outage likelihood, and PSPS likelihood.

- Barriers to making these calculations, limitations of these calculations, and assumptions required to make these calculations. This must also include,
    - A plan to overcome the described barriers, limitations, and assumptions for future iterations of these calculations.

Discussed in: Section 9.3.2, SDGE-23B-17 Continuation of Effectiveness of Enhanced Clearances Joint Study.

### 9.4.4 SDGE-26B-22. Implementation of Enhanced Clearances Joint Study Recommendation

Summary: The results of the Effectiveness of Enhanced Clearances Joint Study include a list of recommendations for SDG&E to improve its data collection and vegetation management practices.

Requirements: In its next Base WMP, for each recommendation in Table 11-1,[324] SDG&E must demonstrate that it has implemented the recommendations by providing, at a minimum, documentation such as updated procedures documents, data collection forms, training materials, or other relevant documentation. SDG&E must be ready to provide additional documentation upon request by Energy Safety.

Discussed in: Section 9.3.2, SDGE-23B-17 Continuation of Effectiveness of Enhanced Clearances Joint Study.

Appendix C provides a consolidated list of areas for continued improvement and requirements.

[323] WMP Guidelines, Pages 99-101.

[324] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 49.

# 10. Situational Awareness and Forecasting

Chapter III, Section 10 of the WMP Guidelines requires the electrical corporation to include plans for situational awareness in its WMP. [325, 326] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 10.1 Summary of Anticipated Risk Reduction

SDG&E stated that the use of Advanced Radio Frequency Sensors (ARFS) and Power Quality (PQ) Meter technology within the Early Fault Detection (EFD) Program allows for early detection and repair of damaged pole mounted devices before failure.[327] These devices are expected to reduce 0.31 percent of risk in 2026 and up to 0.46 percent of risk by 2028.[328] The increase in risk reduction will translate into a decrease in outages across SDG&E's service territory as well as a reduction of wildfire risk.

## 10.2 Discussion

This section discusses Energy Safety's evaluation of the situational awareness section of the SDG&E 2026-2028 Base WMP.

### 10.2.1 Environmental Monitoring Systems

SDG&E stated that its weather station network consists of 223 strategically placed weather stations across the service territory.[329] Data transmitted from each station covers "wind speed, gusts, direction, temperature, and humidity" and the frequency is about every 10 minutes using cellular and spread spectrum communications.[330] Approximately 97 percent of the weather stations (217 of the 223) can report data every 30 seconds during critical fire weather conditions.[331] The weather data collected by these devices is displayed on a publicly viewable SDG&E website showing real time observations, location mapping, and three-day

[325] Pub. Util. Code §§ 8386(c)(2)-(5).

[326] WMP Guidelines, pages 125-139.

[327] SDG&E, 2026-2028 Base WMP R2, Page 280.

[328] SDG&E, 2026-2028 Base WMP R2, Page 275.

[329] SDG&E, 2026-2028 Base WMP R2, Page 277.

[330] SDG&E, 2026-2028 Base WMP R2, Page 277.

[331] SDG&E, 2026-2028 Base WMP R2, Page 277.

weather forecasting ensembles.[332] SDG&E's weather station network supports SDG&E's to enhance its situational awareness.

### 10.2.2 Grid Monitoring Systems

SDG&E stated that it utilizes multiple early detection grid monitoring devices across its service area to reduce the risk of ignition from failing equipment. The devices include Power Quality Meters, ARFS, Supervisory Control and Data Acquisition (SCADA), and Wireless Fault Indicators (WFI).[333] The ARFS devices are located at four-kilometer intervals. The signal sent back can identify potential issues for repair within 10-meters along the circuit path.[334] The WFI sensors are located in remote locations and alert distribution operators of line faults, allowing them to quickly dispatch trouble shooters to an exact location to identify and isolate the fault, and begin service restoration.[335] SDG&E's grid monitoring systems are at a maturity level consistent with other large electrical corporations.

### 10.2.3 Ignition Detection Systems

SDG&E reported that it utilizes both satellite based ignition detection and over 140 Alert California HD Cameras as part of its ignition detection system.[336] For the satellite based remote sensing, SDG&E collaborates with the Space Science and Engineering Center (SSEC) and it utilizes GOES 18/-17 and Advanced Baseline Imager (ABI) for operationalized fire detection and characterization at a spatial resolution of two kilometers.[337] SDG&E stated that the typical time between detection and confirmation is less than five minutes and in some circumstances is one minute or faster.[338]

The Alert California camera network captures smoke plumes, which are associated with fire ignitions, in near real-time throughout the service territory, providing visual confirmation of reported ignitions or areas of concern not only in the HFTD but for some Wildland Urban Interface (WUI) areas and urban areas.[339]

Energy Safety finds SDG&E's ignition detection system is at a similar maturity level as the other large electrical corporations.

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[332] SDG&E, 2026-2028 Base WMP R2, Page 287.

[333] SDG&E, 2026-2028 Base WMP R2, Pages 279-280.

[334] SDG&E, 2026-2028 Base WMP R2, Page 280.

[335] SDG&E, 2026-2028 Base WMP R2, Pages 281-282.

[336] SDG&E, 2026-2028 Base WMP R2, Pages 283-284.

[337] SDG&E, 2026-2028 Base WMP R2, Page 283.

[338] SDG&E, 2026-2028 Base WMP R2, Page 283.

[339] SDG&E, 2026-2028 Base WMP R2, Page 283.

### 10.2.4 Weather Forecasting

SDG&E stated that it utilizes three supercomputers running 10 different weather ensembles at 0.6, 1.5, 2, 2.5, and 6-kilometer horizontal resolution.[340] For 217 out of the 223 weather stations that SDG&E owns and operates in the HFTD, Machine Learning Wind Gust models are utilized for situational awareness.[341] SDG&E noted that there were only two stations (out of 217 stations) that were inaccessible for maintenance and calibration in 2024.[342] The granularity of resolution for SDG&E's weather forecasting aligns with the level of the other large electrical corporations.

Although SDG&E did not set an acceptable outage percentage for weather stations given each station operates independently[343], it indicated that it has consistently maintained a 99 percent communication rate.[344] This is a very high percentage rate for weather stations to be reporting information without outages, indicating SDG&E has greater situational awareness in weather forecasting than other large electrical corporations.

### 10.2.5 Fire Potential Index

SDG&E explained that its Fire Potential Index (FPI) reflects "key variables such as the state of native grasses across the service territory ('green-up'), fuels (ratio of dead fuel moisture [DFM] component to live fuel moisture [LFM] component), and weather (sustained wind speed and dew point depression)."[345] The FPI utilizes a value scale from 0-17 with breakpoints grouped as the following to provide a greater range of decision making ability:[346]

- Normal ≤11
- Elevated 12 to 14
- Extreme ≥15

SDG&E further stated that it utilizes the FPI values to enhance its operations and maintenance work being conducted in wildland areas as part of its wildfire prevention plan.[347] SDG&E utilizes its FPI values to conduct daily work operations or stop procedures if there is an increased wildfire threat. SDG&E applies the same approach for using its FPI in

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[340] SDG&E, 2026-2028 Base WMP R2, Page 287.

[341] SDG&E, 2026-2028 Base WMP R2, Page 287.

[342] SDG&E, 2026-2028 Base WMP R2, page 292.

[343] Response to Data Request 05, Question 06.

[344] SDG&E, 2026-2028 Base WMP R2, Page 292.

[345] SDG&E, 2026-2028 Base WMP R2, Page 292.

[346] Response to Data Request 03, Question 02.

[347] Response to Data Request 03, Question 02.

initiating PSPS events. SDG&E's response provides sufficient explanation of its FPI formula and usage, demonstrating technical and programmatic feasibility and effectiveness.

## 10.3 Areas for Continued Improvement

Energy Safety identifies no previous or new areas for continued improvement in the Situational Awareness and Forecasting section for the SDG&E 2026-2028 Base WMP.

# 11. Emergency Preparedness, Collaboration, and Community Outreach

Chapter III, Section 11 of the WMP Guidelines requires the electrical corporation to provide an overview of its emergency plan and describe its communication strategy with public safety partners, essential customers, and other stakeholder groups regarding wildfires, outages due to wildfires, and PSPS and service restoration. [348] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 11.1 Discussion

This section discusses Energy Safety's evaluation of the emergency preparedness, collaboration, and public awareness section of the SDG&E 2026-2028 Base WMP.

### 11.1.1 Emergency Preparedness and Recovery Plan

SDG&E's plan and training on coordinating operations and communications in advance of PSPS events demonstrates its continued progress in maturing its emergency preparedness. To explain its efforts, SDG&E described its staff training and plans for PSPS events. SDG&E listed the memoranda of understanding (MOU) that it has with its tribal partners and local governments for aerial support service, fire support service, and fuels management project support resources.[349] SDG&E also provided an in-depth list of all training that is required for various positions that are used during PSPS events.[350]

### 11.1.2 External Collaboration and Coordination

By allocating resources to foster collaboration with communities and tribal entities, SDG&E ensures that it is communicating with the public more effectively.

SDG&E discussed that it supports local and regional wildfire mitigation planning with external partners. One of its efforts is to work with the Cal Poly San Luis Obispo Wildland-Urban Interface Fire Institute (Cal Poly WUI) for building "the most fire resilient communities in the

[348] Pub. Util. Code § 8386(c)(7), (11), (16), (19)-(21).

[349] SDG&E, 2026-2028 Base WMP R2, Pages 303-2304.

[350] SDG&E, 2026-2028 Base WMP R2, Page 303.

world."[351] SDG&E stated that it shares the goal with Cal Poly WUI for addressing the WUI fire problem in California.[352]

SDG&E also discussed its collaboration efforts with tribal governments, including the challenges SDG&E faces when working with tribal governments, such as a lack of trust from tribal governments toward outside agencies—and the steps SDG&E plans to take to address these issues.[353] SDG&E indicated that it employs a Senior Tribal Affairs Manager focusing on the collaboration with tribal governments specifically with the goal of building wildfire preparedness and resiliency.[354]

Energy Safety finds SDG&E's plan aligns with the WMP Guidelines expectations and reflects ongoing efforts to improve collaboration and coordination.

### 11.1.3 Public Communication, Outreach, and Education Awareness

SDG&E demonstrates a proactive approach in reaching out to the public and providing support ahead of and during outages. SDG&E stated it offers a centralized resource hub for engagement with access and functional needs (AFN) populations.[355] The hub partners with "211 San Diego" and "211 Orange County" and offers resources "such as food delivery, transportation, hotel stays" for the AFN community.[356] In addition, SDG&E stated it created support systems with the Indian Health Council for addressing impacts to elders and vulnerable community members.[357] These support systems provide "generators, resiliency items, information, and resources as well as support emergency food distribution during a PSPS deenergization."[358]

## 11.2 Areas for Continued Improvement

Energy Safety identifies no previous or new areas for continued improvement in the Emergency Preparedness, Collaboration, and Community Outreach section for the SDG&E 2026-2028 Base WMP.

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[351] SDG&E, 2026-2028 Base WMP R2, Page 308.

[352] SDG&E, 2026-2028 Base WMP R2, Page 308.

[353] SDG&E, 2026-2028 Base WMP R2, Pages 309-312.

[354] SDG&E, 2026-2028 Base WMP R2, Page 309.

[355] SDG&E, 2026-2028 Base WMP R2, Page 317.

[356] SDG&E, 2026-2028 Base WMP R2, Page 317.

[357] SDG&E, 2026-2028 Base WMP R2, Page 319.

[358] SDG&E, 2026-2028 Base WMP R2, Page 319.

# 12. Enterprise Systems

Chapter III, Section 12 of the WMP Guidelines requires the electrical corporation to provide an overview of inputs to, operation of, and support for various enterprise systems it uses for vegetation management, asset management and inspection, grid monitoring, ignition detection, weather forecasting, and risk assessment initiatives. [359] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 12.1 Discussion

This section discusses Energy Safety's evaluation of the enterprise systems section of the SDG&E 2026-2028 Base WMP.

SDG&E outlined multiple integrated enterprise systems and qualitatively defined targets for improving and enhancing the systems through 2028.[360] SDG&E's enterprise systems include advanced tools for asset management, vegetation management, risk modeling, and data governance.[361] Notably, SDG&E discussed the integration of Asset 360 and Intelligent Image Processing (IIP) data to support risk-informed asset strategies as well as the development and testing of the Probability of Vegetation Contact and Hazard models.[362] Integration of asset information and verification of technology based inspection models is important to the development of a mature risk-informed decision making process because model outputs tend to be more accurate when there is more accurate data inputted into the model.

WMP Guidelines require an electrical corporation to provide "an overview of inputs to, operation or, and support for" its various programs related to wildfire risk.[363] SDG&E demonstrated compliance with the WMP Guidelines by articulating how its enterprise systems are both technically and programmatically feasible. For example, SDG&E uses tools such as Systems Applications and Process Plant Maintenance (SAP PM), Cascade, geographic information system (GIS), and PowerWorkz, and adopts a data system to feed into WiNGS-Planning and WiNGS-Ops for supporting deenergization decisions and investment planning.[364]

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[359] Pub. Util. Code § 8386(c)(10), (14), (18).

[360] SDG&E, 2026-2028 Base WMP R2, Pages 325-326.

[361] SDG&E, 2026-2028 Base WMP R2, Pages 327-328.

[362] SDG&E, 2026-2028 Base WMP R2, Pages 325-326.

[363] WMP Guidelines, Page 165.

[364] SDG&E, 2026-2028 Base WMP R2, Pages 327-328.

SDG&E's enterprise systems show forward-looking growth by planning to integrate predictive analytics, remote sensing, and AI-based vegetation inspections by 2028.[365] This includes transitioning to AI video monitoring with ALERTCalifornia[366] and implementing new tools (e.g., plan to use iPad instead of Mobile Data Platform hardware tool in 2028[367]) for field inspections and customer notification systems with improved efficiency.[368]

SDG&E demonstrates a high level of maturity and alignment with the expectations of the WMP Guidelines.

## 12.2 Areas for Continued Improvement

Energy Safety identifies no previous or new areas for continued improvement in the Enterprise Systems section for the SDG&E 2026-20282028 Base WMP.



[365] SDG&E, 2026-2028 Base WMP R2, Page 329.

[366] https://ops.alertcalifornia.org/

[367] SDG&E, 2026-2028 Base WMP R2, Page 325.

[368] SDG&E, 2026-2028 Base WMP R2, Page 329.

# 13. Lessons Learned

Chapter III, Section 13 of the WMP Guidelines requires the electrical corporation to discuss the lessons learned it uses to drive continual improvement in its WMP. [369] The SDG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

## 13.1 Discussion

SDG&E listed 21 lessons learned impacting its 2026-2028 Base WMP, with most of the lessons occurring in 2024.[370] These lessons learned cover a wide scope of topics, including impacts evaluated from PSPS events, feedback collected from local government agencies, and the Grid Hardening Working Group. By incorporating lessons learned in its 2026-2028 Base WMP, SDG&E's planned operations and wildfire mitigation efforts demonstrate continuous improvement.

For example, SDG&E initiated several PSPS events in late 2024.[371] Among these, a December 2024 PSPS event involved deenergizing distribution and transmission lines when experiencing peak wind gusts.[372] Although it is "less common to deenergize transmission lines,"[373] SDG&E made this decision based on a risk assessment. Lessons learned from this event allowed SDG&E to plan for future events with similar weather conditions.

In addition to participating in the working groups led and required by Energy Safety, SDG&E initiated multiple working groups, joint IOU groups, and monthly meetings to enhance the interactions and collaborations with the other large electrical corporations. In addition to the continuation of Grid Hardening Joint Studies,[374] the topics also covered system protection and combined mitigation effectiveness with the objective of sharing and discussing advanced technology and leading research.[375] The joint IOU group on combined mitigation effectiveness is relatively new. SDG&E expects that it will continue its efforts in 2025.[376] SDG&E further listed its key insights from the Enhanced Vegetation Management Working Group

[369] Pub. Util. Code §§ 8386(a) & (c)(5), (22).

[370] SDG&E, 2026-2028 Base WMP R2, Pages 331-335.

[371] SDG&E, 2026-2028 Base WMP R2, Page 331.

[372] SDG&E, 2026-2028 Base WMP R2, Page 336.

[373] SDG&E, 2026-2028 Base WMP R2, Page 336.

[374] SDG&E, 2026-2028 Base WMP R2, Pages 337-339.

[375] SDG&E, 2026-2028 Base WMP R2, Pages 337-338.

[376] SDG&E, 2026-2028 Base WMP R2, Page 338.

required by Energy Safety in its WMP.[377] These collaborations may help SDG&E and other electrical corporations assess the latest technology and industry best practices.

## 13.2 Areas for Continued Improvement

Energy Safety identifies no previous or new areas for continued improvement in the Lessons Learned section for the SDG&E 2026-2028 Base WMP.



[377]SDG&E, 2026-2028 Base WMP R2, Pages 338-339.

# 14. Conclusion

## 14.1 Discussion

SDG&E continued to make commitments to improve mitigation activity selection and reduce wildfire risk, set a microgrid target with a timeline for installing one remote grid by 2028, and evaluated the grounding configurations and impacts on fault current magnitudes of its three idle transmission lines.

SDG&E is evaluating new technology, like the use of drones and helicopters in its transmission line inspections, to improve wildfire risk reduction. The company is also planning to use its risk modeling approach to prioritize its off-cycle High Fire Threat District (HFTD) inspections.

There are areas for continued improvement identified in this decision, including SDG&E's enhancement of its overall risk modeling capacity, and Energy Safety expects that SDG&E will effectively address these concerns.

## 14.2 Approval

The SDG&E 2026-2028 Wildfire Mitigation Plan is approved.

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electrical corporations, including SDG&E, must continue to make progress toward reducing wildfire risk.

Energy Safety expects SDG&E to effectively implement its wildfire mitigation activities to reduce wildfire and outage program risk.

SDG&E must meet the commitments in its approved WMP and address areas for continued improvement identified within this Decision to ensure it meaningfully reduces wildfire and outage program risk within its service territory over the plan cycle.

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# APPENDICES

# APPENDICES

# Appendix A. References Table

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# Appendix B. Status of Previous Areas for Continued Improvement

Energy Safety Decision for the SDG&E 2025 WMP Update identified areas for continued improvement. Areas for continued improvement are areas in which SDG&E must continue to improve its WMP. As part of the 2026-2028 Base WMP evaluation, Energy Safety reviewed the progress reported by SDG&E in addressing previously identified areas for continued improvement.

Areas for continued improvement identified in Energy Safety Decisions for the SDG&E 2025 WMP Update and that required progress reporting in the SDG&E 2026-2028 Base WMP are listed in Table B-1. The status column indicates whether each has been fully addressed. If not, the column notes where to find more information in this Decision.

*Table B-1. SDG&E Previous Areas for Continued Improvement*

| ID | Title | Status |
|---|---|---|
| **SDGE-25U-01** | Calculating Risk Scores Using Maximum Consequence Values | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 5.2.1.2 for Energy Safety's evaluation of this area for continued improvement. |
| **SDGE-23B-04** | Incorporation of Extreme Weather Scenarios into Planning Models | SDG&E has not sufficiently responded to this area for continued improvement. SDG&E must continue improve in this area for its next Base WMP. See Section 5.2.2.2 for Energy Safety's evaluation of this area for continued improvement. Section 5.3 sets forth the requirements for improvement. |
| **SDGE-25U-02** | Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in Consequence Modeling, Inclusion of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 6.2.1.2 for Energy Safety's evaluation of this area for continued improvement. |
| **SDGE-25U-03** | Third-Party Recommendations for Model Improvements | SDG&E sufficiently responded to this area for continued improvement. However, many of the third-party recommendations that relate to implementing and increasing documentation have deadlines for the end of 2026, 2027, or 2028. SDG&E must continue to provide progress it is making with these recommendations. See Section 6.2.2.2 for Energy Safety's evaluation of this area for continued improvement. Section 6.3 sets forth the requirements for improvement. |

| ID | Title | Status |
|---|---|---|
| **SDGE-25U-04** | Continuation of Grid Hardening Joint Studies | SDG&E has sufficiently responded to this area for continued improvement. However, large electrical corporations must continue the collaboration in this area to further strengthen evaluation of emerging technologies and effectiveness of key grid hardening strategies. SDG&E must continue to improve in this area for its next WMP Update. See Section 8.3.1.2 for Energy Safety's evaluation of this area for continued improvement. Section 8.4 sets forth the requirements for improvement. |
| **SDGE-25U-05** | Early Fault Detection Implementation | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 8.3.2.2 for Energy Safety's evaluation of this area for continued improvement. |
| **SDGE-25U-06** | Distribution Communication Reliability Improvement | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 8.3.3.2 for Energy Safety's evaluation of this area for continued improvement. |
| **SDGE-25U-07** | Progress on Inspection QA/QC Program Change | SDG&E has sufficiently responded to this area for continued improvement. To ensure feasibility of the program, SDG&E must continue reporting the actual pass rates of SDG&E's new detailed inspection audits that will be performed in 2025 and 2026 that were not available at time of submission for Energy Safety's review. SDG&E must continue to improve in this area for its next Base WMP. See Section 8.3.4.2 for Energy Safety's evaluation of this area for continued improvement. Section 8.4 sets forth the requirements for improvement. |

| ID | Title | Status |
|---|---|---|
| **SDGE-25U-08** | Distribution Infrared Inspections | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. However, a new area for continued improvement will continue to monitor the find rate for infrared inspection and provide an analysis to ensure a plan to identify and remediate thermal conditions in the HFTD/HFRA after discontinuing its infrared inspection. SDG&E must continue to improve in this area for its next Base WMP. See Section 8.3.5.2 for Energy Safety's evaluation of this area for continued improvement. Section 8.4 sets forth the requirements for improvement. |
| **SDGE-23B-16** | Updates on Identifying Additional, Proactive HFTD Inspections | SDG&E required additional time to respond to all requirements of this area for continued improvement. Although Energy Safety finds it reasonable, SDG&E must continue to improve in this area for its next Base WMP. See Section 9.3.1.2 for Energy Safety's evaluation of this area for continued improvement. Section 9.4 sets forth the requirements for improvement. |
| **SDGE-23B-17** | Continuation of Effectiveness of Enhanced Clearances Joint Study | SDG&E has sufficiently responded to this area for continued improvement. However, SDG&E stated that the data used in the Effectiveness of Enhanced Clearances Joint Study did not allow for analysis of the effectiveness of enhanced clearances combined with other mitigations due to an insufficient amount of data. Thus, SDG&E must continue implementing the plan with continued analysis on the evaluation of the effectiveness of enhanced clearance and demonstration of implementing the recommendations in next Base WMP. SDG&E must continue to improve in this area for its next Base WMP. See Section 9.3.2.2 for |

| ID | Title | Status |
|---|---|---|
| | | Energy Safety's evaluation of this area for continued improvement. Section 9.4 sets forth the requirements for improvement. |
| **SDGE-25U-09** | Third-Party Contractor's Assessment of the Effectiveness of Enhanced Clearances | SDG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 9.3.3.2 for Energy Safety's evaluation of this area for continued improvement. |

# Appendix C. Consolidated List of Areas for Continued Improvement and Requirements

This appendix will be populated with a consolidated list of the areas for continued improvement and required progress identified in this Decision upon final publication of this Decision.

## Risk Methodology and Assessment

### SDGE-26B-01. Sensitivity Analysis for Risk Averse Scaling

Summary: SDG&E employs a risk-averse scaling function to modify wildfire and PSPS consequence risk scores.[1] Given the significant impact such a scaling function may have on a large electrical corporation's decision-making, large electrical corporations must collaborate to evaluate the impact of attribute function scaling on mitigation planning.

Requirements:

In its next WMP Update, SDG&E must:

- Provide an updated version of *Table 5-5: Summary of Top-Risk Circuits, Segments, or Spans* with an additional column showing the unscaled risk scores.

In its next Base WMP, SDG&E must:

- Collaborate with other large electrical corporations to establish which (if any) attributes are appropriate to apply to scaling functions and an appropriate range or magnitude for each proposed scaling function.
- Complete a sensitivity analysis to determine how risk-averse approaches affect efficacy calculations or impact mitigation selection (e.g., selection of high-risk areas, selection of covered conductor and undergrounding) and report the results of the analysis in the WMP.

[1] SDG&E, 2026-2028 Base WMP R2, Page 43.

- Discuss any differences in its mitigation strategy from using various risk-scaling strategies.

Discussed in: Section 5.1.2, Risk Analysis Framework.

## SDGE-26B-02. Quantification of Wildfire Consequence Scaling Factors

Summary: Large electrical corporations are currently exploring the use of indices and data to provide a more accurate estimate of damage or loss of life resulting from wildfire reaching a location. These methods vary significantly among electrical corporations and lack documented validation. For example, some large electrical corporations have adopted or are exploring the use of TDI (terrain difficulty index) factor[2] or BLF (building loss factor)[3] to more accurately capture the actual number of buildings destroyed and scale wildfire consequence scores. Large electrical corporations must discuss and benchmark their use of scaling and indices when calculating the consequence of a wildfire at a location while considering social vulnerability and the availability of suppression resources and infrastructure.

SDG&E currently incorporates an egress factor for wildfire consequences based on its egress model.[4] However, SDG&E's method does not account for other characteristics of the population, including but not limited to AFN designation, Social Vulnerability Index, age of structures, or firefighting capacities (as specified in the WMP Guidelines[5]). SDG&E also does not currently include any analysis or scaling that accounts for suppression.

Requirements:

In its next WMP Update, SDG&E must:

- Provide its methods that account for social vulnerability or population demographics within its wildfire consequence modeling, or demonstrate there is no variability across circuits even if factors such as AFN designation, Social Vulnerability Index, age of structures, or firefighting capacities are included in consequence modeling.
- Provide its methods that account for suppression impacts, such as development or adoption of an index to represent what fraction of impacted buildings will be destroyed.
- Discuss how those methods impact overall risk.

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[2] PG&E, Consequence Model Documentation, Page 7.

[3] SCE, 2026-2028 Base WMP R2, Pages 90-91.

[4] SDG&E, 2026-2028 Base WMP R2, Page 38 (Figure 5-6: WiNGS-Planning and Ops Calculation Schematic).

[5] WMP Guidelines, Page 33.

In its next Base WMPs, SDG&E in collaboration with other large electrical corporations must:

- Provide a report summarizing collaboration to benchmark the impacts of adopting consistent factors or indices that represent egress, suppression effectiveness, or realistic damage that adjust consequence scores (such as road constraint indices, terrain difficulty indices, or building loss factors). This summary must include discussions on the following topics:
    - Which factors and indices were evaluated;
    - How the factors and indices evaluated are relevant to the conditions in California and how inclusion of these factors and indices better reflect reality;
    - Minimum considerations or agreed-upon conventions established from collaboration with other electrical corporations for including the index or factor when calculating consequence (i.e., egress analysis accounts for features such as road constraints, AFN, population density, etc.);
    - Why the electrical corporations have not already captured such factors and indices through other implemented risk analyses;
    - The impact that the new factors and indices have on overall utility risk and territory-wide relative distributions of risk, along with implications for mitigation or HFTD selection; and
    - What changes were made or planned for each respective electrical corporations' risk modeling methodologies as a result of the collaboration, including changes to or added implementation of factors and indices, as well as any differences between electrical corporations' methodologies and why such differences persist.

Discussed in: Section 5.1.2, Risk Analysis Framework and Section 5.1.5, Risk Analysis Results and Presentation.

## SDGE-26B-03. Further Evaluation of Climate Change Impact on Extreme Scenarios

Summary: Many large electrical corporations and SMJUs, including SDG&E, are currently evaluating climate change impacts up to 2030, which is only two years past this 2026-2028 Base WMP cycle. This limits the understanding of maximizing risk benefit over an asset's lifetime, which far exceeds the timeframe in current climate change evaluations. The climate change evaluations are also limited in scope and do not evaluate impacts such as extreme weather event frequency and changes in vegetation species.

SDG&E is undergoing a Climate Adaptation Vulnerability Assessment (CAVA) as required by R.18-04-019.[6] This and other climate change evaluations by the large electrical corporations and SMJUs are relatively limited in scope and do not consider impacts from extreme weather event frequency and changes in vegetation species.

Requirements: In its next Base WMP, SDG&E must

- Provide a joint report with the other large electrical corporations and SMJUs evaluating the potential climate change impacts on wildfire risk over a fifty-year period to better understand potential risk reduction when deciding on and implementing mitigations. This report must identify variables impacted by climate change and how those variables impact the modeling of wildfire risk. At a minimum, these variables must include:
    - Extreme wind events
    - Extreme drought impacts
    - Vegetation pattern changes
    - Wildfire pyrome identification and boundary changes
- As part of the Risk Modeling Working Group (RMWG) and as directed by Energy Safety, SDG&E must contribute to discussions and reports on topics such as how the joint study impacted SDG&E's risk modeling efforts and how SDG&E plans to implement any changes and findings discussed regarding climate change.

Discussed in: Section 5.1.3, Risk Scenarios and Section 5.2.2, SDGE-23B-04 Incorporation of Extreme Weather Scenarios into Planning Models.

## SDGE-26B-04. Collaboration on Meteorological Scenarios

Summary: Weather scenarios used by the large electrical corporations and SMJUs in the calculation of probability and consequence scores vary significantly. The scenarios vary in the size of the historical record, how fire weather days are determined, and how the data is pruned for simulations.

SDG&E has adopted the use of machine learning models trained on historical periods and extreme weather days. The SDG&E 2026-2028 Base WMP provided some descriptions of how the fire weather day alternative approach aligns with the design scenarios outlined in the WMP Guidelines.[7] However SDG&E's selected historical periods do not meet the requirements

[6] SDG&E, 2026-2028 Base WMP R2, Page 18.

[7] WMP Guidelines, Pages 40-44.

in the WMP Guidelines for developing distributions that account for extreme weather or wind loads.[8]

Requirements: In its next Base WMP, SDG&E must:

- Define the historical period and fire weather days used for developing meteorological scenarios. Describe criteria for selection and justify exclusion of years and days outside of the selected dataset if that data would include historical extreme wind gusts or other extreme conditions.
- Demonstrate how distributions developed using a Monte Carlo simulation method within the consequence risk model account for extreme weather events that are not included within the referenced historical period. For example, demonstrate how SDG&E is matching the distribution of predicted fire size with historical distributions with significant tail risks.
- Collaborate with other electrical corporations via participation in RMWG to develop and summarize standardized extreme event scenarios, common calculation methods on the likelihood of occurrence, and a common approach to selecting weather scenarios (wind, moisture, fuels, etc.) to calculate consequences. Once developed, implement the standardized approaches into the WMP, or discuss why other approaches are taken if not using the agreed upon approaches.
- Evaluate and provide an analysis of the sensitivity of the total risk in its service territory, including the risk impact of extreme event scenarios. This sensitivity analysis must also evaluate the impact of mitigations on extreme events.

Discussed in: Section 5.1.3.2, Extreme Wind Events and Section 5.2.2, SDGE-23B-04 Incorporation of Extreme Weather Scenarios into Planning Models.

## SDGE-26B-05. Quantification of Transmission Risk

Summary: SDG&E explained that it did not include transmission-level risk modeling in its risk model because it already completed traditional hardening of its transmission system. As SDG&E noted that it is considering assessments of transmission risk based on asset health,[9] it is vital that SDG&E quantifies risks at a transmission-level because ignitions at the transmission level have led to catastrophic fires.

Requirements: In its next Base WMP, SDG&E must provide transmission-level risk modeling and analysis.

Discussed in: Section 5.1.4, Summary of Risk Models.

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[8] WMP Guidelines, Pages 40-44.

[9] SDG&E, 2026-2028 Base WMP R2, Page 168.

## SDGE-26B-06. Development of Substantive Model Documentation

Summary: Several of the electrical corporations, including SDG&E, did not provide detailed technical documentation for its models and data sets used for risk analysis, including probability of failure and probability of ignition models, consequence models, weather models, and fuel models.

SDG&E provided high-level descriptions of model purpose, assumptions, and calculation procedures in Section 5 and Appendix B of its 2026-2028 Base WMP. However, the model documentation provided did not offer sufficient detail for the evaluation of the methodologies, verification, and validation of the models. As required in the WMP Guidelines[10], SDG&E must be able to provide this detailed documentation upon request by Energy Safety.

Requirements: In its next WMP Update, SDG&E must develop documentation on its risk analysis and modeling to capture the following information:

- A detailed description of its risk models, including assumptions or statistical approaches used for the risk models. This must include an explanation for any assumptions and scaling factors used;
- A detailed description of datasets used for modeling probability of ignition, consequence, weather, and fuels; including sources for data and why each dataset was included; and
- Description of the verification and validation approaches of each model, including any available results.

Discussed in: Section 5.1.6, Quality Assurance and Quality Control.

# Wildfire Mitigation Strategy Development

## SDGE-26B-07. Joint Study for Mitigation Activity Effectiveness Estimates

Summary: IOUs[11] have varying methodologies and results when evaluating mitigation initiative effectiveness. These differences include variations in available in-field data, which type of data is used to determine effectiveness, and how effectiveness is calculated. SDG&E uses “evidence of heat” in evaluating the effectiveness of covered conductor, which might include data unrelated to potential ignitions. In addition, the effectiveness for additional

[10] WMP Guidelines, Appendix B, Page B-6.

[11] Here the IOUs include SDG&E, PG&E, SCE, PacifiCorp, and Liberty Utilities.

mitigations in combination with covered conductor, including FCP and EFD, are rough estimates, lacking a proper evaluation of its overlapping and added benefits.

Requirements: In its next Base WMP, SDG&E must collaborate with the IOUs to determine more consistent methodologies and evaluations of mitigation activity effectiveness. The IOUs must complete and provide a joint study and report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base-WMPs), and include that report in their subsequent Base WMP submission. The report must cover the following topics and summary:

- What type of data could be used to determine mitigation activity effectiveness. This topic must include discussions of the following:
    - How to share available data across IOUs,
    - Evaluation of all mitigation activities performed by IOUs listed out with the various current effectiveness estimations being used by IOUs, and discussion of shortcomings for any mitigation activities that do not currently have effectiveness values calculated,
    - Evaluation of the use of ignition vs. outage vs. other data (such as “evidence of heat” events) for evaluating ignition risk, including a comparison of benefits and weaknesses,
    - Other ways to augment useable data for any limited data sets, including any shortcomings and potential remedies for increasing accuracy when using additional data, and
    - Evaluation of variations on methodologies used by IOUs for translating data into probability of ignition.
- How IOUs measure effectiveness of mitigation activities against various risk drivers. This topic must include reporting on completion of the following:
    - Synchronization among IOUs on ways to calculate effectiveness of various mitigation activities against various risk drivers, including benefits and weaknesses of IOUs’ current approaches as a comparison,
    - Weighting of various risk drivers in terms of associated ignition and wildfire risk, and
    - Summation of various risk driver effectiveness values into overarching effectiveness value.
- How mitigation activity effectiveness is used when determining mitigation prioritization and selection. This topic must include the following:
    - A discussion of the granularity in which effectiveness values are used during mitigation selection based on an evaluation of location-specific risk drivers, including how those drivers are selected and weighted for a given area, and

    - An analysis of how mitigation activity informs and impacts cost-benefit analysis, including a discussion and comparison of any differences on scaling across IOUs.
- How to evaluate mitigation activities in combination. This topic must include reporting on completion of the following:
    - Synchronization among IOUs on potential combinations to include when calculating joint effectiveness estimates,
    - Demonstration that electrical corporations have shared measured in-field effectiveness with one another and have integrated it into overall effectiveness calculations, and
    - Measuring overlapping and added benefit based on evaluation of ignition drivers impacted by various mitigations, including a comparison of IOUs' current efforts.

IOUs must also participate in Energy Safety-led activities, such as workshops or working group meetings, to further consider requirements around effectiveness.

Discussed in: Section 6.1.1.1, "Evidence of Heat" Events in Effectiveness Calculation; Section 6.1.1.2, Rough Proxy Effectiveness for Falling Conductor Protection (FCP); and Section 8.2.1.1, Covered conductor installation.

## SDGE-26B-08: Prioritization of Riskiest Areas

Summary: SDG&E has not properly demonstrated that it is prioritizing its riskiest circuit segments as identified by its latest risk model.

Requirements: In its next WMP Update, SDG&E must:

- Provide an update of its planned grid hardening projects from 2027 to 2029. This should be in the form of a spreadsheet with the following information:
    - Circuit Segment ID,
    - Type of hardening (i.e. undergrounding, covered conductor),
    - Status of the project (scoping, design permitting, etc.),
    - WiNGS 2.0 Risk Score,
    - WiNGS 2.0 Risk Rank,
    - WiNGS 3.0 Risk Score,
    - WiNGS 3.0 Risk Rank,
    - WiNGS 4.0 Risk Score,
    - WiNGS 4.0 Risk Rank,
    - Risk model version used for prioritization (WiNGS 2.0, 3.0, or 4.0),
    - Expected year for implementation, and

    - Planned length.
- For circuit segments in the top 20 percent of riskiest circuit segments based on total overall risk scores represented in the 2026-2028 Base WMP that do not currently have any grid hardening projects planned as covered in the response to part (a), SDG&E must provide a narrative explaining how it is monitoring and reducing risk for those circuit segments, when it will evaluate potential hardening projects for those circuit segments in the future, and why it is not currently scheduled to have any grid hardening.

Discussed in: Section 6.1.2.1, Prioritization of Risk Mitigation Work.

## SDGE-26B-09. Implementation of Interim Mitigations

Summary: Given the reduced grid hardening scope after the Test Year (TY) 2024 GRC Decision and the change in risk rankings from previous risk models, many of SDG&E's top risk circuits currently do not have risk hardening planned for the 2026-2028 Base WMP cycle, leaving exposure to known risk on its system until grid hardening projects are completed in the future.

Requirements: In its next WMP Update, SDG&E must:

- For planned grid hardening projects where the circuit segment risk ranking (for the risk model version used when the work was prioritized) is below the top 20 percent of riskiest circuit segments based on total overall risk scores, SDG&E must provide a narrative explanation for why it selected that circuit segment over higher risk circuit segments. This narrative must include:
    - Justification for project selection,
    - Demonstration that selection of a lower risk ranked circuit segment is still mitigating adequate risk efficiently, and
    - Explanation as to why it is a more appropriate option than selecting higher risk ranked circuit segments for mitigation work.
- For the top 20 percent riskiest circuits by total overall risk score that do not have hardening planned in 2026 or 2027, as well as circuits that had grid hardening planned in 2026 or 2027 but were put on pause after the TY2024 GRC Decision, SDG&E must provide a demonstration of the following:
    - Risk informed drone inspection (or other additional inspection) coverage,
    - EFD (or other continuous monitoring technology) coverage,
    - FCP coverage, and
    - Enhanced asset inspections (e.g., increased frequency or additional technologies over the GO 95 and GO 165 requirements, etc.).

    The demonstration must also include the following:

- Circuit mileage of each circuit segment,
- Percentage of each circuit segment covered by the respective mitigation,
- Additional circuit mileage planned for installation in 2026-2028 for the respective mitigation, and
- Date of installation/completion for the respective mitigation.

Discussed in: Section 6.1.2.2, Interim Mitigation Strategy and Section 8.2.1.2, Undergrounding and Covered Conductor for Electric Lines.

### SDGE-26B-10. Third-Party Recommendations for Model Improvements

Summary: SDG&E provided updates on its implementation of recommendations from a third-party review of its risk models conducted in 2023. SDG&E is still in the process of implementing some of the recommendations, with planned completion for the end of 2026 or later.

Requirements: In its next WMP Update, SDG&E must provide a status update for the third-party recommendations from *Table 4-1: WiNGS-Planning Third Party Recommendations* and *Table 4-2: WiNGS-Ops Third Party Recommendations* with a current status of "In progress" or "Not started." For any recommendations that do not change in status or are delayed, SDG&E must provide an explanation as to why.

Discussed in: Section 6.2.2, SDGE-25U-03 Third-Party Recommendations for Model Improvements.

## Grid Design, Operations, and Maintenance

### SDGE-26B-11. System Automation Equipment and Technologies Trend Analysis

Summary: SDG&E's Advanced Protection program (WMP.463) includes system automation technologies such as Sensitive Ground Fault (SGF), Sensitive Relay Profile (SRP), Falling Conductor Protection (FCP), Supervisory Control and Data Acquisition (SCADA), and Early Fault Detection (EFD). While SDG&E provides detailed descriptions of these systems and their risk-reduction intent, it does not present a trend analysis evaluating the systems' historical effectiveness in reducing ignitions and outages.

Energy Safety requires SDG&E to conduct a trend analysis to validate the wildfire risk reduction and outage mitigation benefits of its automation systems. This analysis is necessary to inform future deployment decisions and optimize the integration of these technologies in SDG&E's wildfire mitigation strategy.

Requirements: In its next Base WMP, SDG&E must:

- Provide a trend analysis for SDG&E's Advanced Protection program (WMP.463), and as part of this analysis, include the following:
    - Circuit protection zone-level granularity of equipment deployment, system configuration (e.g., fast trip, non-reclose), and observed impacts.
    - Comparison of circuit segments with automation (e.g., SGF or SRP-enabled) against those without automation, controlling for exposure and system characteristics.
- Provide quantification of its wildfire risk reduction and PSPS mitigation attributable to Advanced Protection systems, expressed in terms of:
    - Customer Minutes Interrupted (CMI) avoided, and Ignitions Prevented.
- Provide its process for and explain how it includes lessons learned or corrective actions stemming from protection mis-operations, device failures, or system limitations observed during field operations.
- Provide its process or plan for incorporating performance-based metrics to support future prioritization and reallocation of automation resources, including how the metrics are used in its prioritization and allocation decision-making.

Discussed in: Section 8.2.1.6, Installation of System Automation Equipment and Section 8.2.1.9, Other Technologies and Systems Not Listed Above.

## SDGE-26B-12. De-energized Transmission Line Assessment and Removal

Summary: Large electrical corporations and SMJUs have de-energized but unremoved transmission lines within the HFTD for various operational reasons. These de-energized transmission line segments, especially those that run parallel to energized transmission lines, pose a potential wildfire risk due to inadvertent re-energization. Risk levels of these de-energized lines are dependent on grounding configurations, proximity to energized lines, and vegetation contact.

Large electrical corporations and SMJUs define, assess, and mitigate risk associated with these de-energized lines differently. Some electrical corporations have undertaken detailed circuit level or simulation-based studies to quantify risks, while others have not. Definitions of terms such as "de-energized" and "abandoned" lines also vary across electrical corporations, further complicating comparisons and evaluations across electrical corporations.

SDG&E maintains three de-energized transmission lines within the HFTD lines, and it evaluated the grounding configurations and impacts on fault current magnitudes of its three idle transmission lines.[12]

To ensure large electrical corporations and SMJUs are managing wildfire risks from unremoved de-energized transmission lines, the electrical corporations must provide a terminology framework, provide a circuit level risk assessment, incorporate lessons learned from existing studies, provide a comprehensive mitigation strategy, and report its inspection and maintenance protocols for unremoved de-energized transmission lines in the HFTD.

Requirements: In its next WMP Update, SDG&E must:

- Collaborate with other large electrical corporations and SMJUs to submit a joint cross-utility terminology framework that establishes consistent definitions for the following:
    - De-energized transmission lines.
    - Abandoned transmission lines.
        - If the large electrical corporations' and SMJUs' definition for "abandoned transmission lines" is different from the definition in GO 95, Rule 31.6 for "permanently abandoned lines," the large electrical corporations and SMJUs must explain the difference between the two terms and their usage.
    - Any other types of transmission line designations, such as "idle," that the electrical corporation uses for de-energized or no longer in use transmission lines that have not yet been removed.
- Provide a Circuit Level Risk Assessment. For de-energized, abandoned, or other similarly situated transmission circuits that are located in the HFTD, SDG&E must:
    - Identify potential ignition hazards such as electrostatic or electromagnetic coupling with adjacent energized lines, identify the factors that affect the risk of these hazards causing ignitions, and provide a risk analysis; and
    - Specify whether the line is grounded (single-point, multi-point, ungrounded), and how grounding configuration affects induction risk.
- Incorporate Lessons Learned from Existing Studies. The methodology for the risk assessment must include, at minimum:
    - Evaluation of grounding configurations and their impacts on fault current magnitudes (as shown in SDG&E's study "Corridor Induction Risk Assessment

[12] Response to Data Request 10, Question 01.

of Out-of-Service Transmission Lines in SDG&E HFTD"[13] and PacifiCorp's "Idle Line Study"[14]);

- Spatial distance between energized and de-energized lines and the orientation of line configurations (horizontal vs. vertical stacking); and
- Sensitivity analysis on variables such as fault location, fault resistance, and line length, especially under fault-current scenarios.

- Provide a Comprehensive Mitigation Strategy. If applicable, each large electrical corporation and SMJU must provide an existing plan or develop a new plan that includes:
  - Identification of de-energized, abandoned, or other similarly situated transmission lines;
  - A decision-making process for the removal, modification of grounding configuration, or other mitigation of de-energized, abandoned, or other similarly situated transmission lines based on ignition risk; and
    - If identified de-energized transmission lines are subject for future use, describe its planned use, its grounding-configuration, and any intermittent mitigation strategies.
  - Timeline for mitigation actions, including short-term and long-term activities.
- Report Inspection and Maintenance Protocols. SDG&E must:
  - Describe its inspection and maintenance process for de-energized, abandoned, or other similarly situated transmission circuits in the HFTD. This description must highlight any differences between the inspection and maintenance of energized versus de-energized, abandoned, or other similarly situated transmission circuits.
    - For each de-energized, abandoned, or other similarly situated transmission circuit in the HFTD, SDG&E must list the frequency and type of asset and vegetation inspections performed, the remediation timeframe for each priority of condition identified during inspection, and any routine maintenance performed.
    - For any de-energized, abandoned, or other similarly situated transmission circuit in the HFTD that is not subject to the same frequency and/or type of inspection, condition remediation timeframe, or routine maintenance work as similar, energized circuits, SDG&E must provide its decision-making process for reaching this determination.

[13] Response to Data Request 10, Attachment 1.

[14] PacifiCorp, Idle Line Study.

- Outline any planned changes to the inspection and maintenance of de-energized, abandoned, or other similarly situated transmission circuits in the HFTD.

Discussed in: Section 8.2.1.7, Transmission Line Removal in the HFTD.

## SDGE-26B-13. Distribution Detailed Inspection Comparative Analysis

Summary: SDG&E performs less frequent distribution detailed inspections than other large electrical corporations (PG&E and SCE). SDG&E also demonstrates a significantly lower find rate of Level 2 conditions compared with other large electrical corporations' detailed inspections, and compared to its own risk-informed drone inspection find rates. Given that SDG&E performs detailed inspections on a 5-year interval, and that SDG&E only inspects 11 percent of its assets in the HFTD Tiers 2 and 3 per year via the risk informed drone inspection (RIDI) program, approximately 69 percent of SDG&E's assets in the HFTD are not subject to thorough inspection each year. Given the infrequency of SDG&E's thorough inspections, SDG&Es overhead distribution detailed inspections must effectively identify Level 2 conditions to reduce wildfire risk.

Requirements: In its next Base WMP, SDG&E must:

- Provide a comparative analysis of SDG&E's distribution RIDI and distribution Detailed Inspections. For each type of inspection, this analysis must include, at a minimum, a description, comparison, and evaluation of:
  - The training for the identification of GO 95 Rule 18 Level 1, 2, and 3 conditions that are provided to SDG&E's inspectors (including any contractor inspectors).
  - Job aids and reference material provided to SDG&E's inspectors.
  - Feedforward information provided to SDG&E's inspectors, e.g., expected issues on assets and equipment to be inspected.
  - Feedback information provided to SDG&E's inspectors, e.g., quality control on performed inspections.
  - The number and types of Level 1 and Level 2 conditions identified by SDG&E's inspections.
    - For any condition code where the risk-informed drone inspection find rate is more than 5 percent higher than the distribution detailed inspection find rate, SDG&E must discuss at least three potential reasons for the discrepancy and identify the most likely.
    - For any condition code where the risk-informed drone inspection find rate is more than 10 percent higher than the distribution detailed inspection find rate, SDG&E must provide its plan to adjust its distribution detailed inspection program to better identify such

findings. Adjustments may include changes to, or the creation of, training, job-aids, checklists, equipment and/or technology used for inspections. SDG&E must provide a brief discussion of each change. The plan must include milestones for implementation of the changes identified.

- If SDG&E elects to not adjust its detailed inspection program despite a 10 percent find rate discrepancy, SDG&E must provide its reasoning for this decision. This reasoning must include a discussion of the impact of this condition existing unaddressed on wildfire risk, potential adjustments that would improve SDG&E's detailed inspection's ability to detect the condition, and the feasibility of implementing such adjustments.

Discussed in: Section 8.2.2.1, Distribution Overhead Detailed Inspections.

## SDGE-26B-14. 2025 Distribution Infrared Inspection Data

Summary: In its 2026-2028 Base WMP, SDG&E discusses its decision to discontinue Infrared distribution inspections, citing low find rates, high costs and scheduling difficulties as the primary motivations.[15] SDG&E did not demonstrate its ability to consistently identify thermal conditions through alternate inspection programs or monitoring technologies in 2024.[16] SDG&E is targeting the completion of 300 infrared inspections in 2025 and must provide its inspection data and an analysis of that data for Energy Safety's review.

Requirements: In its next WMP Update, SDG&E must provide the following information and analysis for distribution infrared inspections completed in 2025:

- An evaluation of the optimal conditions and locations to perform the most effective infrared inspections. The evaluation must include at a minimum consideration of the electrical load and frequency of the electrical load on the lines SDG&E inspected, outside air temperature during the inspection, and research into other large electrical corporation's infrared inspection programs (such as PG&E's Transmission Infrared program).
- The number of distribution infrared inspections performed, find rate, and number of Level 1, Level 2, and Level 3 conditions identified.
- The structure ID, method of finding identification (thermal or visual), date of each infrared inspection resulting in a Level 1 or 2 finding, and the date of the most recently

[15] SDG&E, 2026-2028 WMP R2, Page 203.

[16] Response to Data Request 05, Question 04.

completed detailed ground and aerial inspection prior to the infrared inspection for each infrared Level 1 or 2 finding.

- The percentage of Level 1 and 2 infrared inspection findings SDG&E anticipates it would have identified and corrected through means other than infrared distribution inspections prior to asset failure. SDG&E must provide supporting documentation such as photographs and data analysis for this percentage calculation.
- A plan to identify and remediate thermal conditions in the HFTD/HFRA after discontinuing infrared inspections.

Discussed in: Section 8.2.2.5, Discontinued Inspection programs and Section 8.3.5, SDGE-25U-08 Distribution Infrared Inspections.

## SDGE-26B-15. Helicopter and Drone Transmission Inspections

Summary: SDG&E states that it is "considering the use of enhance inspection techniques" for transmission lines, including the utilization of helicopters and drones.[17] However, SDG&E does not provide additional detail on what such consideration entails, or set any qualitative or quantitative targets for the evaluation of these technologies.

Requirements: In its next WMP Update, SDG&E must provide the following:

- If no pilot testing is planned,
  - List all of the enhanced inspection techniques considered.
  - For each technique, discuss SDG&E's consideration process, the result of the consideration process, and why no pilot testing is planned.
- If any pilot testing is planned,
  - Provide a timeline including projected start and end dates for the planning, execution, and analysis phases of any transmission helicopter or drone inspection pilots.
  - Provide and explain the pilot scope, and how the pilot scope is selected to ensure SDG&E achieves usable outputs.
  - Define how SDG&E will determine the success of any pilots, and provide the criteria it will use to determine whether to permanently incorporate such technologies into its transmission inspection program.
- If SDG&E begins the use of enhance inspection techniques without any pilot testing,
  - Discuss how the inspection techniques have been or will be implemented.

[17] SDG&E, 2026-2028 WMP R2, Page 206.

- If the technologies are not rolled into existing inspection programs, provide the Activities (Tracking ID #s) and estimated number of inspections to be performed in 2027 and 2028.

Discussed in: Section 8.2.3, Equipment Maintenance and Repair.

## SDGE-26B-16. Transmission Asset Health Analysis

Summary: SDG&E has set a qualitative target to analyze transmission line equipment and potentially review and adjust replacement strategies.[18] A review and adjustment of its replacement strategies based on this analysis may further SDG&E's understanding of and help reduce the wildfire risk associated with transmission equipment failure.

Requirements: In its next Base WMP, SDG&E must:

- Provide a summary of the methodology used and results of its transmission health analysis.
- Provide a discussion of any changes made to its replacement strategies.

Discussed in: Section 8.2.3, Equipment Maintenance and Repair.

## SDGE-26B-17. Detailed Distribution Inspection Audits

Summary: In 2025, SDG&E modified its QA and QC program to audit five percent of its inspections that have no findings within one month of the inspection. SDG&E did not set any 2026-2028 targets associated with this program.

Requirements: In its next Base WMP, SDG&E must:

- Provide the actual pass rates from 2025 to 2027;
- Provide an analysis of the five most common reasons detailed inspections with no findings failed audits;
- If the actual pass rates from 2025 and 2026 are less than 95 percent, provide SDG&E's plan, including timelines and milestones, to improve the pass rate; and
- Set a pass rate target in *Table 8-1: Grid Design, Operations, and Maintenance Targets by Year* for audits of distribution detailed inspections with no findings that reflect SDG&E's observed maturity in 2025 and 2026, and drives quality improvements to its detailed distribution inspections.

Discussed in: Section 8.2.4, Quality Assurance and Quality Control and Section 8.3.4, SDGE-25U-07 Progress on Inspection QA/QC Program Change.

[18] SDG&E, 2026-2028 Base WMP R2, Page 156.

## SDGE-26B-18. Grid Hardening and Inspection Joint Studies

Summary: Large electrical corporations have continued progress on prior areas for continued improvement through the Joint IOU Grid Hardening Working Group. In response to area for continued improvement SDGE-25U-04, the electrical corporations submitted a comprehensive 2026–2028 update evaluating the effectiveness of key grid-hardening strategies, supported by field observations, degradation studies, and risk modeling results. To further mature and evolve the Grid Hardening Joint Study, Energy Safety has included inspection activities as part of the study. Inspection programs serve as the eyes on the ground, and drive grid hardening activities.

As the large electrical corporations have matured, their detailed distribution inspection programs have diverged. PG&E performs predominantly aerial inspections,[19] SCE performs combined aerial and ground inspections,[20] and SDG&E performs ground inspections. Given that most electric corporation assets are monitored through visual inspection[21,22,23] and only repaired or replaced when a condition is identified during an inspection,[24,25,26] it is critical that detailed distribution inspections effectively identify Level 1 and 2 conditions for remediation to minimize wildfire risk.

This collaborative effort must continue and be further strengthened through structured data sharing, targeted lessons learned, and evaluation of emerging technologies. Continued cross-utility analysis will ensure best practices are identified and implemented across jurisdictions, and that grid hardening investments are informed by robust cost-effectiveness, performance, and risk-reduction analyses.

Requirements: In its next Base WMP, SDG&E must continue collaboration with electrical corporations and provide an updated Joint IOU Grid Hardening Working Group Report. The electrical corporations must complete and provide a joint study report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base-WMPs), and include that report in their subsequent Base WMP submission. The report must include:

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[19] PG&E, Response to Data Request 05, Question 1; PG&E, Response to Data Request 19, Question 2.

[20] SCE, 2026-2028 Base WMP R2, Page 275.

[21] PG&E, 2026-2028 Base WMP R2, Pages 264-304.

[22] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[23] SDG&E 2026-2028 Base WMP R2, Pages 206-207.

[24] PG&E 2026-2028 Base WMP R2, Pages 264-304.

[25] SCE, 2026-2028 Base WMP R2, Pages 293-298.

[26] SDG&E 2026-2028 Base WMP R2, Pages 206-207.

- Undergrounding Applications: a joint evaluation of the wildfire and PSPS risk reduction of undergrounding efforts, inclusive of residual risks from service and secondary lines. This must include updated insights on supply chain issues, workforce management, permitting timelines, and new technologies (e.g., Ground-Level Distribution Systems, spider plow methods, fluid-free boring).
- Lessons Learned on Undergrounding Deployment: the incorporation of updated findings on labor and material usage, technological innovations, and cost management practices, particularly those that address high unit costs and scale variability.
- Protective Equipment and Device Settings: a continued evaluation of settings (e.g., downed conductor detection, partial voltage detection), including threshold variation across electrical corporations, effectiveness by equipment type, safety and reliability tradeoffs, and lessons learned.
- Technology Deployment: a joint analysis of REFCL. This must describe observed effectiveness and implementation feasibility across electrical corporations. Additionally, the analysis must include updated insights on supply chain issues (if any), technological innovations, and current capital and maintenance costs of REFCL.
- Distribution Detailed Inspection Benchmarking Study: a benchmarking study comparing SCE, PG&E and SDG&E's detailed inspection job-aids, training, procedures, and checklists. The large electric corporations must be able to provide all documentation created as part of this study upon request from Energy Safety.
    - As part of the benchmarking study, the large electrical corporations must, at a minimum:
        - Review and compare PG&E's Overhead Inspection Job Aid TD-2305M-JA02[27], PG&E's Electric Distribution Preventive Maintenance Manual TD-2305M[28], SCE's Distribution Inspection and Maintenance Program (DIMP)[29], SDG&E's detailed distribution inspection documentation, and any other documentation relevant to the execution of distribution detailed inspections.
        - Review and compare each large electrical corporation's detailed distribution inspector training programs, including any feedforward and feedback processes.
        - Evaluate how differences in each of the large electrical corporation's detailed inspection programs, including inspection procedures and

[27] PG&E, TD-2305M-JA02 Overhead Assessment.

[28] PG&E, Electric Distribution Preventive Maintenance Manual TD-2305M.

[29] SCE, DIMP Manual.

inspector training, could result in differences in their find rates for level 1 and level 2 conditions.

- Evaluate how differences in each of the large electrical corporation's detailed inspection programs, including procedures and inspector training, could result in differences in due dates assigned to similar level 2 conditions.
- Host at least one joint meeting to discuss differences identified between the detailed distribution inspection programs, and reasons for the differences. Each large electrical corporation must be able to provide the agenda, documenting the topics of discussions, or other similar documentation for the meetings, if requested by Energy Safety.
- Include in the joint study report, the results of the Distribution Detailed Inspection Benchmarking Study including:
  - The differences among SDG&E's, PG&E's, and SCE's detailed distribution inspection job-aids, training, procedures, and checklists, as identified during its evaluation of the large electrical corporation's inspection programs and reasons for the differences.
  - The methodology, result, and conclusions of the joint utility inspection benchmarking study.
  - The changes that SDG&E has made or plans to make to its detailed inspection job-aids, training, procedures, and checklists because of the benchmarking study.
    - If SDG&E elects to make no change to its detailed inspection portfolio after the benchmarking study, it must submit a white paper on its detailed distribution inspection program. The white paper must demonstrate the effectiveness of SDG&E's detailed inspections through conclusions supported by the benchmarking study.

SDG&E must demonstrate it is initiating the development of a trend analysis for its covered conductor program and sharing its structure, assumptions, and early findings with the Joint Working Group.

Discussed in: Section 8.2.1.4, Emerging Grid Hardening Technology Installations and Pilots; Section 8.2.2.1, Distribution Overhead Detailed Inspections; and Section 8.3.1, SDGE-25U-04 Continuation of Grid Hardening Joint Studies.

# Vegetation Management and Inspections

## SDGE-26B-19. Implementing Proactive HFTD Inspections

Summary: In its response to SDGE-23B-16, SDG&E conceptualized a condition-based approach using risk modeling to prioritize off-cycle HFTD vegetation management inspections. This condition-based approach may improve the efficiency of wildfire mitigation activities while lowering the probability that non-compliant vegetation goes undetected. By focusing SDG&E's vegetation management on HFTD locations with the greatest risk, the condition-based approach may also lower the risk of electrical-infrastructure-caused wildfire due to contact with vegetation.[30]

Requirements: In its next Base WMP, SDG&E must report on the following:

- The effectiveness of its condition-based approach in identifying areas within the HFTD that require inspections, including:
    - An effectiveness assessment comparing quality check compliance pass rates resulting from condition-based inspections to compliance pass rates resulting from conventional schedule-based inspections, and
    - A cost-benefit analysis comparing condition-based inspections to schedule-based inspections.
    - An interpretation of the effectiveness assessment and cost-benefit analysis that either justifies permanent implementation plans, or describes why SDG&E is forgoing plans to permanently implement a condition-based approach.
- Any plans to implement condition-based inspections on a permanent basis, including, but not limited to:
    - How SDG&E will share results from its condition-based inspection approach with other electrical corporations,
    - How SDG&E will perform quality checks to verify the effectiveness of its condition-based inspection approach, and
    - SDG&E's efforts to incorporate condition-based inspections into procedural documents.

Discussed in: Section 9.2.1.2, Off-Cycle Patrols and Section 9.3.1, SDGE-23B-16 Updates on Identifying Additional, Proactive HFTD Inspections.

[30] SDG&E, 2026-2028 Base WMP R2, Appendix D, Pages 44-47.

## SDGE-26B-20. Creating Wood and Slash Management Procedural Documents

Summary: In its 2026-2028 Base WMP, SDG&E does not reference any formal procedures that align with the wood and slash management activities described in Section 9.5 of its WMP.

Requirements: In its next Base WMP, SDG&E must provide formal, documented procedures for SDG&E's management of wood and slash that:

- Include procedural statements provided in Section 9.5 of its WMP; and
- Mitigate the impacts of leaving woody debris onsite, especially in regard to, but not limited to:
    - Blocking, hindering, or potentially blocking (e.g., rolling or blowing into) ingress or egress (roads, driveways, walkways, etc.),
    - Increasing fuel loads in close proximity to structures,
    - Impeding watercourses and drainages, and
    - Otherwise creating a hazard.

Discussed in: Section 9.2.3, Wood and Slash Management.

## SDGE-26B-21. Quantifying Enhanced Clearances Effectiveness

Summary: In its response to SDGE-23B-17, SDG&E stated that the data used in the Effectiveness of Enhanced Clearances Joint Study did not allow for analysis of the enhanced clearances combined with additional grid hardening measures.

Requirements: In its next Base WMP, SDG&E must report on its continued evaluation of the effectiveness of enhanced clearances. This report must include continued analysis for the following:

- Effectiveness of enhanced clearances on contact from vegetation ignition likelihood.
- Effectiveness of enhanced clearances on PEDS outage likelihood.
- Effectiveness of enhanced clearances on PSPS likelihood.
- Effectiveness of non-enhanced clearances on PEDS outage likelihood.
- Effectiveness of non-enhanced clearances on PSPS likelihood.
- The effectiveness of enhanced clearances in combination with other mitigations including, but not limited to: overhead system hardening (covered conductor and traditional hardening), pole and hardware replacement, situational awareness mitigations, and equipment settings to reduce wildfire risk (as defined in Section 8.7.1

of the WMP Guidelines[31]). This evaluation must include a comparison of cost-benefit ratios for each combination and how the combinations impact effectiveness for contact from vegetation ignition likelihood, PEDS outage likelihood, and PSPS likelihood.

- Barriers to making these calculations, limitations of these calculations, and assumptions required to make these calculations. This must also include,
    - A plan to overcome the described barriers, limitations, and assumptions for future iterations of these calculations.

Discussed in: Section 9.3.2, SDGE-23B-17 Continuation of Effectiveness of Enhanced Clearances Joint Study.

## SDGE-26B-22. Implementation of Enhanced Clearances Joint Study Recommendation

Summary: The results of the Effectiveness of Enhanced Clearances Joint Study include a list of recommendations for SDG&E to improve its data collection and vegetation management practices.

Requirements: In its next Base WMP, for each recommendation in Table 11-1,[32] SDG&E must demonstrate that it has implemented the recommendations by providing, at a minimum, documentation such as updated procedures documents, data collection forms, training materials, or other relevant documentation. SDG&E must be ready to provide additional documentation upon request by Energy Safety.

Discussed in: Section 9.3.2, SDGE-23B-17 Continuation of Effectiveness of Enhanced Clearances Joint Study

[31] WMP Guidelines, Pages 99-101.

[32] SDG&E, 2026-2028 Base WMP R2, Appendix D, Page 49.

# Appendix D.
# Public Comments

## Public Comments on the SDG&E 2026-2028 Base WMP

Energy Safety invited members of the public to provide comments on the SDG&E 2026-2028 Base WMP. The following individuals and organizations submitted comments:

- The Green Power Institute (GPI), on SDG&E 2026-2028 Base WMP R0
- Mussey Grade Road Alliance (MGRA), on SDG&E 2026-2028 Base WMP R0 and R1

Comments received on the SDG&E 2026-2028 Base WMP can be viewed in the 2026-2028 Base WMP (2026-2028-Base-WMPs) docket log.

Energy Safety concurred with and incorporated the following comment[s] into this Decision for the SDG&E 2026-2028 Base WMP:

- GPI commented that SDG&E should be ordered to provide adequate risk model documentation at a standard equivalent with other IOUs.
    - Energy Safety concurs and requires SDG&E to provide the documentation in the area for continued improvement SDGE-26B-06 Development of Substantive Model Documentation.
- GPI commented that electrical corporations should conduct a comprehensive comparison of risk-averse functions for essentially establishing a consequence sliding scale and modifying the safety, reliability, and affordability balance.
    - Energy Safety concurs and requires electrical corporations to collaborate and evaluate the impacts of risk scaling in the area for continued improvement SDGE-26B-01 Sensitivity Analysis for Risk Averse Scaling.
- GPI commented that SDG&E should endeavor to reduce the duration and scale of its PEDS outages and should consider sectionalizing as part of an overhead mitigation package.
    - Energy Safety concurs and requires SDG&E to complete a trend analysis to validate the wildfire risk reduction and outage mitigation benefits of its automation systems in area for continued improvement SDGE-26B-11 Installation of System Automation Equipment Trend Analysis.
- GPI commented that utilities should continue to exchange progress on and benchmark to overhead system risk mitigation methods, including IONA and Gridscope.

  - Energy Safety concurs and requires SDG&E to continue collaborations with electrical corporations in the area for continued improvement SDGE-26B-18 Continuation of Grid Hardening Joint Study.
- GPI commented that SDG&E and other utilities should develop wood and slash management program guidelines that support customer defensible space.
  - Energy Safety concurs and requires SDG&E to include formal wood and slash management procedures in its next Base WMP in the area for continued improvement SDG&E-26B-20 Creating Wood and Slash Management Procedural Document.
- MGRA commented that SDG&E should adopt a wind gust model based on fragility curves determined from outage rates rather than from arbitrary multipliers.
  - Energy Safety concurs and requires SDG&E to evaluate weather scenarios in the area for continued improvement SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios and SDGE-26B-04 Collaboration on Meteorological Scenarios.
- MGRA commented that Energy Safety should request additional information from SDG&E regarding its wind gust correction factor and ensure that any wind gust model corrects for the increase in outage rates as well as the increase in ignition probability given outage.
  - Energy Safety concurs and requires SDG&E to evaluate weather scenarios in the area for continued improvement SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios and SDGE-26B-04 Collaboration on Meteorological Scenarios.
- MGRA commented that SDG&E should be required to investigate other variables that may influence number of fatalities per structure, such as resident age, AFN status, and egress issues.
  - Energy Safety concurs and requires SDG&E to evaluate consequence variables such as AFN in the area for continued improvement SDGE-26B-02 Quantification of Wildfire Consequence Scaling Factors.
- MGRA commented that Energy Safety should require SDG&E to quantify how its egress model is incorporated into the WiNGS-Planning model.
  - Energy Safety concurs and requires SDG&E to evaluate consequence variables such as egress in the area for continued improvement SDGE-26B-02 Quantification of Wildfire Consequence Scaling Factors.
- MGRA commented that SDG&E should consider incorporating AFN weighting in its consequence models for the purposes of both mitigation and the protection of egress-limited communities.

  - Energy Safety concurs and requires SDG&E to evaluate consequence variables such as AFN in the area for continued improvement SDGE-26B-02 Quantification of Wildfire Consequence Scaling Factors.
- MGRA commented that Energy Safety should not permit utilizes to ignore guidance regarding extreme event planning scenarios.
  - Energy Safety concurs and requires SDG&E to evaluate weather scenarios in the area for continued improvement SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios and SDGE-26B-04 Collaboration on Meteorological Scenarios.
- MGRA commented that utilities should be at the least required to provide operational and contingency scenarios showing how they will be prepared to protect the public in the event of extreme events. Examples are 100+ year wind events and extreme extended drought.
  - Energy Safety concurs and requires SDG&E to evaluate weather scenarios in the area for continued improvement SDGE-26B-03 Further Evaluation of Climate Change Impact on Extreme Scenarios and SDGE-26B-04 Collaboration on Meteorological Scenarios.
- MGRA commented that SDG&E should provide additional information as to whether and why it may be choosing assets with lower baseline ignition rates than historical averages for its proposed 2026-2028 hardening portfolio.
  - Energy Safety concurs and requires SDG&E to provide an update of its planned grid hardening projects from 2027 to 2029 in the area for continued improvement SDGE-26B-08 Prioritization of Riskiest Areas.
- MGRA commented that SDG&E must provide a technical explanation and examples of how and why drivers with a lower fractional ignition reduction would be more likely to have larger consequences and therefore a lower risk reduction than ignition rate reduction.
  - Energy Safety concurs and added these requirements into the area for continued improvement SDGE-26B-06 Development of Substantive Model Documentation.
- MGRA commented that SDG&E should recalculate its wildfire reduction estimates using the ignition reduction effectiveness determined by SCE field data in its comparative analyses that include covered conductor, in addition to any reasonable local adjustments due to tree fall-in and SDG&E-specific technologies such as PEDS and FCD.
  - Energy Safety concurs and requires SDG&E to continue its analysis of its covered conductor mitigation effectiveness at the risk-driver level in the area for continued improvement SDGE-26B-18 Continuation of Grid Hardening Joint Study.

- MGRA commented that SDG&E should justify its projected $2M per mile capital costs for undergrounding.
    - Energy Safety concurs and requires SDG&E to incorporate updated findings related to high unit costs and scale variability in the area for continued improvement SDGE-26B-19 Continuation of Grid Hardening Joint Study.
- MGRA commented that SDG&E should provide documentation justifying its current prioritization or provide a new prioritization adequately mitigating high risk circuits.
    - Energy Safety concurs and requires SDG&E to provide an update of its planned grid hardening projects in the area for continued improvement SDGE-26B-08 Prioritization of Riskiest Areas.
- MGRA commented that SDG&E should continue to use ignition data rather than evidence-of-heat data, since the former correlates more readily with the likelihood of catastrophic wildfire.
    - Energy Safety concurs and requires SDG&E to collaborate with other electrical corporations for more consistent methodologies and evaluations of mitigation activity effectiveness in the area for continued improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates.
- MGRA commented that SDG&E should re-calculate its combined effectiveness based on FCP effectiveness for each individual risk driver rather than an average.
    - Energy Safety concurs and requires SDG&E to collaborate with other electrical corporations for more consistent methodologies and evaluations of mitigation activity effectiveness in the area for continued improvement SDGE-26B-07 Joint Study for Mitigation Activity Effectiveness Estimates.

# Public Comments on the Draft Decision for the SDG&E 2026-2028 Base WMP

This appendix will contain a summary of members of the public comments on Energy Safety's draft Decision for the SDG&E 2026-2028 Base WMP.

# Appendix E.
# Maturity Survey Results

The Energy Safety Electrical Corporation Wildfire Mitigation Maturity Model (Maturity Model) and 2025 Electrical Corporation Wildfire Mitigation Maturity Survey (Maturity Survey) together provide a quantitative method to assess electrical corporation wildfire risk mitigation capabilities and examine how electrical corporations propose to continuously improve in key areas of their WMP.

The Maturity Model consists of 38 individual capabilities, each relevant to an electrical corporation's ability to mitigate wildfire and PSPS risk within its service territory. Maturity levels range from 0 (below minimum requirements) to 4 (beyond best practice). The 38 capabilities are aggregated into seven categories. The seven categories are:

A. Risk Assessment and Mitigation Strategy
B. Situational Awareness and Forecasting
C. Grid Design, Inspections, and Maintenance
D. Vegetation Management and Inspections
E. Grid Operations and Protocols
F. Emergency Preparedness
G. Community Outreach and Engagement

SDG&E's responses to the Maturity Survey, listed by category, are depicted in the figure below.

*Figure E-1. SDG&E 2025 Responses to the Maturity Survey*

| | | 1. Capability | | | | 2. Capability | | | | 3. Capability | | | | 4. Capability | | | | 5. Capability | | | | 6. Capability | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2025 | 2026 | 2027 | 2028 | 2025 | 2026 | 2027 | 2028 | 2025 | 2026 | 2027 | 2028 | 2025 | 2026 | 2027 | 2028 | 2025 | 2026 | 2027 | 2028 | 2025 | 2026 | 2027 | 2028 |
| A. Risk Assessment and Mitigation Strategy | | 1. Statistical weather, climate, and wildfire modeling | | | | 2. Calculation of wildfire and PSPS hazard and exposure to societal values | | | | 3. Calculation of community vulnerability to wildfire and PSPS | | | | 4. Calculation of risk and risk components | | | | 5. Risk event tracking and integration of lessons learned | | | | 6. Risk-informed wildfire mitigation strategy | | | |
| | Minimum of Sub-Cap. | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 3.0 | 3.0 | 3.0 | 3.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | Average of Sub-Cap. | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.7 | 3.7 | 3.7 | 3.7 | 3.1 | 3.1 | 3.1 | 3.1 |
| B. Situational Awareness and Forecasting | | 7. Ignition likelihood estimation | | | | 8. Weather forecasting ability | | | | 9. Wildfire spread forecasting | | | | 10. Data collection for near-real-time conditions | | | | 11. Wildfire detection and alarm systems | | | | 12. Centralized monitoring of real-time conditions | | | |
| | Minimum of Sub-Cap. | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 3.0 | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | Average of Sub-Cap. | 3.2 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 | 3.1 | 3.1 | 2.7 | 2.7 | 2.7 | 2.7 | 3.6 | 3.6 | 3.6 | 3.6 | 4.0 | 4.0 | 4.0 | 4.0 | 3.4 | 3.4 | 3.4 | 3.4 |
| C. Grid Design, Inspections, and Maintenance | | 13. Asset inventory and condition database | | | | 14. Asset inspections | | | | 15. Asset maintenance and repair | | | | 16. Grid design and resiliency | | | | 17. Asset and grid personnel training and quality | | | | | | | |
| | Minimum of Sub-Cap. | 3.0 | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| | Average of Sub-Cap. | 3.8 | 3.8 | 3.8 | 3.8 | 4.0 | 4.0 | 4.0 | 4.0 | 2.8 | 2.8 | 2.8 | 2.8 | 3.2 | 3.2 | 3.2 | 3.2 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| D. Vegetation Management and Inspections | | 18. Vegetation inventory | | | | 19. Vegetation inspections | | | | 20. Vegetation treatment | | | | 21. Vegetation personnel training and quality | | | | 22. Best Management Practices for Transmission Rights-Of-Ways (ROWs) | | | | | | | |
| | Minimum of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | | | |
| | Average of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.3 | 3.3 | 3.3 | 3.3 | 3.0 | 3.0 | 3.0 | 3.0 | | | | |
| E. Grid Operations and Protocols | | 23. Protective equipment and device settings | | | | 24. Incorporation of ignition risk factors in grid control | | | | 25. PSPS operating model | | | | 26. Protocols for PSPS re-energization | | | | 27. Ignition prevention and suppression | | | | | | | |
| | Minimum of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| | Average of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| F. Emergency Preparedness | | 28. Wildfire and PSPS emergency & disaster preparedness plan | | | | 29. Collaboration and coordination with public safety partners | | | | 30. Public emergency communication strategy | | | | 31. Preparedness and planning for service restoration | | | | 32. Customer support in wildfire and PSPS emergencies | | | | 33. Learning after wildfires and PSPS events | | | |
| | Minimum of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| | Average of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.2 | 3.2 | 3.2 | 3.2 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| G. Community Outreach and Engagement | | 34. Public outreach and education awareness | | | | 35. Public engagement in electrical corporation wildfire mitigation planning | | | | 36. Engagement with AFN and socially vulnerable populations | | | | 37. Collaboration on local wildfire mitigation planning | | | | 38. Cooperation and best practice sharing with other electrical corporations | | | | | | | |
| | Minimum of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| | Average of Sub-Cap. | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |

# Appendix F. Definitions

Unless otherwise expressly stated, the following words and terms, for the purposes of this Decision, have the meanings shown in this chapter.

## Terms Defined in Other Codes

Where terms are not defined in this Decision and are defined in the Government Code, Public Utilities Code, or Public Resources Code, such terms have the meanings ascribed to them in those codes.

## Terms Not Defined

Where terms are not defined through the methods authorized by this section, such terms have ordinarily accepted meanings such as the context implies.

## Definition of Terms

| Term | Definition |
|---|---|
| **Access and functional needs population (AFN)** | Individuals, including, but not limited to, those who have developmental or intellectual disabilities, physical disabilities, chronic conditions, or injuries; who have limited English proficiency or are non-English speaking; who are older adults, children, or people living in institutionalized settings; or who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or are pregnant. (Gov. Code, § 8593.3(f)(1).) |
| **Asset (utility)** | Electric lines, equipment, or supporting hardware. |
| **Benchmarking** | A comparison between one electrical corporation's protocols, technologies used, or mitigations implemented, and other electrical corporations' similar endeavors. |
| **Burn likelihood** | The likelihood that a wildfire with an ignition point will burn at a specific location within the service territory based on a probabilistic set of weather profiles, vegetation, and topography. |

| Term | Definition |
|---|---|
| **Catastrophic wildfire** | A fire that caused at least one death, damaged over 500 structures, or burned over 5,000 acres. |
| **Circuit miles** | The total length in miles of separate transmission and/or distribution circuits, regardless of the number of conductors used per circuit (i.e., different phases). |
| **Circuit segment** | A specific portion of an electrical circuit that can be separated or disconnected from the rest of the system without affecting the operation of other parts of the network. This isolation is typically achieved using switches, circuit breakers, or other control mechanisms. |
| **Consequence** | The adverse effects from an event, considering the hazard intensity, community exposure, and local vulnerability. |
| **Contact from object ignition likelihood** | The likelihood that a non-vegetative object (such as a balloon or vehicle) will contact utility-owned equipment and result in an ignition. |
| **Contact from vegetation likelihood of ignition** | The likelihood that vegetation will contact utility-owned equipment and result in an ignition. |
| **Contractor** | Any individual in the temporary and/or indirect employ of the electrical corporation whose limited hours and/or time-bound term of employment are not considered “full-time” for tax and/or any other purposes. |
| **Critical facilities and infrastructure** | Facilities and infrastructure that are essential to public safety and that require additional assistance and advance planning to ensure resiliency during PSPS events. These include the following:<br>Emergency services sector:<br>• Police stations<br>• Fire stations<br>• Emergency operations centers |

| Term | Definition |
|---|---|
| | • Public safety answering points (e.g., 9-1-1 emergency services)<br><br>Government facilities sector:<br><br>• Schools<br>• Jails and prisons<br><br>Health care and public health sector:<br><br>• Public health departments<br>• Medical facilities, including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers, and hospice facilities (excluding doctors' offices and other non-essential medical facilities)<br><br>Energy sector:<br><br>• Public and private utility facilities vital to maintaining or restoring normal service, including, but not limited to, interconnected publicly owned electrical corporations and electric cooperatives<br>• Water and wastewater systems sector:<br>• Facilities associated with provision of drinking water or processing of wastewater, including facilities that pump, divert, transport, store, treat, and deliver water or wastewater<br><br>Communications sector:<br><br>• Communication carrier infrastructure, including selective routers, central offices, head ends, cellular switches, remote terminals, and cellular sites<br><br>Chemical sector:<br><br>• Facilities associated with manufacturing, maintaining, or distributing hazardous materials and chemicals (including Category N-Customers as defined in D.01-06-085)<br><br>Transportation sector: |

| Term | Definition |
|---|---|
| | • Facilities associated with transportation for civilian and military purposes: automotive, rail, aviation, maritime, or major public transportation<br><br>(D.19-05-042 and D.20-05-051) |
| **Customer hours** | Total number of customers, multiplied by average number of hours (e.g., of power outage). |
| **Dead fuel moisture** | The moisture content of dead organic fuels, expressed as a percentage of the oven dry weight of the sample, that is controlled entirely by exposure to environmental conditions. |
| **Detailed inspection** | In accordance with General Order (GO) 165, an inspection where individual pieces of equipment and structures are carefully examined, visually and through routine diagnostic testing, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each is rated and recorded. |
| **Disaster** | A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the following: human, material, economic, and environmental losses and impacts. The effect of the disaster can be immediate and localized but is often widespread and could last a long time. The effect may test or exceed the capacity of a community or society to cope using its own resources. Therefore, it may require assistance from external sources, which could include neighboring jurisdictions or those at the national or international levels. (United Nations Office for Disaster Risk Reduction [UNDRR].) |
| **Discussion-based exercise** | Exercise used to familiarize participants with current plans, policies, agreements, and procedures or to develop new plans, policies, agreements, and procedures. Often includes seminars, workshops, tabletop exercises, and games. |
| **Electrical corporation** | Every corporation or person owning, controlling, operating, or managing any electric plant for compensation within California, |

| Term | Definition |
|---|---|
| | except where the producer generates electricity on or distributes it through private property solely for its own use or the use of its tenants and not for sale or transmission to others. |
| **Emergency** | Any incident, whether natural, technological, or human caused, that requires responsive action to protect life or property but does not result in serious disruption of the functioning of a community or society. (FEMA/UNDRR.) |
| **Enhanced inspection** | Inspection whose frequency and thoroughness exceed the requirements of a detailed inspection, particularly if driven by risk calculations. |
| **Equipment caused ignition likelihood** | The likelihood that utility-owned equipment will cause an ignition through either normal operation (such as arcing) or failure. |
| **Exercise** | An instrument to train for, assess, practice, and improve performance in prevention, protection, response, and recovery capabilities in a risk-free environment. (FEMA.) |
| **Exposure** | The presence of people, infrastructure, livelihoods, environmental services and resources, and other high-value assets in places that could be adversely affected by a hazard. |
| **Fire hazard index** | A numerical rating for specific fuel types, indicating the relative probability of fires starting and spreading, and the probable degree of resistance to control; similar to burning index, but without effects of wind speed.[33] |
| **Fire potential index (FPI)** | Landscape scale index used as a proxy for assessing real-time risk of a wildfire under current and forecasted weather conditions. |
| **Fire season** | The time of year when wildfires are most likely for a given geographic region due to historical weather conditions, vegetative characteristics, and impacts of climate change. Each electrical corporation defines the fire season(s) across its service |

[33] Glossary of Wildland Fire.

| Term | Definition |
|---|---|
| | territory based on a recognized fire agency definition for the specific region(s) in California. |
| **Fireline intensity** | The rate of heat release per unit time per unit length of fire front. Numerically, it is the product of the heat yield, the quantity of fuel consumed in the fire front, and the rate of spread.[34] |
| **Frequency** | The anticipated number of occurrences of an event or hazard over time. |
| **Frequent PSPS events** | Three or more PSPS events per calendar year per line circuit. |
| **Fuel continuity** | The degree or extent of continuous or uninterrupted distribution of fuel particles in a fuel bed thus affecting a fire's ability to sustain combustion and spread. This applies to aerial fuels as well as surface fuels.[35] |
| **Fuel density** | Mass of fuel (vegetation) per area that could combust in a wildfire. |
| **Fuel management** | Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives.[36] |
| **Fuel moisture content** | Amount of moisture in a given mass of fuel (vegetation), measured as a percentage of its dry weight. |
| **Full-time employee (FTE)** | Any individual in the ongoing and/or direct employ of the electrical corporation whose hours and/or term of employment are considered “full-time” for tax and/or any other purposes. |
| **GO 95 nonconformance** | Condition of a utility asset that does not meet standards established by GO 95. |

[34] Glossary of Wildland Fire.

[35] Glossary of Wildland Fire.

[36] Glossary of Wildland Fire.

| Term | Definition |
|---|---|
| **Grid hardening** | Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors. |
| **Grid topology** | General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support PSPS (e.g., ability to deliver electricity from an additional source). |
| **Hazard** | A condition, situation, or behavior that presents the potential for harm or damage to people, property, the environment, or other valued resources. |
| **Hazard tree** | A tree that is, or has portions that are, dead, dying, rotten, diseased, or otherwise has a structural defect that may fail in whole or in part and damage utility facilities should it fail |
| **High Fire Threat District (HFTD)** | Areas of the state designated by the CPUC as having elevated wildfire risk, where each utility must take additional action (per GO 95, GO 165, and GO 166) to mitigate wildfire risk. (D.17-01-009.) |
| **High Fire Risk Area (HFRA)** | Areas that the electrical corporation has deemed at high risk from wildfire, independent of HFTD designation. |
| **Highly rural region** | Area with a population of less than seven persons per square mile, as determined by the United States Bureau of the Census. For purposes of the WMP, “area” must be defined as a census tract. |
| **High-risk species** | Species of vegetation that (1) have a higher risk of either coming into contact with powerlines or causing an outage or ignition, or (2) are easily ignitable and within close proximity to potential arcing, sparks, and/or other utility equipment thermal failures. The status of species as “high-risk” must be a function of species-specific characteristics, including growth rate; failure rates of limbs, trunk, and/or roots (as compared to other species); height at maturity; flammability; and vulnerability to disease or insects. |

| Term | Definition |
|---|---|
| **High wind warning (HWW)** | Level of wind risk from weather conditions, as declared by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University archive of NWS watches/warnings. |
| **HWW overhead (OH) circuit mile day** | Sum of OH circuit miles of utility grid subject to a HWW each day within a given time period, calculated as the number of OH circuit miles under a HWW multiplied by the number of days those miles are under said HWW. For example, if 100 OH circuit miles are under a HWW for one day, and 10 of those miles are under the HWW for an additional day, then the total HWW OH circuit mile days would be 110. |
| **Ignition likelihood** | The total anticipated annualized number of ignitions resulting from electrical corporation-owned assets at each location in the electrical corporation's service territory. This considers probabilistic weather conditions, type and age of equipment, and potential contact of vegetation and other objects with electrical corporation assets. This should include the use of any method used to reduce the likelihood of ignition. For example, the use of protective equipment and device settings (PEDS) to reduce the likelihood of an ignition upon an initiating event. |
| **Incident command system (ICS)** | A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. |
| **Initiative activity** | See mitigation activity. |
| **Initiative construction standards** | The standard specifications, special provisions, standards of practice, standard material and construction specifications, construction protocols, and construction methods that an electrical corporation applies to activities undertaken by the electrical corporation pursuant to a WMP initiative in a given compliance period. |
| **Level 1 finding** | In accordance with GO 95, an immediate safety and/or reliability risk with high probability for significant impact. |

| Term | Definition |
|---|---|
| **Level 2 finding** | In accordance with GO 95, a variable safety and/or reliability risk (non-immediate and with high to low probability for significant impact). |
| **Level 3 finding** | In accordance with GO 95, an acceptable safety and/or reliability risk. |
| **Limited English proficiency (LEP) population** | Population with limited English working proficiency based on the International Language Roundtable scale. |
| **Line miles** | The number of miles of transmission and/or distribution conductors, including the length of each phase and parallel conductor segment. |
| **Live fuel moisture content** | Moisture content within living vegetation, which can retain water longer than dead fuel. |
| **Locally relevant** | In disaster risk management, generally understood as the cope at which disaster risk strategies and initiatives are considered the most effective at achieving desired outcomes. This tends to be the level closest to impacting residents and communities, reducing existing risks, and building capacity, knowledge, and normative support. Locally relevant scales, conditions, and perspectives depend on the context of application. |
| **Match-drop simulation** | Wildfire simulation method forecasting propagation and consequence/impact based on an arbitrary ignition. |
| **Memorandum of Agreement (MOA)** | A document of agreement between two or more agencies establishing reciprocal assistance to be provided upon request (and if available from the supplying agency) and laying out the guidelines under which this assistance will operate. It can also be a cooperative document in which parties agree to work together on an agreed-upon project or meet an agreed objective. |
| **Mitigation** | Undertakings to reduce the loss of life and property from natural and/or human-caused disasters by avoiding or lessening the impact of a disaster and providing value to the public by creating |

| Term | Definition |
|---|---|
| | safer communities. Encompasses mitigation categories, mitigation initiatives, and mitigation activities within the WMP. |
| **Mitigation activity** | A measure that contributes to or accomplishes a mitigation initiative designed to reduce the consequences and/or probability of wildfire or outage event. For example, covered conductor installation is a mitigation activity under the mitigation initiative of Grid Design and System Hardening. |
| **Mitigation category** | The highest subset in the WMP mitigation hierarchy. There are five Mitigation Categories in total: Grid Design, Operations, and Maintenance; Vegetation Management and Inspections; Situational Awareness and Forecasting; Emergency Preparedness; and Enterprise Systems. Contains mitigation initiatives and any subsequent mitigation activities. |
| **Mitigation initiative** | Efforts within a mitigation category either proposed or in process, designed to reduce the consequences and/or probability of wildfire or outage event. For example, Asset Inspection is a mitigation initiative under the mitigation category of Grid Design, Operations, and Maintenance. |
| **Model uncertainty** | The amount by which a calculated value might differ from the true value when the input parameters are known (i.e., limitation of the model itself based on assumptions).[37] |
| **Mutual aid** | Voluntary aid and assistance by the provision of services and facilities, including but not limited to electrical corporations, communication, and transportation. Mutual aid is intended to provide adequate resources, facilities, and other support to an electrical corporation whenever its own resources prove inadequate to cope with a given situation. |
| **National Incident Management System (NIMS)** | A systematic, proactive approach to guide all levels of government, nongovernment organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. NIMS |

[37] Adapted from: Substantiating a Fire Model for a Given Application.

| Term | Definition |
|---|---|
| | provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. NIMS provides a consistent foundation for dealing with all incidents, ranging from daily occurrences to incidents requiring a coordinated federal response. |
| **Operations-based exercise** | Type of exercise that validates plans, policies, agreements, and procedures; clarifies roles and responsibilities; and identifies resource gaps in an operational environment. Often includes drills, functional exercises (FEs), and full-scale exercises (FSEs). |
| **Outage program risk** | The measure of reliability impacts from wildfire mitigation related outages at a given location. |
| **Overall utility risk** | The comprehensive risk due to both wildfire and PSPS incidents across a utility's territory; the aggregate potential of adverse impacts to people, property, critical infrastructure, or other valued assets in society. |
| **Overall utility risk, PSPS risk** | See Outage program risk. |
| **Parameter uncertainty** | The amount by which a calculated value might differ from the true value based on unknown input parameters. (Adapted from Society of Fire Protection Engineers [SFPE] guidance.) |
| **Patrol inspection** | In accordance with GO 165, a simple visual inspection of applicable utility equipment and structures designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. |
| **Performance metric** | A quantifiable measurement that is used by an electrical corporation to indicate the extent to which its WMP is driving performance outcomes. |
| **Population density** | Population density is calculated using the American Community Survey (ACS) one-year estimate for the corresponding year or, for |

| Term | Definition |
|---|---|
| | years with no such ACS estimate available, the estimate for the immediately preceding year. |
| **Preparedness** | A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response. Within the NIMS, preparedness focuses on planning, procedures and protocols, training and exercises, personnel qualification and certification, and equipment certification. |
| **Priority essential services** | Critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water electrical corporations/agencies. |
| **Property** | Private and public property, buildings and structures, infrastructure, and other items of value that may be destroyed by wildfire, including both third-party property and utility assets. |
| **Protective equipment and device settings (PEDS)** | The electrical corporation's procedures for adjusting the sensitivity of grid elements to reduce wildfire risk, other than automatic reclosers (such as circuit breakers, switches, etc.). For example, PG&E's "Enhanced Powerline Safety Settings" (EPSS). |
| **PEDS outage consequence** | The total anticipated adverse effects from an outage occurring while increased sensitivity settings on a protective device are enabled at a specific location, including reliability and associated safety impacts. |
| **PEDS outage exposure potential** | The potential physical, social, or economic impact of an outage occurring when PEDS are enabled on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets. |
| **PEDS outage likelihood** | The likelihood of an outage occurring while increased sensitivity settings on a protective device are enabled at a specific location given a probabilistic set of environmental conditions. |
| **PEDS outage risk** | The total expected annualized impacts from PEDS enablement at a specific location. |

| Term | Definition |
|---|---|
| **PEDS outage vulnerability** | The susceptibility of people or a community to adverse effects of an outage occurring when PEDS are enabled, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the related adverse effects (e.g., high AFN population, poor energy resiliency, low socioeconomics). |
| **PSPS consequence** | The total anticipated adverse effects of a PSPS for a community. This considers the PSPS exposure potential and inherent PSPS vulnerabilities of communities at risk. |
| **PSPS event** | The period from notification of the first public safety partner of a planned public safety PSPS to re-energization of the final customer. |
| **PSPS exposure potential** | The potential physical, social, or economic impact of a PSPS event on people, property, critical infrastructure, livelihoods, health, local economies, and other high-value assets. |
| **PSPS likelihood** | The likelihood of an electrical corporation requiring a PSPS given a probabilistic set of environmental conditions. |
| **PSPS risk** | The total expected annualized impacts from PSPS at a specific location. This considers two factors: (1) the likelihood a PSPS will be required due to environmental conditions exceeding design conditions, and (2) the potential consequences of the PSPS for each affected community, considering exposure potential and vulnerability. |
| **PSPS vulnerability** | The susceptibility of people or a community to adverse effects of a PSPS event, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the adverse effects of a PSPS event (e.g., high AFN population, poor energy resiliency, low socioeconomics). |
| **Public safety partners** | First/emergency responders at the local, state, and federal levels; water, wastewater, and communication service providers; community choice aggregators (CCAs); affected publicly owned electrical corporations/electrical cooperatives; tribal |

| Term | Definition |
|---|---|
| | governments; Energy Safety; the Commission; the California Office of Emergency Services; and CAL FIRE. |
| **Qualitative target** | Specific, measurable, achievable, realistic, and timely outcomes for the overall WMP strategy, or mitigation initiatives and activities that a utility can implement to satisfy the primary goals and subgoals of the WMP program. |
| **Quantitative target** | A forward-looking, quantifiable measurement of work to which an electrical corporation commits to in its WMP. Electrical corporations will show progress toward completing targets in subsequent reports, including data submissions and WMP Updates. |
| **RFW OH circuit mile day** | Sum of OH circuit miles of utility grid subject to RFW each day within a given time period, calculated as the number of OH circuit miles under RFW multiplied by the number of days those miles are under said RFW. For example, if 100 OH circuit miles are under RFW for one day, and 10 of those miles are under RFW for an additional day, then the total RFW OH circuit mile days would be 110. |
| **Risk** | A measure of the anticipated adverse effects from a hazard considering the consequences and frequency of the hazard occurring. [38] |
| **Risk component** | A part of an electric corporation's risk analysis framework used to determine overall utility risk. |
| **Risk evaluation** | The process of comparing the results of a risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable. (ISO 31000:2009.) |

[38] Adapted from: Introduction to International Disaster Management.

| Term | Definition |
|---|---|
| **Risk event** | An event with probability of ignition, such as wire down, contact with objects, line slap, event with evidence of heat generation, or other event that causes sparking or has the potential to cause ignition. The following all qualify as risk events:<br>• Ignitions<br>• Outages not caused by vegetation<br>• Outages caused by vegetation<br>• Wire-down events<br>• Faults<br>• Other events with potential to cause ignition |
| **Risk management** | Systematic application of management policies, procedures, and practices to the tasks of communication, consultation, establishment of context, and identification, analysis, evaluation, treatment, monitoring, and review of risk. (ISO 31000.) |
| **Rule** | Section of Public Utilities Code requiring a particular activity or establishing a particular threshold. |
| **Rural region** | In accordance with GO 165, area with a population of less than 1,000 persons per square mile, as determined by the U.S. Bureau of the Census. For purposes of the WMP, "area" must be defined as a census tract. |
| **Seminar** | An informal discussion, designed to orient participants to new or updated plans, policies, or procedures (e.g., to review a new external communications standard operating procedure). |
| **Sensitivity analysis** | Process used to determine the relationships between the uncertainty in the independent variables ("input") used in an analysis and the uncertainty in the resultant dependent variables ("output"). (SFPE guidance.) |

| Term | Definition |
|---|---|
| **Situational Awareness** | An on-going process of gathering information by observation and by communication with others. This information is integrated to create an individual's perception of a given situation.[39] |
| **Slash** | Branches or limbs less than four inches in diameter, and bark and split products debris left on the ground as a result of utility vegetation management. [40] |
| **Span** | The space between adjacent supporting poles or structures on a circuit consisting of electric lines and equipment. "Span level" refers to asset-scale granularity. |
| **Tabletop exercise (TTX)** | A discussion-based exercise intended to stimulate discussion of various issues regarding a hypothetical situation. Tabletop exercises can be used to assess plans, policies, and procedures or to assess types of systems needed to guide the prevention of response to, or recovery from a defined incident. |
| **Trees with strike potential** | Trees that could either, in whole or in part, “fall in” to a power line or have portions detach and “fly in” to contact a power line in high-wind conditions. |
| **Uncertainty** | The amount by which an observed or calculated value might differ from the true value. For an observed value, the difference is “experimental uncertainty”; for a calculated value, it is “model” or “parameter uncertainty.” (Adapted from SFPE guidance.) |
| **Urban region** | In accordance with GO 165, area with a population of more than 1,000 persons per square mile, as determined by the U.S. Bureau of the Census. For purposes of the WMP, “area” must be defined as a census tract. |

[39] Glossary of Wildland Fire.

[40] Pub. Res. Code § 4525.7.

| Term | Definition |
|---|---|
| **Utility-related ignition** | An event that meets the criteria for a reportable event subject to fire-related reporting requirements.[41] |
| **Validation** | Process of determining the degree to which a calculation method accurately represents the real world from the perspective of the intended uses of the calculation method without modifying input parameters based on observations in a specific scenario. (Adapted from ASTM E 1355.) |
| **Vegetation management (VM)** | The assessment, intervention, and management of vegetation, including pruning and removal of trees and other vegetation around electrical infrastructure for safety, reliability, and risk reduction. |
| **Verification** | Process to ensure that a model is working as designed, that is, that the equations are being properly solved. Verification is essentially a check of the mathematics. (SFPE guidance.) |
| **Vulnerability** | The propensity or predisposition of a community to be adversely affected by a hazard, including the characteristics of a person, group, or service and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of a hazard. |
| **Wildfire consequence** | The total anticipated adverse effects from a wildfire on a community that is reached. This considers the wildfire hazard intensity, the wildfire exposure potential, and the inherent wildfire vulnerabilities of communities at risk. |
| **Wildfire exposure potential** | The potential physical, social, or economic impact of wildfire on people, property, critical infrastructure, livelihoods, health, environmental services, local economies, cultural/historical resources, and other high-value assets. This may include direct or indirect impacts, as well as short- and long-term impacts. |

[41] D.14-02-015, page C-3.

| Term | Definition |
|---|---|
| **Wildfire hazard intensity** | The potential intensity of a wildfire at a specific location within the service territory given a probabilistic set of weather profiles, vegetation, and topography. |
| **Wildfire likelihood** | The total anticipated annualized number of fires reaching each spatial location resulting from utility-related ignitions at each location in the electrical corporation service territory. This considers the ignition likelihood and the likelihood that an ignition will transition into a wildfire based on the probabilistic weather conditions in the area. |
| **Wildfire mitigation strategy** | Overview of the key mitigation initiatives at enterprise level and component level across the electrical corporation's service territory, including interim strategies where long-term mitigation initiatives have long implementation timelines. This includes a description of the enterprise-level monitoring and evaluation strategy for assessing overall effectiveness of the WMP. |
| **Wildfire risk** | The total expected annualized impacts from ignitions at a specific location. This considers the likelihood that an ignition will occur, the likelihood the ignition will transition into a wildfire, and the potential consequences—considering hazard intensity, exposure potential, and vulnerability—the wildfire will have for each community it reaches. |
| **Wildfire spread likelihood** | The likelihood that a fire with a nearby but unknown ignition point will transition into a wildfire and will spread to a location in the service territory based on a probabilistic set of weather profiles, vegetation, and topography. |
| **Wildfire vulnerability** | The susceptibility of people or a community to adverse effects of a wildfire, including all characteristics that influence their capacity to anticipate, cope with, resist, and recover from the adverse effects of a wildfire (e.g., AFN customers, Social Vulnerability Index, age of structures, firefighting capacities). |
| **Wildland-urban interface (WUI)** | The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels (National Wildfire Coordinating Group). |

| Term | Definition |
|---|---|
| **Wire down** | Instance where an electric transmission or distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object. |
| **Work order** | A prescription for asset or vegetation management activities resulting from asset or vegetation management inspection findings. |
| **Workshop** | Discussion that resembles a seminar but is employed to build specific products, such as a draft plan or policy (e.g., a multi-year training and exercise plan). |