State of California – A Natural Resources Agency
Gavin Newsom, Governor

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Caroline Thomas Jacobs, Director

February 5, 2026

Sumeet Singh
Chief Executive Officer and Executive Vice President, Energy Delivery
Pacific Gas and Electric Company

Subject: Enclosed is the Office of Energy Infrastructure Safety's Decision for the Pacific Gas and Electric Company 2026-2028 Base Wildfire Mitigation Plan

Mr. Singh:

Enclosed is the Decision of Office of Energy Infrastructure Safety approving the Pacific Gas and Electric Company (PG&E) 2026-2028 Base Wildfire Mitigation Plan (2026-2028 Base WMP).

On November 26, 2025, Energy Safety published a draft of this Decision for public review and comment.

Opening comments on the draft Decision were due on December 17, 2025, and reply comments were due on December 30, 2025.

Energy Safety considered the comments received in its final evaluation. A summary of these comments and any corresponding changes can be found in Appendix D. In addition to these changes, Energy Safety made non-substantive changes to correct typographical errors in the text.

If PG&E seeks to align its approved 2026-2028 Base WMP with a California Public Utilities Commission decision in a general rate case (GRC) proceeding, it must submit a petition to amend its 2026-2028 Base WMP within 45 days of the CPUC's Decision. See Energy Safety's WMP Guidelines for further instructions and criteria for submitting a petition to amend.[1]

Sincerely,

/s/ Tony Marino

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

[1] WMP Guidelines, Chapter 4 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58026&shareable=true).

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

DECISION

PACIFIC GAS AND ELECTRIC COMPANY
2026-2028 BASE WILDFIRE MITIGATION PLAN

February 5, 2026

1. Executive Summary

The Pacific Gas and Electric Company (PG&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 PG&E 2026-2028 Base WMP, dated September 9, 2025.

In whole, PG&E's planned actions set in its 2026-2028 Base WMP will reduce wildfire risk.

PG&E is planning the use of new technologies, such as implementation of machine learning models to gain insights into the health of its assets so that they can be proactively repaired or replaced. PG&E has updated procedures, such as adding a second annual maintenance cycle to its pole clearing program, which will shorten the time between clearings and minimize the amount of vegetation under electric poles that is susceptible to ignition.

PG&E is also making progress on reducing its backlog of equipment open work orders. PG&E has increased the amount of work being done to close work orders while maintaining its rate of issue identification. In 2020, PG&E closed approximately 13,000 Level 1 and 2 distribution asset work orders, increasing to 53,000 closed in 2024. For 2026, PG&E targets closing 134 percent of the count of work orders opened in 2025, which would further decrease the backlog of open work orders.

There are, however, areas where PG&E must improve. PG&E is lacking basic documentation on some new or newly updated programs, such as Aerial Scan Inspections and Vegetation Management Routine Distribution Patrol. PG&E is also lacking sufficient analysis to explain its decisions on some inspection types, such as the reduction of Distribution Infrared Inspections and the long inspection cycle for transmission switches. Areas for continued improvement have been identified for these and other issues in this Decision and PG&E must make progress for future WMPs.

Energy Safety expects PG&E to continue its collaboration with other electrical corporations to share lessons learned, establish best practices, standardize procedures, and explore new methods and technologies.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

2. Introduction

Energy Safety approves the Pacific Gas and Electric Company (PG&E) 2026-2028 Base Wildfire Mitigation Plan (2026-2028 Base WMP), Revision 2, which includes revisions resulting from the Revision Notice and previously submitted errata.

PG&E submitted its 2026-2028 Base WMP on April 4, 2025. PG&E submitted a revised 2026-2028 Base WMP on July 28, 2025. This Base WMP covers a three-year period from 2026 through the end of 2028 (the WMP cycle). PG&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 PG&E and Energy Safety. Information regarding the submission types can be found in the Energy Safety WMP Guidelines.

- March 7, 2025 – PG&E submitted its 2026-2028 Base WMP Pre-Submission
- March 21, 2025 - Energy Safety issued the Pre-Submission Check Sufficiency Determination for the PG&E 2026-2028 Base WMP Pre-Submission
- April 4, 2025 – PG&E submitted its 2026-2028 Base WMP
- April 18, 2025 – PG&E submitted its 2026 Maturity Survey
- April 18, 2025 – PG&E submitted Substantive Errata for its 2026-2028 Base WMP
- May 16, 2025 – PG&E submitted Non-substantive Errata for its 2026-2028 Base WMP
- June 27, 2025 - Energy Safety issued a Revision Notice for the PG&E 2026-2028 Base WMP
- July 28, 2025 – PG&E submitted the Revision Notice Response and 2026-2028 Base WMP R1
- September 9, 2025 – PG&E submitted Non-Substantive Errata, Revision Notice Response R1, and 2026-2028 Base WMP R2
- December 30, 2025 – PG&E submitted Non-Substantive Errata and 2026-2028 Base WMP R3

In accordance with the Energy Safety Policy Division Process Guidelines, on August 15, 2025, PG&E requested and was granted permission to submit three substantive errata 10 business days after its Revision Notice Response submission. PG&E ultimately submitted these errata on September 9, 2025, but as non-substantive errata. Energy Safety disagrees that these are non-substantive errata. The errata correcting the risk reduction percentages in Tables 8-1 and

9-2 materially impacted Energy Safety's evaluation of PG&E's 2026-2028 Base WMP.[1] Energy Safety has reviewed the errata and accepts them as substantive errata.

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 PG&E 2026-2028 Base WMP submitted pursuant to Public Utilities Code section 8386.3(d).

2.3.1 Comments on the PG&E 2026-2028 Base WMP

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

- Green Power Institute (GPI)
- Mussey Grade Road Alliance (MGRA)
- Rural County Representatives of California (RCRC)
- The Utility Reform Network (TURN)

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.

2.3.2 Comments on the PG&E Revision Notice Response and Revised 2026-2028 Base WMP

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

- Mussey Grade Road Alliance
- The Utility Reform Network

[1] Errata items 7, 9, and 10, PG&E Revision Notice Response Errata R1, Attachment 1.

Energy Safety considered all comments prior to issuing this Decision. Appendix D contains a summary of comments on the PG&E Revision Notice Response and revised 2026-2028 Base WMP that Energy Safety concurred with and incorporated into this Decision.

2.3.3 Comments on the Draft Energy Safety Decision for the PG&E 2026-2028 Base WMP

Energy Safety invited members of the public to provide comments on the draft Energy Safety Decision for the PG&E 2026-2028 Base WMP (published for comment on November 26, 2025). The following individuals and organizations submitted comments:

- Pacific Gas and Electric Company
- Mussey Grade Road Alliance
- The Utility Reform Network

Energy Safety considered all comments prior to issuing this Decision. Appendix D contains a summary of 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.[2] 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 from electrical corporations and stakeholders on potential changes. Energy Safety plans to

[2] Examples of State Environmental Requirements

issue a WMP submission schedule and to revise its WMP Guidelines to reflect the changes and new requirements.

3. Introductory Sections of the WMP

PG&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

PG&E provided the required information[3] regarding projected expenditures in accordance with Chapter III, Section 3.6 of the WMP Guidelines. PG&E provided additional information regarding projected expenditure in accordance with the Energy Safety Data Guidelines.[4] Table 4-1 presents a summary of PG&E's WMP expenditures by category and compared to California's other large electrical corporations: Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E). Figure 4-1 presents PG&E's expenditures for covered conductor, undergrounding, and asset inspections, Figure 4-2 presents PG&E's expenditures for vegetation management and inspections, and Figure 4-3 presents PG&E's expenditures for customer support in wildfire and PSPS emergencies and grid improvements to mitigate PSPS events.

Figure 4-1: Large IOU Territory-Wide Expenditures per Initiative Category

WMP Initiative Category	PG&E		SCE		SDG&E		Grand Total	% of IOUs Grand Total
	Total Territory	% of PG&E Grand Total	Total Territory	% of SCE Grand Total	Total Territory	% of SDG&E 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%**

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

[4] Data Guidelines, pages 165-167.

Figure 4-2: PG&E Grid Design, Operations, and Maintenance Projected Expenditures in the HFTD by Year

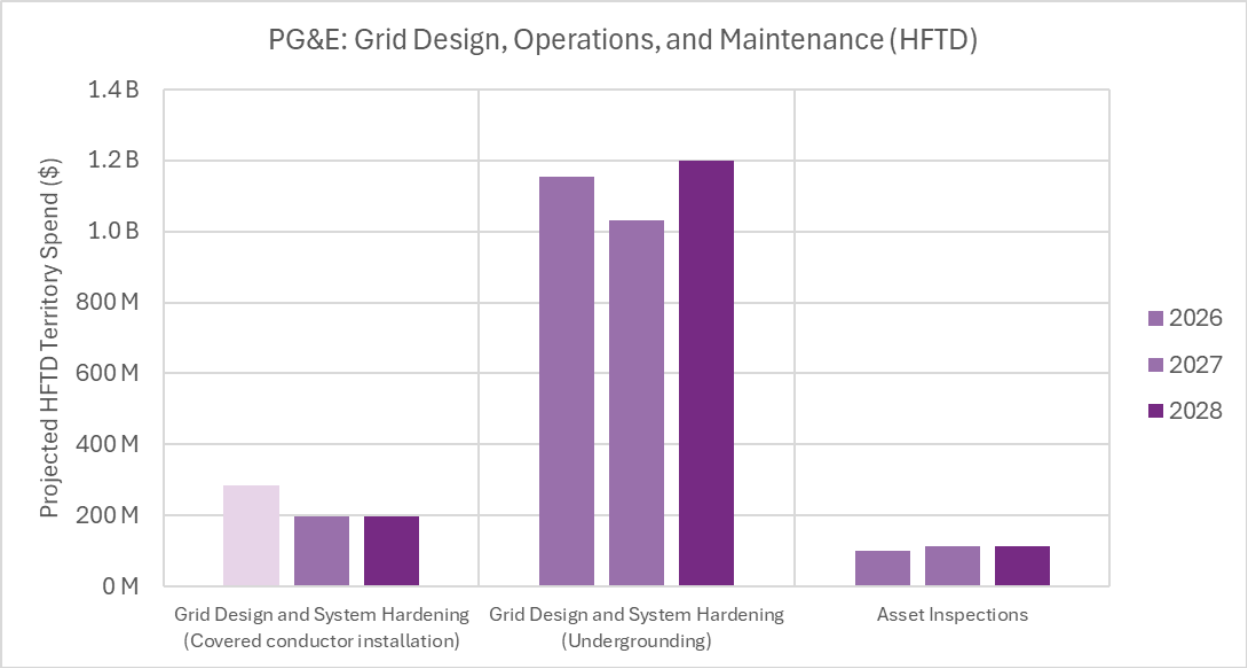


Figure 4-3: PG&E Vegetation Management and Inspection Projected Expenditures in the HFTD by Year

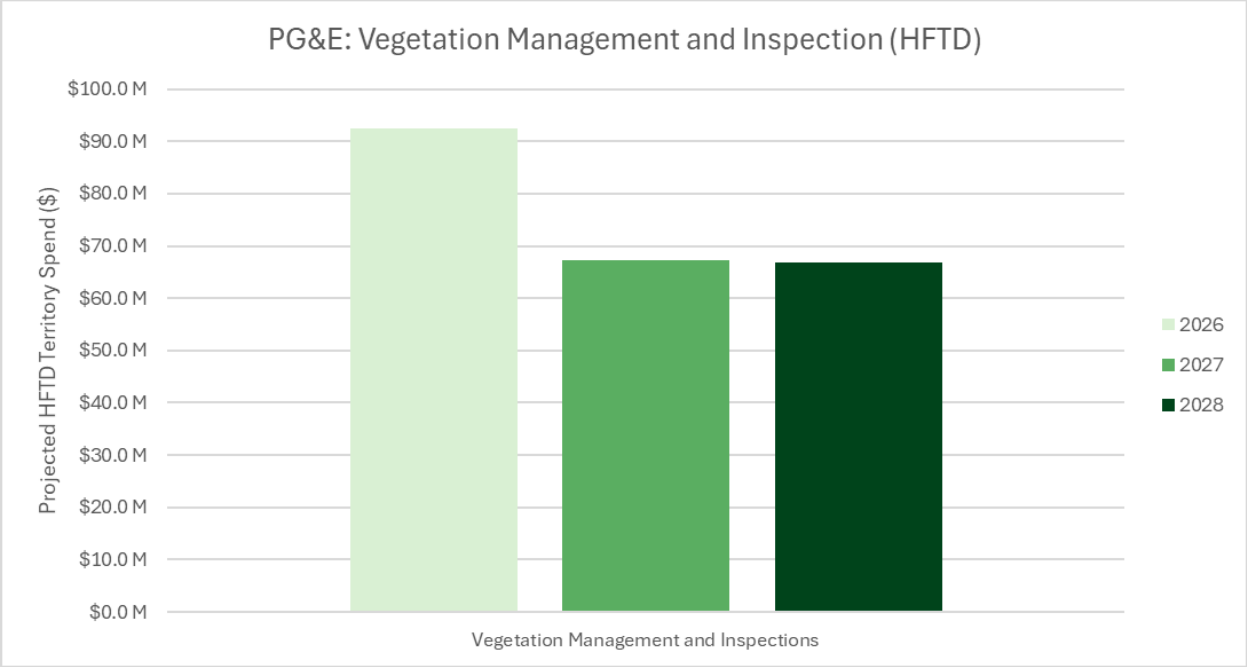
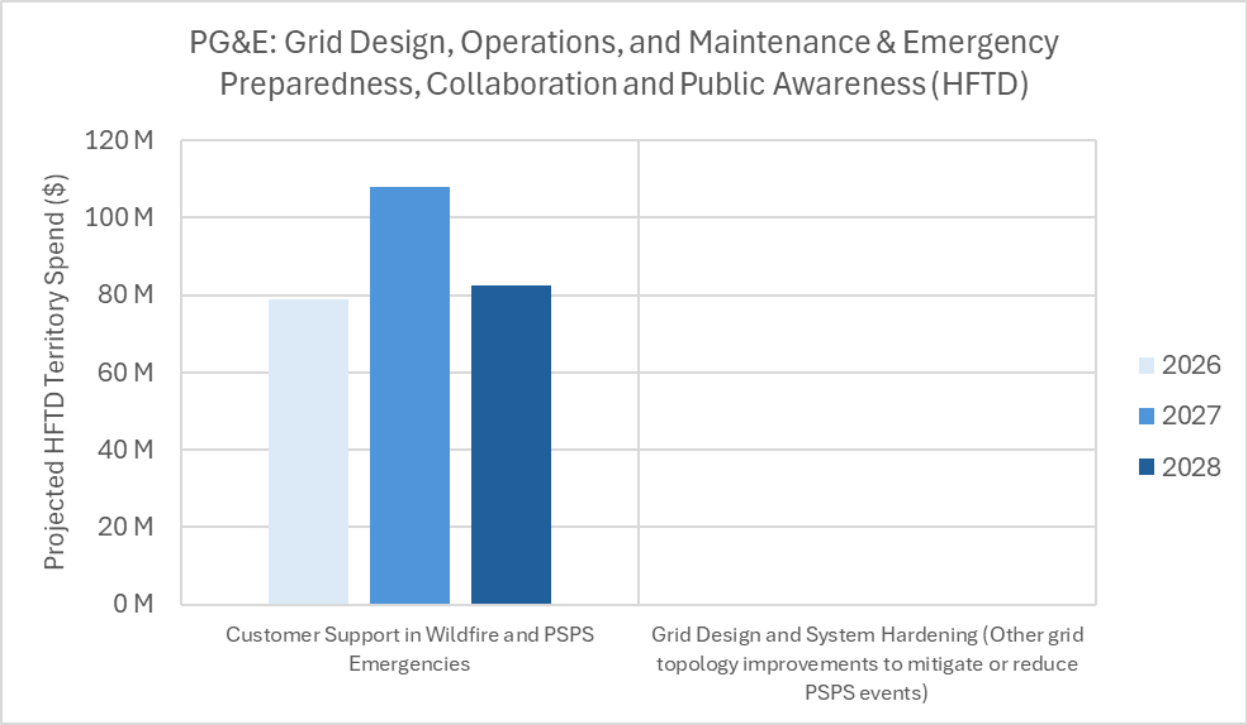


Figure 4-4: PG&E Customer Support in Wildfire and PSPS Emergencies and Grid Improvements to Mitigate PSPS Events Projected Expenditures in the HFTD by Year



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).[5] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

5.1 Discussion

PG&E's demonstrates continued progress in its risk methodology and assessment. PG&E's risk modeling capabilities have grown with successive iterations; its Wildfire Distribution Risk Model (WDRM) is in its fourth version, and its Wildfire Transmission Risk Model (WTRM) is in its second version.[6] The fourth version of the WDRM improves over the previous version by increasing granularity by moving multiple equipment models to be asset-based, including longer fire simulation durations, and adding additional sub-models for vegetation and avian hazards.[7] In December 2024, PG&E received re-certification to International Organization for Standardization (ISO) 55001 for conforming with the international standard for asset management, which includes standards for risk identification and analysis.

PG&E has also incrementally improved transparency into its risk models by providing substantive documentation in its 2026-2028 Base WMP on how it performs a quantitative risk assessment.

PG&E shows ambition to achieve a high standard of risk identification. In order to continue these efforts, PG&E should refine its asset age estimates, its incorporation of climate change impacts, and its incorporation of egress and suppression in its wildfire consequence modeling.

5.1.1 Risk Analysis Framework

Transmission Age Estimates

PG&E may be overestimating transmission asset age in its risk analysis framework, producing potentially inaccurate high-risk estimates from its model. In PG&E's WTRM v2, where PG&E

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

[6] 2026-2028 Base WMP: Vol 1 R3, p. 50.

[7] 2025 WMP Update R1, p. 6-15.

does not have an asset's age, PG&E uses "the most conservative age of the asset"[8] as an estimated value in place of the missing actual asset age. By doing so, PG&E admits that some equipment risk could be overestimated.[9] A third-party review conducted by PG&E's contractor E3 found that conservative age estimate in the Transmission Composite Model, a base component of WTRM v2, "could be a leading cause of some of the relatively high-risk estimates that [WTRM] is producing."[10] Overestimation of asset age may result in PG&E inefficiently directing resources toward assets that may not actually pose the highest risks.

As PG&E considers and implements the recommendations from the third-party model review, Energy Safety will continue monitoring PG&E's transmission age assumptions and the impact those assumptions have on risk model outputs.

5.1.2 Risk Scenarios

PG&E's consideration of extreme weather scenarios has not progressed from its previous Base WMP. In its 2023-2025 Base WMP, PG&E reported that it is analyzing how to incorporate climate-driven extreme weather scenarios into its risk model, referencing research that was published in 2022.[11] PG&E refers to the same ongoing analysis in its 2026-2028 Base WMP and does not demonstrate any progress since its previous WMP.[12] PG&E has not put forth a plan for its study of the research, has not defined any objectives for its study, and has not provided any preliminary findings.

PG&E has not shown that it is advancing its understanding of climate change's impact on extreme weather scenarios. As such, PG&E must continue to evaluate the impact of climate change on extreme weather scenarios and report the findings in its next Base WMP. Requirements are set forth in Section 5.4, PGE-26B-01 "Further Evaluation of climate change Impact on Extreme Weather Scenarios."

5.1.3 Quality Assurance and Quality Control

While PG&E's risk models development process involves internal and external reviews, PG&E has not demonstrated adequate quality assurance for several factors in its consequence risk model. The factors include proxies to incorporate ingress and egress, and suppression into the model.[13] These factors have a large impact on wildfire consequence. However, PG&E does not demonstrate that: (1) the proxies for these factors are appropriate, (2) these factors

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[8] 2026-2028 Base WMP: Vol 1 R3, p. 79.

[9] 2026-2028 Base WMP: Vol 1 R3, p 79.

[10] Response to Data Request 001 Q21, Attachment 1: E3 Review of PG&E's Wildfire Risk Model Version 4, p. 12.

[11] 2023-2025 Base WMP R8, p. 193.

[12] 2026-2028 Base WMP: Vol 1 R3, p. 90.

[13] 2026-2028 Base WMP: Vol 1 R3, p. 56.

improve its consequence risk model's accuracy, (3) PG&E is appropriately weighing these new factors, and (4) PG&E has properly validated these new additions. Overall, PG&E has not demonstrated that these additions lead to an accurate understanding of risk on its system.

PG&E has not demonstrated how the proxies it uses are appropriate and fully account for ingress and egress, and suppression. PG&E uses the number of Access and Functional Needs (AFN) customers as a proxy for ingress and egress.[14] For suppression, PG&E uses terrain difficulty index (TDI) as a proxy.[15] PG&E discusses how these proxies are correlated with ingress and egress, and suppression factors, but does not explain how using the AFN and TDI proxies can fully account for ingress and egress, and suppression, respectively. Modeling those factors is extremely difficult and dependent on many additional inputs. For example, AFN does not consider the number of roads leading out of a community; and TDI does not consider the proximity and availability of suppression resources.

PG&E describes these new factors as "significant upgrades,"[16] however, PG&E has not provided the transparency necessary to determine if it is properly weighing the ingress and egress, and suppression factors against the many other wildfire risk factors in its consequence risk model.

PG&E also does not demonstrate how it validates the ingress and egress, and suppression factors. When discussing validation of these factors, PG&E primarily demonstrates the alignment of the model's output with the behavior of the Dixie Fire.[17] Showing alignment with a single event is not sufficient to validate the outputs of a model. Validation of a model output requires, at minimum, a comparison against multiple events that represent a variety of underlying conditions.

PG&E must increase transparency into the methods it uses to account for population demographics and suppression impacts, and collaborate with other electrical corporations to benchmark the calculation of wildfire consequence while considering social vulnerability, suppression resources, and infrastructure. Requirements are set forth in Section 5.4, PGE-26B-02 "Quantification of Wildfire Consequence Scaling Factors."

5.2 Previous Areas for Continued Improvement

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

[14] WFC v4 Documentation, p. 8.

[15] WFC v4 Documentation, p. 7.

[16] WDRM v4 Documentation p. 7.

[17] WFC v4 Documentation, p. 18.

areas for continued improvement, PG&E's response to those requirements, and Energy Safety's evaluation of the response.

5.2.1 PG&E-25U-01. Outage to Ignition Risk Analysis

For this area for continued improvement, Energy Safety required PG&E to provide an update on its work incorporating the evaluation of ignition likelihood based on various outage types.[18]

5.2.1.1 PG&E-25U-01. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that the WDRM v4 Probability of Ignition model differentiates ignition likelihood for various outage types.[19] Each outage type (e.g., transformer, primary conductor, vegetation branches and trunks) has a separate ignition likelihood calculation.[20]

Specifically, WDRM v4 introduced "event cause" and "equipment type" to the Probability of Ignition Given Outage model.[21, 22] PG&E states that the introduction of "event cause" and "equipment type" improves performance "for causal pathways that share underlying characteristics for weather and fuels."[23]

PG&E provides a table that shows the correlation between the inputs to the Probably of Ignition Given Outage model and the Probability of Outage model. [24]

5.2.1.2 PG&E-25-01. Energy Safety Evaluation

PG&E provided the required update on ignition likelihood. PG&E's table showing the relationship between its Probability of Ignition Given Outage and Probability of Outage models provides greater transparency into how it uses its risk models to understand ignitions and outage risk.

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

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[18] Decision on PG&E 2025 WMP Update, p. 60.

[19] 2026-2028 Base WMP: Vol 1 R3, p. 570.

[20] 2026-2028 Base WMP: Vol 1, R2, p. 571.

[21] The Probability of Ignition Given Outage model, p(i|o), is used to calculate the chance that an outage caused by a given asset or at a given location will lead to an ignition. The Probability of Ignition Given Outage model is a component of the ignition likelihood calculation. (2026-2028 Base WMP: Vol 1 R2, pp. 60-61.)

[22] 2026-2028 Base WMP: Vol 1 R3, p. 570.

[23] 2026-2028 Base WMP: Vol 1 R3, p. 570.

[24] 2026-2028 Base WMP: Vol 1 R3, p. 570.

5.2.2 PG&E-23B-03. Incorporation of Extreme Weather Scenarios in Planning Models

For this area for continued improvement, Energy Safety required PG&E to report on progress developing statistical estimates of potential wind events over the maximum life of assets in its system.[25]

5.2.2.1 PG&E-23B-03. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it has developed statistical estimates of potential wind events over the maximum asset life for its system and that the estimates are integrated into WTRM.[26]

5.2.2.2 PG&E-23B-03. Energy Safety Evaluation

PG&E responded that it understands extreme weather scenarios and tail risk for its transmission-level risk, but it has not conducted the analysis for its distribution-level risk model.[27] PG&E must understand the risks presented by potential extreme weather scenarios on both its transmission and distribution systems to ensure it can account for the impact of extreme weather on all of its assets.

PG&E did not fully respond to PG&E-23B-03 and must collaborate with other electrical corporations to develop a standardized methodology for evaluating the impact of extreme event scenarios. The requirements for progress are set forth in Section 5.4, PGE-26B-03 "Collaboration on Meteorological Scenarios."

5.3 Revision Notice Critical Issues

Energy Safety issued PG&E a Revision Notice for its 2026-2028 Base WMP. This section evaluates PG&E's response to that Revision Notice as it relates to risk methodology and assessment.

5.3.1 RN-PGE-26-02. Project Prioritization Is Not Properly Represented

Energy Safety required PG&E to revise its tables of top risk circuit segments to align with how it prioritizes WMP activities based on risk-per-mile.[28]

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[25] Decision on PG&E 2025 WMP Update, p. 60.

[26] 2026-2028 Base WMP: Vol 1 R3, p. 572.

[27] 2026-2028 Base WMP: Vol 1 R3, p. 572.

[28] Revision Notice for PG&E 2026-2028 Base WMP, p. 6.

5.3.1.1 RN-PGE-26-02. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E updated Tables 5-5 and 6-4 to represent the risk per primary overhead mile.[29]

5.3.1.2 RN-PGE-26-02. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

5.4 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.

5.4.1 PGE-26B-01. Further Evaluation of Climate Change Impact on Extreme Scenarios

Summary: Many large electrical corporations and SMJUs, including PG&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.

Requirements: In its next Base WMP, PG&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 implementing mitigations. This report must include identification of variables impacted by climate change and how those variables impact risk 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 and as directed by Energy Safety, PG&E must contribute to discussions and reports on topics such as how the joint study

[29] Revision Notice Response R1, pp. 3 and 6.

impacted PG&E's risk modeling efforts and how PG&E plans to implement any changes and findings discussed regarding climate change.

Discussed in: Section 5.1.3 Risk Scenarios

5.4.2 PGE-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 a 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 or BLF (building loss factor) 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.

Requirements: In its next WMP Update, PG&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 these methods impact overall risk.

In its next Base WMPs, PG&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 5.1.6 Quality Assurance and Quality Control

5.4.3 PGE-26B-03. Collaboration on Meteorological Scenarios

Summary: The weather scenarios used by the large electrical corporations and SMJUs in the calculation of probability and consequences 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.

Requirements: In its next Base WMP, PG&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 with the adopted Monte Carlo simulation method within the consequence risk model account for extreme weather that are not included within the referenced historical period. For example, demonstrate how PG&E is matching the distribution of predicted fire size with historical distributions with significant tail risks.
- Collaborate with other electrical corporations via participation in the Risk Modeling Working Group (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 5.2.2 PG&E-23B-03: Incorporation of Extreme Weather Scenarios in Planning Models

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

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.[30] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

6.1 Discussion

PG&E demonstrates a commitment to a comprehensive approach to its wildfire mitigation strategy. PG&E uses operational models to inform the deployment of operational mitigations like Public Safety Power Shutoff (PSPS) and Enhanced Powerline Safety Settings (EPSS), and planning models to identify the areas of highest risk to target permanent mitigations at those locations.[31] PG&E states that it layers multiple types of mitigations to reduce as much wildfire risk as possible, and monitors the gaps in those layers with programs such as its Ignitions Investigations team, which uses forensic analysis to inform its preventative efforts.[32]

In its analysis of wildfire and outage risk, PG&E shows that while PSPS and EPSS can mitigate the majority of its wildfire risk, there are trade-offs with reliability impacts.[33] PG&E's ability to clearly quantify risks and weigh the trade-offs has improved from its last base WMP submission. PG&E prioritizes overall utility risk, a combination of ignition and outage program risk, to plan its grid hardening activities, as it acknowledges PSPS is a method of last resort.[34] This demonstrates increased maturity it its wildfire mitigation strategy as it pursues a comprehensive and long term strategy to wildfire risk.

To continue improvement of its wildfire mitigation strategy, PG&E should refine its ability to understand mitigation effectiveness, provide further clarity in its cost benefit analysis, and further its understanding of risk scaling functions on its decision making.

6.1.1 Risk Evaluation

PG&E uses effectiveness values as part of its risk evaluation approach to inform its wildfire mitigation strategy. Effectiveness values are calculated to quantify the effect an activity has

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

[31] 2026-2028 Base WMP: Vol 1 R3, p. 115.

[32] 2026-2028 Base WMP: Vol 1 R3, p. 122.

[33] 2026-2028 Base WMP: Vol 1 R3, p. 136.

[34] 2026-2028 Base WMP: Vol 1 R3, p. 135.

on a specific risk. For example, PG&E calculates that covered conductor is 67 percent effective against wildfire risk.[35] Understanding the effectiveness of each mitigation activity and comparing it against the cost is necessary to ensure that PG&E is efficiently using its resources.

PG&E provides effectiveness values for only a portion of its mitigation activities. Of the eleven activities listed in Table 6-3, which shows the risk impact (including effectiveness values) of the activities proposed in the WMP, PG&E only provides effectiveness values for covered conductor, undergrounding, PSPS, and EPSS.[36] PG&E is still working on calculating effectiveness values for other mitigation activities because PG&E is in the process of developing and refining its Wildfire Benefit Cost Analysis (WBCA) tool which calculates effectiveness values at the circuit segment level.[37]

In its next WMP Update, PG&E must improve its ability to determine the effectiveness of its mitigation activities. Requirements for are set forth in Section 6.5, PGE-26B-04 "Inclusion of Additional Mitigation Activity Effectiveness Values."

Collaboration with other large electrical corporations and SMJUs will help standardize the way effectiveness values are calculated by the different entities, which will improve transparency for mitigation selection. PG&E must collaborate with SCE, SDG&E, PacifiCorp, Liberty, and BVES to determine consistent methodologies and evaluations for mitigation activity effectiveness. Requirements for improvement are set forth in PGE-26B-05 "Joint Study for Mitigation Activity Effectiveness Estimates."

6.1.2 Wildfire Mitigation Strategy

6.1.2.1 Cost-Benefit Ratio Threshold

PG&E does not provide adequate explanation of its CBR threshold used for mitigation selection with respect to selecting undergrounding instead of overhead hardening.[38]

In PG&E's 2026-2028 Base WMP, PG&E provided the decision tree and process for how it scopes its system hardening projects.[39] The decision tree show that when PG&E analyzes the cost of undergrounding for a particular project, it compares the CBR of undergrounding to the CBR of overhead hardening.[40] PG&E's process indicates that it may select undergrounding

[35] 2026-2028 Base WMP: Vol 1 R3, p. 152.

[36] 2026-2028 Base WMP: Vol 1 R3, p. 152.

[37] 2026-2028 Base WMP: Vol 1 R3, p. 191.

[38] Overhead hardening typically consists of covered conductor in conjunction with Enhanced Powerline Safety Settings (collectively, CC+EPSS).

[39] 2026-2028 Base WMP: Vol 1 R3, pp. 187-189.

[40] 2026-2028 Base WMP: Vol 1 R3, p. 188.

over CC+EPSS even when the undergrounding CBR is within 50 to 100 percent of the CBR of CC+EPSS.[41] If the cost of undergrounding is twice as much as CC+EPSS or the risk reduction is half as much as CC+EPSS, PG&E would still select undergrounding. PG&E has not adequately supported its 50 percent threshold.

PG&E has not provided an adequate analysis that explains its 50 percent CBR threshold for undergrounding. Energy Safety previously issued a Revision Notice, part of which required PG&E to explain its 50 percent cost-benefit threshold.[42] In its Revision Notice Response, PG&E states that the 50 percent is in line with the Association for the Advancement of Cost Engineers (AACE) "Class 5" estimate.[43] Class 5 estimates are used for concept screening when a project is 0 to 2 percent defined.[44] PG&E notes that Class 5 estimates can vary from -50 percent to +100 percent when compared to a project's final cost.[45] A Class 5 estimate is not necessarily the appropriate type of estimate here. Class 5 estimates are typically used for strategic planning and deals with "ballpark estimates."[46] Decision-making for undergrounding and CC+EPSS projects should not fall under this type of cost estimates that is based on limited information. PG&E has had many years of experience with undergrounding and covered conductor projects and it is unclear how it cannot provide better than a Class 5 estimate (instead of, for example, a Class 4 estimate, which has an accuracy range of -20 percent to +30 percent).[47]

PG&E also only considers one side of the AACE estimate range. PG&E includes the -50 percent threshold to account for when costs of undergrounding might be overestimated, but does not address the +100 percent end of the AACE estimate where undergrounding costs may be underestimated. Consideration of only the -50 percent threshold may lead to selecting undergrounding projects that end up requiring double the cost analyzed during the scoping.

PG&E also states that the inclusion of CBR into its decision-making framework is in anticipation of the 10-year Electrical Undergrounding Plan (EUP) and that it intends to file an EUP.[48] Energy Safety will review PG&E's undergrounding decision-making against the applicable guidelines in the EUP evaluation.

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[41] 2026-2028 Base WMP: Vol 1 R3, p. 188.

[42] Revision Notice for PG&E 2023-2025 Base WMP, pp. 6-7.

[43] Revision Notice Response R1, pp. 9-10.

[44] MGRA Comments on Revision Notice Response, p. 8.

[45] Revision Notice Response R1, p. 9.

[46] MGRA Comments on Revision Notice Response, p. 8.

[47] MGRA Comments on Revision Notice Response, p. 8.

[48] Revision Notice Response R1, p. 8.

6.1.2.2 Net Benefit and Risk Scaling

PG&E's Net Benefit analysis may obfuscate its decision making when used with risk scaling.

PG&E provides a second economic analysis as part of its support for its mitigation selection process. In addition to the CBR, PG&E performs a "Net Benefit" analysis.[49] Net Benefit is calculated as the benefits minus the costs over the lifespan of the asset.[50] Unlike CBR, Net Benefit is not defined through the Risk-Based Decision-Making Framework (RDF) established by the California Public Utilities Commission (CPUC), [51] and does not have regulatorily defined parameters, meaning there is less transparency on how PG&E is calculating and using Net Benefit. While it is useful for PG&E to perform multiple economic analyses to determine the most resource efficient mitigation, PG&E's use of Net Benefit may obfuscate its decision making if used with risk scaling functions.

When evaluating risk, PG&E employs a risk-averse Risk Attitude Function to weight low frequency, high consequence events.[52] These risk scaling functions may have significant impacts on quantified benefits of mitigations. In Net Benefit, the cost is subtracted from the benefit, whereas in CBR, the benefit is divided by the cost which reduces the total impact of the scaled risk values; therefore, weighting is amplified in Net Benefit compared to CBR. If PG&E continues to use multiple economic analyses and risk-averse scaling, it must understand those analyses without the influence of risk-averse scaling, and it must demonstrate the overall impact of applying risk scaling functions on its decision-making. While Net Benefit analysis can supplement CBR analysis by providing additional insights into the benefits of mitigations, scaling factors may exaggerate Net Benefit values in a way that overemphasizes certain mitigation activities.

PG&E must collaborate with other electrical corporations to establish what attributes are appropriate to apply scaling functions and to complete a sensitivity analysis to determine how risk-averse approaches affect mitigation selection. Requirements are set forth in Section 5.4, PGE-26B-06 "Sensitivity Analysis for Risk Averse Scaling or Approach."

6.1.2.3 Additional Factors in Risk Models

In PG&E's system hardening scoping decision tree, its analysis[53] includes two decision-making thresholds: tree strike potential and ingress and egress concerns.[54] PG&E already

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[49] Revision Notice Response R1, pp. 8-9.

[50] Revision Notice Response R1, p. 9.

[51] CPUC Rulemaking 20-07-013.

[52] 2026-2028 Base WMP: Vol 1 R3, p. 46.

[53] PG&E uses the hybrid analysis to determine whether to undergrounding a portion of a CPZ. 2026-2028 Base WMP: Vol 1, p. 188.

[54] 2026-2028 Base WMP: Vol 1 R3, p. 188.

considers these factors in its risk models, but PG&E lacks confidence in the risk model's ability to accurately capture these factors, requiring them to be separately considered again. Ideally, PG&E's risk models should fully capture vegetation risk and ingress and egress concerns during the consideration of these factors within the models without a second consideration of the same factors outside of the risk models. In addition, PG&E did not demonstrate progress in integrating community vulnerability into its risk modeling. PG&E must improve in how it incorporates community vulnerability into its risk modeling.

PG&E lacks confidence in its risk models' ability to accurately represent vegetation risk and ingress and egress concerns, which, according to PG&E, necessitates the inclusion of separate thresholds in its decision-making process for these factors. These thresholds are depicted as decision nodes in the grid hardening scoping decision tree, which sets forth PG&E's decision-making process. For example, if there are six or more trees with strike potential along the circuit segment, that circuit segment will be set to "underground preferred".[55]

PG&E states that the WDRM vegetation risk values are "generalized representations of strike risk" and do not account for additional vegetation grown after January 2023.[56] PG&E states the tree strike potential threshold is intended to capture current and location-specific vegetation data not included in the WDRM vegetation risk values.[57] With respect to ingress and egress concerns, PG&E states that its existing risk model "lacks sufficient granular detail for fully understanding ingress and egress factors."[58]

PG&E must improve its risk models' ability to capture vegetation risk and ingress and egress concerns. The decision tree thresholds outside of the risk models do not allow these factors to be appropriately weighed against the multiple other factors within the risk model. The thresholds also create multiple avenues to arrive at an undergrounding solution and some of the thresholds are not well defined (e.g., "concerns express[ed] by [Public Safety Specialist] team"[59]). PG&E must improve its ability to capture vegetation and ingress and egress risks in a transparent and balanced manner. Better incorporation of these risks in its risk models will lead to better grid hardening scoping decisions.

Additionally, PG&E did not demonstrate progress in its integration of community vulnerability into its risk modeling. When describing advancements made since the previous Base WMP, PG&E only discusses additional PSPS consequence modeling and integration of ingress and egress.[60] PG&E did not consider population factors such as poverty or access to

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[55] 2026-2028 Base WMP: Vol 1 R3, p. 188.

[56] Revision Notice Response R1, pp. 12-13.

[57] Revision Notice Response R1, p. 12.

[58] Revision Notice Response R1, p. 14.

[59] 2026-2028 Base WMP: Vol 1 R3, p. 188.

[60] 2026-2028 Base WMP: Vol 1 R3, p. 57 and WDRM v4 Documentation p. 1.

transportation. Consideration of these and other population factors will provide insight into the consequence of wildfire on all vulnerable communities, not just AFN population. PG&E must capture these and other population factors in its risk models to improve integration of community vulnerability into its decision-making.

In its next WMP Update, PG&E must present a plan to improve its capabilities for modeling tree strike potential, ingress and egress concerns, and community vulnerability. Requirements are set forth in Section 6.5, PGE-26B-07 "Integration of Additional Factors into Risk Models."

6.2 Previous Areas for Continued Improvement

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

6.2.1 PG&E-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 PG&E to continue collaborating with other electrical corporations, including participating in Energy Safety-organized activities relating to best practices for climate change forecasts, community vulnerability, and vegetation management.[61]

6.2.1.1 PG&E-25U-02. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E reports that it collaborates with other electrical corporations through monthly meetings focused on WMP-related topics.[62] PG&E also states that it will continue participating in Energy Safety-organized activities related to best practices for climate change forecasts, community vulnerability, and vegetation management.[63]

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[61] Decision on PG&E 2025 WMP Update, p. 61.

[62] 2026-2028 Base WMP: Vol 1 R3, pp. 574-575.

[63] 2026-2028 Base WMP: Vol 1 R3, p. 575.

6.2.1.2 PG&E-25U-02. Energy Safety Evaluation

PG&E has demonstrated that it has met the requirements.

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

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 PGE-26B-04. Inclusion of Additional Mitigation Activity Effectiveness Values

Summary: In Table 6-3, PG&E provides mitigation effectiveness values for four of the eleven activities in the table. These values are necessary to determine whether wildfire mitigation activities are appropriately selected and cost-effective. PG&E must update the table with effectiveness values for all activities.

Requirements: In its next WMP Update, PG&E must provide an updated Table 6-3 that includes effectiveness value calculations for all activities in the table. Where PG&E is unable to calculate an activity's effectiveness value, PG&E must estimate an effectiveness value and explain the barriers to calculating the effectiveness value.

Discussed in: Section 6.1.1 Risk Evaluation

6.3.2 PGE-26B-05. Joint Study for Mitigation Activity Effectiveness Estimates

Summary: The large electrical corporations, PacifiCorp, and Liberty 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. In addition, the effectiveness for mitigations in combination with covered conductor, including FCP and EFD, are rough estimates, lacking a proper evaluation of overlapping and added benefits.

Requirements: In its next Base WMP, PG&E must collaborate with SCE, SDG&E, PacifiCorp, and Liberty to determine more consistent methodologies and evaluations of mitigation activity effectiveness. PG&E, in collaboration with SCE, SDG&E, PacifiCorp, and Liberty 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 its subsequent Base WMP submission. The report must cover the following topics and summary:

- What type of data to use for determining mitigation activity effectiveness. This topic must include discussions of the following:
    - How to share available data across electrical corporations,
    - Evaluation of all mitigation activities performed by the collaborating IOUs listed out with the current effectiveness estimates being used, including shortcomings for any mitigation activities that do not currently have effectiveness values calculated,
    - Evaluation of the use of ignition vs. outage vs. other data for evaluating ignition risk, including a comparison of benefits and weakness,
    - 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 for translating data into probability of ignition.
- How mitigation activities are effective against various risk drivers are measured. This topic must include reporting on completion of the following:
    - Synchronization among collaborating IOUs on ways to calculate effectiveness of various mitigation activities against various risk drivers, including benefits and weaknesses of currently used approaches.
    - 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 the collaborating IOUs.
- How to evaluate mitigation activities in combination. This topic must include reporting on completion of the following:
    - Synchronization among collaborating IOUs on potential combinations to calculate 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 current efforts across the collaborating IOUs.

PG&E 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 Risk Evaluation

6.3.3 PGE-26B-06. Sensitivity Analysis for Risk Averse Scaling or Approach

Summary: PG&E employs a risk-averse scaling function to modify wildfire and PSPS consequence risk scores. PG&E accounts for tail risk by employing a risk-adverse Risk Attitude Function to weight low-frequency, high consequence events. 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, PG&E must:

- Provide an updated version of OEIS Table 5-5 with an additional column showing the unscaled risk scores.

In its next Base WMP, PG&E must:

- Collaborate with other large electrical corporations to:
  - Describe what risk scaling methodology each electrical corporation currently uses, provide justification for why that that methodology is used, and analyze the differences between methodologies across electrical corporations.
  - Describe what methodologies are appropriate for risk scaling and why.
  - 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 6.1.2 Wildfire Mitigation Strategy

6.3.4 PGE-26B-07. Integration of Additional Factors into Risk Models

Summary: The foundation of PG&E's grid hardening scoping decision-making process is its risk models. Risk models must be comprehensive, however, PG&E's grid hardening scoping decision-making process includes additional analysis of tree strike potential, ingress and egress concerns, and community vulnerability. Ideally, PG&E's grid hardening decision-making should not rely on additional, separate analysis for these factors. Instead, these factors should be accurately accounted for in PG&E's risk models. However, PG&E's risk models are not currently advanced enough to fully capture tree strike potential, ingress and egress concerns, and community vulnerability. PG&E must present a plan to increase its risk models' capabilities for capturing these factors.

Requirements: In its next WMP Update, PG&E must present a plan to improve its ability to model the following risks:

- Tree strike potential. The plan must ensure that tree strike potential is captured in the risk models so the grid hardening decision-making process does not rely on an additional, separate threshold.
- Ingress and egress concerns. The plan must ensure that ingress and egress concerns are captured in the risk models so the grid hardening decision-making process does not rely on an additional, separate threshold.
- Community vulnerability. The plan must ensure that community vulnerability is captured in the risk models so the grid hardening decision-making process does not rely on additional, separate, outside subject matter expertise to identify areas with significant community vulnerability risk.

Discussed in: Section 6.1.2 Wildfire Mitigation Strategy

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.[64] The PG&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 PG&E 2026-2028 Base WMP.

Overall, there has been a steady decrease in impacts of PG&E's PSPS events since 2019. Further, PG&E is showing forward-looking growth and continued progress in its ability to reduce the duration, frequency, and scope of PSPS events. PG&E's upgrade to its Fire Potential Index (FPI) 5.0 model allows it to scope more targeted PSPS events. PG&E also indicates that it implemented a lesson learned from a prior PSPS event and may temporarily re-energize lines for impacted customers during a prolonged event when weather conditions allow.

PG&E reports that there has been a steady decrease in the impacts of PSPS since 2019.[65] In 2024, PG&E had six PSPS events where a circuit was de-energized,[66] that impacted a total of 50,519 customers, averaging about 842 customers per event.[67] By comparison, in 2020, PG&E had six PSPS events where a circuit was de-energized, that impacted a total of 649,685 customers, averaging about 108,280 customers per event.[68]

In 2024, PG&E had 97,112,035 customer minutes of interruption (CMI), representing just 1.76 percent of the 5,513,240,050 minutes of interruption during the peak of PSPS events for PG&E, which occurred in 2019.[69] 2022 and 2023 had much fewer customer impacts from PSPS, largely due to favorable weather conditions.

PG&E reports that in August 2024 it began using its FPI 5.0 model that has a significantly finer spatial resolution at 0.7 square kilometer hexagons as compared to the previous 4.0 model

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[64] Pub. Util. Code, § 8386(c)(8).

[65] 2026-2028 Base WMP: Vol 1 R3, p. 172.

[66] A PSPS event where a circuit was de-energized is a PSPS event where at least one circuit is proactively de-energized. This excludes PSPS events where no circuits are de-energized.

[67] 2026-2028 Base WMP: Vol 1 R3, p. 172.

[68] 2026-2028 Base WMP: Vol 1 R3, p. 172.

[69] 2026-2028 Base WMP: Vol 1 R3, p. 172.

that had a four square kilometer grid resolution.[70] PG&E states that this spatial resolution improvement allows it to scope PSPS events at a much more granular level,[71] which reduces the impact of PSPS by decreasing the number of customers potentially affected.

PG&E reports that in a 2024 PSPS event, it was able to reduce the PSPS event duration for some customers by temporarily re-energizing the lines earlier in the day when the wind dissipated before de-energizing the lines again later.[72] As a lesson learned from this event, PG&E may temporarily re-energize customers who are subject to an otherwise long, continuous PSPS outage if the adverse weather subsides for a period.[73] This allows customers who had been without power to cool their homes and charge their devices.[74]

PG&E's ongoing efforts to refine its modeling capabilities for PSPS decision-making and its implementation of lessons learned demonstrates forward-looking growth and increasing maturity of its ability to reduce the duration, frequency, and scope of PSPS events.

7.2 Areas for Continued Improvement

PG&E did not have any areas for continued improvement to report on and Energy Safety identifies no new areas for continued improvement in the Public Safety Power Shutoff section.

[70] 2026-2028 Base WMP: Vol 1 R3, p. 173.

[71] 2026-2028 Base WMP: Vol 1 R3, p. 173.

[72] 2026-2028 Base WMP: Vol 1 R3, p. 174.

[73] 2026-2028 Base WMP: Vol 1 R3, p. 174.

[74] 2026-2028 Baes WMP: Vol 1 R3, p. 174.

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.[75] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

8.1 Summary of Anticipated Risk Reduction

PG&E demonstrates technical feasibility and effectiveness in its grid design, operations, and maintenance activities. PG&E will reduce wildfire and outage risk in its HFTD and HFRA through its major grid design and system hardening initiatives: Covered Conductor Installation, Undergrounding, and Grid Topology Improvements. Covered conductor and undergrounding are projected to reduce ignition risk significantly across PG&E's riskiest circuit segments.

PG&E plans to underground 360 circuit miles in 2026, 307 circuit miles in 2027, and 400 circuit miles in 2028.[76] PG&E states that undergrounding eliminates risk from most of its major risk drivers with an effectiveness of 99 percent.[77] PG&E also states that the effectiveness of covered conductor can be substantially increased by combining it with PSPS, EPSS, and Downed Conductor Detection, with covered conductor alone being 67 percent effective increasing to 97 percent effective when combined with PSPS and EPSS.[78] PG&E plans to complete 674 total circuit miles of distribution overhead hardening in 2026, 2027 and 2028.

PG&E is also reducing risk associated with its assets by using machine learning models to gain insights into the health of its assets. For example, the IONA model predicts transformer failure and can allow PG&E to proactively address risk associated with transformer failures. By increasing its ability to proactively address asset issues, PG&E reduces the risks associated with equipment failures.

In addition, PG&E is lowering its wildfire and outage risk by reducing its backlog of work orders. For each year of the 2026-2028 Base WMP, PG&E is expecting to close significantly more work order tags than it creates, forecasting roughly 60,000 tags created and 100,000 tags closed each year.

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

[76] 2026-2028 Base WMP: vol 1 R3, p. 179.

[77] 2026-2028 Base WMP: Vol 1 R3, p. 127.

[78] 2026-2028 Base WMP: Vol 1 R3, p. 127.

Despite these anticipated risk reductions, PG&E still has room to improve its grid design, operations, and maintenance.

8.2 Discussion

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

8.2.1 Grid Design and System Hardening

8.2.1.1 Covered Conductor Installation

PG&E's covered conductor installations will reduce wildfire and outage risk, but PG&E must improve its calculation for effectiveness values to ensure it is selecting the most resource efficient mitigations.

PG&E reports its covered conductor installation is 67 percent effective against wildfire risk and 23 percent effective against outage program risk. PG&E states that reliability improvements from its covered conductor may be reduced if upstream circuit segments are not hardened.[79] When a circuit is subject to an outage, all downstream circuits are also subject to that outage, so an unhardened circuit may expose downstream circuits to its reliability risk. PG&E does not have a methodology for quantifying these downstream impacts.

In collaboration with other electrical corporations, PG&E should use its outage data to consider if and how potentially lowered reliability improvements due to upstream conditions should be factored into ignition risk effectiveness values. This will improve PG&E's ability to accurately quantify the location-specific benefits of covered conductor. (See PGE-26B-05 "Joint Study for Mitigation Activity Effectiveness Estimates," discussed in Section 6.1.1).

8.2.1.2 Undergrounding of Electric Lines and/or Equipment

PG&E's undergrounding of electric lines will reduce wildfire and outage risk, but PG&E must improve its calculations for effectiveness values to ensure it is selecting the most resource efficient mitigations.

PG&E reports undergrounding of electrical lines and equipment is 98 percent effective against wildfire risk and 100 percent effective against outage program risk.[80] However, PG&E also states that undergrounded circuit segments may still be in scope for PSPS events: "Whether an area would still be subject to PSPS events after lines in that area are undergrounded

[79] 2026-2028 Base WMP: Vol 1 R3, p. 199.

[80] 2026-2028 Base WMP: Vol1 R3, Table 6-3, p. 152.

depends on whether, and how much, of the upstream and downstream line sections were undergrounded."[81]

PG&E's 100 percent effectiveness of undergrounding against outage program risk only applies in a best-case scenario. PG&E may potentially realize 100 percent effectiveness against outage program risk for a circuit segment only if it undergrounds all upstream circuit segments. However, it may not be resource efficient to do so. PG&E is currently not considering the associated cost of all upstream circuit segments into its cost-benefit calculation when selecting circuit segments for undergrounding and must refine its methodology for calculating the effectiveness of undergrounding.

PG&E, in collaboration with other electrical corporations, must improve clarity and consistency in effectiveness calculations (see Section 6.3, PGE-26B-05 "Joint Study for Mitigation Activity Effectiveness Estimates," discussed in Section 6.1.1).

8.2.1.3 Distribution Pole Replacements and Reinforcements

PG&E does not have a proactive or forward-looking strategy for its distribution pole replacements and reinforcements. PG&E should be aiming towards asset lifecycle maintenance for its distribution poles. PG&E currently only has programs to replace or reinforce poles after it finds degraded conditions. PG&E's current process has led to a substantial backlog of distribution pole-related open maintenance tags.[82]

PG&E's Distribution Pole Replacement Program "identifies poles for replacement when an existing pole is determined to be deficient,"[83] and its Distribution Pole Reinforcement Program identifies poles during routine intrusive inspections.[84] Both replacement and reinforcement programs prescribe work only after PG&E finds degraded conditions on a pole during an inspection. PG&E's procedure has created a large backlog of open distribution pole-related maintenance tags: 104,167 open tags in HFTD Tiers 2 and 3, representing the asset type with the most open tags.[85]

In its distribution risk model documentation, PG&E states that WDRM is used to inform various programs including pole replacements.[86] The risk model outputs should allow PG&E to target its pole replacement work where it will yield great wildfire risk reduction; however, PG&E provides no detail and does not explain how the risk model outputs are considered in its pole replacement and reinforcement programs. PG&E must articulate how risk model

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[81] 2026-2028 Base WMP: Vol 1 R3, p. 203.

[82] 2026-2028 Base WMP: Vol 1 R3, p. 327.

[83] 2026-2028 Base WMP: Vol 1 R3, p. 205.

[84] 2026-2028 Base WMP: Vol 1 R3, p. 205.

[85] 2024 Q4 QDR, Table 13.

[86] WDRM v4 Documentation, p. 5.

outputs are considered in its pole replacement and reinforcement and how it is taking a forward-looking stance to ensure that its distribution poles are repaired in an efficient and timely manner.

PG&E must develop and implement an approach to distribution pole replacements and reinforcements that includes consideration of risk model outputs, and set a Tracking ID and targets for pole replacement and reinforcement work. Requirements for improvement are set forth in Section 8.5, PGE-26B-08 "Proactive Pole Replacement and Reinforcement Strategy."

8.2.1.4 Transmission Pole/Tower Replacements and Reinforcements

Similar to PG&E's approach to distribution poles, PG&E does not have a forward-looking strategy for transmission pole and tower replacements and reinforcements. PG&E should be aiming towards asset lifecycle maintenance for its transmission towers and poles. PG&E currently only has programs to replace or reinforce poles after it finds degraded conditions. PG&E's current process has led to a substantial backlog of transmission pole

PG&E's transmission pole and tower replacements and reinforcements activities include maintenance repair tags, corrosion mitigation, wood pole reinforcements, and replacements to current standards.[87] These activities prescribe work only after degraded conditions are found during an inspection. PG&E's procedure has created a large backlog of open transmission pole-related and tower-related maintenance tags: 2,449 open tags in HFTD Tiers 2 and 3.[88]

In its transmission risk model documentation, PG&E describes modeling multiple factors impacting transmission poles and towers, including corrosion of steel tower legs[89] and wood pole decay.[90] The risk model outputs should allow PG&E to identify pole and tower locations where replacement or reinforcement will yield great wildfire risk reduction; however, PG&E provides no detail and does not explain how the risk model outputs are considered in its transmission pole and tower replacements and reinforcements. PG&E must articulate how risk model outputs are considered in its transmission pole and tower replacement and reinforcements and how it is taking a forward-looking stance to ensure that its transmission poles and towers are repaired in an efficient and timely manner.

PG&E must develop and implement an approach to transmission pole and tower replacements and reinforcements that includes consideration of risk model outputs, and set a Tracking ID and targets for pole and tower replacement and reinforcement work.

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[87] 2026-2028 Base WMP: Vol 1 R3, p. 207.

[88] 2024 Q4 QDR, Table 13.

[89] WTRM v2 Documentation, pp. 57-58.

[90] WTRM v2 Documentation, pp. 46-47.

Requirements for improvement are set forth in Section 8.5, PGE-26B-08 “Proactive Pole Replacement and Reinforcement Strategy.”

8.2.1.5 Emerging Grid Hardening Technology Installations and Pilots

To ensure technology adoption decisions are supported by evidence and to improve efficiency and coordination across overlapping protective system, PG&E must evaluate the effectiveness of its Distributed, Transmission, Substation – Fire Action Schemes and Technology (DTS FAST) pilot program and consider its integration with existing protective systems.

PG&E has been piloting its DTS FAST program on four transmission towers. This technology uses high-speed detection of abnormal thermal events to quickly identify when objects, like vegetation, contact power lines and shuts off power before an ignition can occur. DTS FAST can also de-energize lines in other high-risk situations, such as downed poles or other equipment failures.[91]

PG&E began reporting on this pilot in 2020.[92] Over the last five years, PG&E has reported limited information on the progress of the pilot.[93] While the pilot appears promising, PG&E must develop a concrete plan to evaluate the effectiveness of the program, including analysis of ignitions avoided per installation and nuisance trip rates. Data on avoided ignitions is used to determine the pilot’s impact on wildfire risk, and data on nuisance trips is used to evaluate whether that the pilot is not increasing outage program risk.

Additionally, it is not clear how DTS FAST overlaps with other protective systems such as Downed Conductor Detection (DCD) and Enhanced Powerline Safety Settings (EPSS). These programs have similar scopes: de-energizing lines when risky conditions are present. To maximize efficiency and risk reduction, PG&E must analyze how to integrate DTS FAST, DCD, and EPSS to optimize detection coverage and prevent overlapping trips.

To support evidence-based technology adoption decisions and improve coordination across overlapping protective systems, PG&E must systematically evaluate the DTS FAST pilot. Requirements for improvement are set forth in Section 8.5, PGE-26B-09 “Evaluation and Strategic Decision on DTS FAST Pilot.”

8.2.1.6 Microgrids

PG&E discusses its Remote Grids program in the Microgrids section of the WMP. Remote grids provide service to “remote locations at the outskirts of the distribution system” and enable

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[91] 2026-2028 Base WMP: Vol 1 R3, p. 210.

[92] 2020 Wildfire Mitigation Plan, p. 5-18.

[93] 2022 WMP Update R1, pp. 437-439; 2023-2025 Base WMP R8, pp. 444-445; and 2026-2028 Base WMP: Vol 1 R2, pp. 210-211.

the possibility to remove powerlines through risky areas.[94] Additionally, customers served by remote grids are no longer subject to outages caused by impacts to the overhead circuits that previously served them.[95] PG&E reports a reliability of 99.83 percent in 2024 for customers served by remote grids.[96]

PG&E may be able to better realize the long-term systemwide potential of remote grids with a roadmap to expand its program.

PG&E's Remote Grid Program remains in a pilot phase in accordance with CPUC Resolution E-5132 where the program is designated as a pilot subject to a cap of two megawatts of load.[97] Given PG&E's reported success with the pilot, PG&E can better realize the long-term systemwide potential of remote grids if it establishes a roadmap for expanding the program beyond two megawatts. Establishing a roadmap provides a framework and transparency for the next steps of the microgrid program. Expanding the scope of the microgrid program ensures less customers are subject to outages and would further reduce PG&E's outage program risk.

PG&E should consider establishing a roadmap for the expansion of its microgrid program and coordinating with the applicable regulating agencies.

8.2.1.7 Line Removal in the HFTD

PG&E has three idle transmission lines that pose potential wildfire risks.[98] PG&E must assess and manage the wildfire risks posed by those lines.

PG&E states that it has three idle transmission lines totaling 2.25 miles in the HFTD and HFRA. PG&E plans to remove two of the lines in 2025 and is evaluating the third to determine its risk of induction.[99] PG&E must expediate its evaluation of the third line. De-energized transmission lines may pose wildfire risks due to inadvertent re-energizations. The possibility of inadvertent re-energizations is dependent on many factors (e.g., grounding configurations, proximity to energized lines).

PG&E, SCE, SDG&E, PacifiCorp, and Liberty define, assess, and mitigate risk associated with idle transmission lines differently. To ensure electrical corporations are managing wildfire risks from unremoved, de-energized transmission lines, PG&E, the other large electrical

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[94] 2026-2028 Base WMP: Vol 1 R3, p. 211.

[95] 2026-2028 Base WMP: Vol 1 R3, p. 212.

[96] 2026-2028 Base WMP: Vol 1 R3, p. 212.

[97] 2026-2028 Base WMP: Vol 1 R3, p. 211.

[98] PG&E defines "idle transmission lines" as sections of transmission circuits that are currently not serving transmission load or generation facilities. (Response to Data Request 018 Q01.)

[99] Response to Data Request 013 Q01.

corporations, as well as PacifiCorp and Liberty must each develop a comprehensive mitigation strategy for these lines. Requirements for improvement are set forth in Section 8.5, PGE-26B-10 "De-energized and Idle Transmission Line Assessment."

8.2.1.8 Other Grid Topology Improvements to Minimize Risk of Ignitions

PG&E's new program to replace service drop conductors and connectors on unhardened overhead lines with service breakaway connectors will reduce ignition risks.

In its May 15, 2025 Status Update Report, the Independent Safety Monitor (ISM) concluded that vegetation abrasion to secondary conductor or service drops ranked among the top inspection findings within PG&E's service territory.[100] While secondary conductors and service drops carry less voltage, their failure can still lead to ignitions.

PG&E implemented its Service Breakaway Connector Program to mitigate risks associated with arcing, often caused by vegetation contact, on service drops.[101] Under this new program, PG&E plans to replace 3,000 service connectors with service breakaway connectors during the 2026-2028 WMP cycle.[102] Service breakaway connectors have a separable link that mitigates ignition risk by de-energizing the service line before the line falls to the ground.[103] If the line is de-energized before it falls to the ground, the risk of ignition is minimized.

PG&E's plan to replace service connectors with service breakaway connectors will reduce ignition risk.

8.2.2 Asset Inspections

8.2.2.1 Distribution Detailed Inspection Strategy

Distribution Detailed Inspections

PG&E's Distribution Detailed Inspections Program, which is part of its distribution inspection strategy, adequately addresses wildfire risk and appears resource efficient. However, as PG&E transitions to a primarily aerial inspection model for its program,[104] it must ensure it is effectively identifying all issues during inspections.

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[100] ISM Report 6, p. 47.

[101] 2026-2028 Base WMP: Vol 1 R3, p. 223.

[102] 2026-2028 Base WMP: Vol 1 R3, Table 8-1, p. 180.

[103] 2026-2028 Base WMP: Vol 1 R3, p. 223.

[104] 2026-2028 Base WMP: Vol 1 R3, p. 246.

PG&E reports that it inspects 42 percent of its HFTD and HFRA annually via detailed distribution inspection.[105] PG&E states that it inspects all of its HFTD and HFRA assets at least once every three years, which exceeds the GO 95 requirement of an inspection at least once every five years.[106] PG&E adjusts its detailed inspection frequencies based on the asset's WDRM v4 wildfire risk and consequence scores. Assets with extreme and severe risk and consequence scores are inspected annually, assets with high risk and consequence and risk scores are inspected biennially, and assets with medium and low risk and consequence scores are inspected triennially.[107]

PG&E plans to complete more Distribution Detailed Inspections through the 2026-2028 Base WMP cycle than it had targeted to complete in the previous 2023-2025 Base WMP cycle. PG&E exceeds the regulatory minimum required inspection frequency and adequately addresses wildfire risk through its Distribution Detailed Inspections.

PG&E is transitioning to a primarily aerial inspection model for its Distribution Detailed Inspections, most recently performing 10,197 ground and 216,796 aerial Distribution Detailed Inspections in 2024.[108] Given that most electric corporation assets are monitored through visual inspection[109] and only repaired or replaced when a condition is identified during an inspection,[110] it is critical that detailed distribution inspections, whether aerial, ground, or both, effectively identify Level 1 and 2 conditions. As PG&E transitions to a primarily aerial inspection model, it must ensure that aerial inspections can effectively identify issues that may be more reliably identified through ground inspections, such as pole tilt, guy anchor state, or wood pole damage. A cross-utility benchmarking study comparing PG&E's, SCE's, and SDG&E's detailed inspection programs is required in PG&E-11 Continuation of Grid Hardening Joint Studies.

PG&E's plans to perform more frequent inspections on the assets with the highest risk. PG&E's plans for Distribution Detailed inspections therefore appear to be resource efficient; however, PG&E is supplementing its Distribution Detailed Inspections with Distribution Aerial Scan Inspections. Aerial Scan Inspections, discussed below, are poorly detailed in PG&E's 2026-2028 Base WMP, and Energy Safety cannot complete a full evaluation of the resource

[105] 2026-2028 Base WMP: Vol 1 R3, Table 8-2, p. 230.

[106] 2026-2028 Base WMP: Vol 1 R3, Table 8-2, p. 230.

[107] 2026-2028 Base WMP: Vol 1 R3, p. 245.

[108] PG&E response to OEIS DR 05, Question 1 and PG&E response to OEIS DR 19 Question 2.

[109] PG&E, 2026-2028 Base WMP R3, Pages 264-304; SCE, 2026-2028 Base WMP R2, Pages 293-298; SDG&E 2026-2028 Base WMP R2, Pages 206-207.

[110] PG&E 2026-2028 Base WMP R3, Pages 264-304; SCE, 2026-2028 Base WMP R2, Pages 293-298; SDG&E 2026-2028 Base WMP R1, Pages 206-207.

efficiency of PG&E's entire detailed distribution inspection strategy without additional details for its Aerial Scan Inspections.

Distribution Aerial Scan Inspections

PG&E plans to use Aerial Scan Inspections to supplement its Distribution Detailed Inspections as part of its detailed distribution inspection strategy, but does not provide details for its Aerial Scan Inspections program. Without any program information, it is not clear what types of conditions the inspection can identify and whether the program is an effective use of resources. PG&E also makes assumptions in its eyes-on-risk calculation for Aerial Scan Inspections that do not apply well to comparisons of different types of inspections.

PG&E's Distribution Detailed Inspections consist of either a ground-based or aerial-based inspection.[111] Going forward, PG&E plans to use Aerial Scan Inspections to supplement Distribution Detailed Inspections and identify conditions on the highest risk equipment.[112] However, PG&E, has not fully detailed the differences between Aerial Scan Inspections and the existing aerial-based Distribution Detailed Inspections. Many of PG&E's Distribution Detailed Inspections are already aerial-based.[113] PG&E states that Aerial Scan Inspections will leverage its experience with aerial inspections but provides few details.[114] PG&E also states that it is piloting Aerial Scan Inspections in 2025, but PG&E has not finalized the procedures for the pilot program.[115] Without finalized procedures for the pilot program, PG&E's Aerial Scan Inspection program cannot be fully evaluated on whether it can effectively identify deteriorated conditions.

Additionally, PG&E assumes that eyes-on-risk for Aerial Scan Inspections is comparable to eyes-on-risk for Distribution Detailed Inspections.[116] PG&E calculates eyes-on-risk based on the risk associated with the inspected structure and does not adjust for the inspection's level of detail.[117] For example, PG&E assumes a detailed inspection achieves the same amount of eyes-on-risk as a patrol inspection even though a detailed inspection is much more thorough than a patrol inspection. PG&E's eyes-on-risk calculation is not well suited for comparing scenarios that include a mixed variety of inspections, such as PG&E's strategy to supplement

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[111] 2026-2028 Base WMP: Vol 1 R3, p. 230.

[112] 2026-2028 Base WMP: Vol 1 R3, p. 241.

[113] In 2024, PG&E performed 10,197 ground-based detailed distribution inspections and 216,796 aerial-based detailed distribution inspections (Response to Data Requests 005 Q01 and 019 Q02).

[114] 2026-2028 Base WMP: Vol 1 R3, p. 241.

[115] Response to Data Request 001 Q21.

[116] 2026-2028 Base WMP: Vol 1 R3, p. 579.

[117] 2023-2025 Base WMP R8, p. 354.

Distribution Detailed Inspections with Aerial Scan Inspections, because eyes-on-risk does not capture the differences in the level of detail for various inspections types.

Finally, PG&E assumes a cost of 60 dollars per inspection for Aerial Scan Inspections.[118] Without additional information on Aerial Scan Inspections, this assumption cannot be evaluated.

PG&E must provide more details on its Aerial Scan Inspection program procedures in its next WMP Update to demonstrate that it is an appropriate supplement to Distribution Detailed Inspections. Requirements for improvement are set forth in Section 8.5, PGE-26B-12 "Aerial Scan Inspections."

8.2.2.2 Transmission Infrared Inspections

PG&E's Transmission Infrared Inspections reduce wildfire risk by identifying thermal conditions. These thermal conditions cannot typically be detected through other inspection types, including Transmission Detailed Inspections.

PG&E completes an infrared inspection on transmission structures in the HFTD and HFRA at least once every three years.[119] PG&E indicates that it may choose to not include lines loaded below 40 percent for infrared inspection due to the low efficacy of infrared inspections at low loading.[120] Conditions on lines that are low loading (i.e., below 40 percent) have a lower temperature increase that may not be detectable by infrared inspections.[121]

PG&E's Transmission Infrared Inspections reduce wildfire risk on PG&E's transmission system.

8.2.2.3 Distribution Infrared Inspections

PG&E must evaluate the effectiveness and efficiency of its distribution infrared inspections further. Infrared inspections can identify risky thermal conditions that are unlikely to be identified through other inspection methods. Discontinuation of distribution infrared inspections may leave wildfire risks unidentified and unaddressed on PG&E's system.

PG&E discontinued its Routine Distribution Infrared Inspection Program in 2022 and narrowed its focus to areas of emerging concern where it estimated infrared inspections could be more effective.[122] In its 2023-2025 Base WMP, PG&E stated that it would be "re-

[118] 2026-2028 Base WMP: Vol 1 R3, p. 580.

[119] 2026-2028 Base WMP: Vol 1 R3, p. 230.

[120] 2026-2028 Base WMP: Vol 1 R3, p. 230.

[121] 2026-2028 Base WMP: Vol 1 R3, p. 236.

[122] 2026-2028 Base WMP: Vol 1 R3, p. 253.

evaluating the role of IR within PG&E's broader overhead inspections programs."[123] As such, PG&E did not set a target for infrared (IR) inspections in its 2023-2025 Base WMP. PG&E did, however, complete 5,910 miles of distribution IR inspections in 2023 through 2024.[124] In its 2026-2028 Base WMP, PG&E again does not set a target for distribution infrared inspections and states that it will perform infrared inspections on an as needed basis to "investigate emerging issues."[125]

Infrared inspections can identify risky thermal conditions that are unlikely to be identified through other inspection methods. PG&E reports it has 11,288 highly risky structures.[126] Discontinuing infrared inspections and omitting commitments to identify unsafe thermal conditions on the riskiest structures may leave wildfire risk on PG&E's system. PG&E must demonstrate an adequate analysis to support the discontinuation of its Routine Distribution Infrared Inspection Program that would catch wildfire risk otherwise left unidentified and unaddressed on its system.

In its next Base WMP, PG&E must provide additional information on how it is evaluating the effectiveness and efficiency of distribution infrared inspections. Requirements for improvement are set forth in Section 8.5, PGE-26B-13 "Distribution Infrared Inspections."

8.2.2.4 Transmission Switch Function Testing

A transmission switch function test consists of a "detailed visual inspection and/or a functional exercise to ensure the switch is operating properly."[127] PG&E's transmission switches demonstrate high failure and ignition rates, and transmission switch function tests have high find rates. PG&E must provide an explanation and documentation to support its transmission switch inspection strategy, including its testing interval.

PG&E is not planning to perform switch function tests in the HFTD and HFRA in 2026, 2027 or 2028.[128] In response to Energy Safety's Revision Notice regarding setting commitments for transmission switch function tests, PG&E explains it tests transmission switches on an eight-year cycle and that the current cycle began in 2021 and will end in 2028.[129] PG&E reports all switches in the HFTD and HFRA will be inspected by the end of 2025, leaving only non-HFTD

[123] 2023-2025 Base WMP R8, p. 276.

[124] Response to Data Request 002 Q04.

[125] 2026-2028 Base WMP: Vol 1 R3, p. 231.

[126] 11,288 structures have at least "severe" or "extreme" risk and at least "high" consequence, or at least "high" risk and "severe" or "extreme" consequence (2026-2028 Base WMP: Vol 1 R2, Figure PG&E-8.3.2-1, p. 244).

[127] 2026-2028 Base WMP: Vol 1 R3, p. 237.

[128] 2026-2028 Base WMP: Vol 1 R3, Table 8-2, p. 230.

[129] Revision Notice Response R1, p.28.

and non-HFRA switches to be inspected from 2026 to 2028.[130] PG&E explains that its eight-year inspection interval was the result of "benchmarking against other utilities" and "feedback from [PG&E's] internal execution teams."[131]

PG&E's switch function tests have the highest Level 1 condition find rate of all reported inspections.[132] Additionally, transmission switches are high-risk equipment and have one of the highest failure rates and highest ignition rates of all reported equipment.[133] The high Level 1 find rate and high failure rate may indicate that an eight-year testing cycle is not sufficient to identify risky conditions.

PG&E must further evaluate its transmission switch inspection strategy, including its testing interval. Requirements for improvement are set forth in Section 8.5, PGE-26B-14 "Transmission Switch Function Tests."

8.2.2.5 Transmission Pilot Inspection Programs

PG&E is exploring additional transmission inspection techniques though pilot programs. However, to better assess program effectiveness and resource use efficiency, PG&E should set timelines and milestones to measure the success of a pilot and determine whether it should expand or discontinue a pilot.

PG&E's Conductor Measurement/Inspections pilot assesses the condition of steel core conductors by measuring magnetic flux leakage and detecting flaws that may be difficult to visually identify.[134] The pilot has been ongoing since 2022 and PG&E reports a low find rate. PG&E is continuing the pilot to identify the subset of its conductors that benefits the most from the inspection. [135]

PG&E's Proactive Sampling and Testing pilot involves performing "various tests and analyses" on equipment samples to "understand the overall conditions of asset(s) and the factors that promote their failure."[136] PG&E has been conducting this pilot since 2022 and has yet to identify a target population for this testing.

Running pilot programs is necessary to find effective solutions to reduce risk and PG&E should continue its exploration of emerging technologies and methods. However, continuing long-running pilot programs with ambiguous milestones does not demonstrate continued

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[130] 2026-2028 Base WMP: Vol 1 R3, p. 239.

[131] Revision Notice Response R1, p. 28.

[132] 2026-2028 Base WMP: Vol 1 R3, Table 8.3-1, p. 231.

[133] 2026-2028 Base WMP: Vol 1 R3, Table 8.4-1, p. 263.

[134] 2026-2028 Base WMP: Vol 1 R3, p. 239.

[135] 2026-2028 Base WMP: Vol 1 R3, p. 239.

[136] 2026-2028 Base WMP: Vol 1 R3, p. 239.

improvement. PG&E should set timelines and specific metrics for measuring success so it is clear when PG&E should expand or discontinue a pilot.

8.2.3 Equipment Maintenance and Repair

8.2.3.1 Conductor, Including Covered Conductor

PG&E does not track the failure and ignition rates for distribution and transmission conductor, connectors, and splices separately. Tracking failure and ignition rates for each of the equipment types will provide better visibility of the risks presented by the different equipment types.

PG&E uses a single combined failure rate for failures of conductor, connectors, and splices.[137] Conductor, connectors, and splices combined have a high failure rate and a high ignition rate. The ignition rate for conductor, connectors, and splices together represents the highest ignition rate of all distribution assets and the second highest ignition rate of all transmission assets.[138]

Combining conductor, connectors, and splices may obfuscate important failure and ignition data. A high failure or ignition rate of one equipment type might be masked by a low failure or ignition rate of the other two equipment types. Separating out the failure and ignition rates for each equipment type will help provide visibility to risks presented by each type, leading to better-targeted inspection and hardening strategies to mitigate the risks for each asset type.

PG&E must track failures and ignitions for conductor, connectors, and splices separately. Requirements for improvement are set forth in Section 8.5, PGE-26B-15 “Conductor, Connector, and Splice Failure Tracking.”

8.2.3.2 Transformers

PG&E’s transformer maintenance approach reduces wildfire risk by incorporating both preventative and predictive maintenance strategies.

In addition to visually inspecting transformers, PG&E uses the IONA model to identify risky conditions.[139] The IONA model is a machine learning model that uses data, including SmartMeter voltage and loading, weather, transformer age, and geography, to predict transformer failures.[140]

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[137] 2026-2028 Base WMP: Vol 1 R3, p. 273.

[138] 2023-2025 Base WMP: Vol 1 R3, Table PG&E-8.4-1, p. 263.

[139] 2023-2025 Base WMP: Vol 1 R3, p. 582.

[140] 2023-2025 Base WMP: Vol 1 R3, p. 582.

Incorporation of preventative and predictive maintenance strategies demonstrate forward-looking growth.

8.2.4 Quality Assurance and Quality Control

PG&E demonstrates greater maturity than other large electrical corporations in its Open Tag Reduction quality assurance (QA) and quality control (QC) programs by ensuring the corrective work meets applicable standards, showing forward-looking growth in its wildfire mitigation.

PG&E's QA and QC programs check that the corrective work completed to reduce the number of open work orders meets the applicable standards.[141] This ensures that the work PG&E is completing to close past-due work orders is performed correctly.

PG&E provides more transparency than other large electrical corporations for its Open Tag Reduction QA and QC programs. For example, PG&E is the only electrical corporation to commit to a confidence level and margin of error for these programs.[142] These commitments will ensure that PG&E's sampling is statically sound.

8.2.5 Work Orders

8.2.5.1 Distribution Work Orders

PG&E is demonstrating continued progress in its reduction of overdue distribution work orders.

PG&E's existing backlog of overdue distribution work orders is substantial and presents wildfire risk, however PG&E is making progress toward reducing the backlog. The number of work orders for Level 1 and 2 conditions in the HFTD/HFTA PG&E closed per year has trended upward from 2020 to 2024 (see Figure 8-1).[143] From 2020 to 2024, the number of Level 1 and 2 work orders PG&E created per detailed inspection ranged from 0.14 to 0.312, with a five-year average of 0.213 (see Figure 8-2).[144] PG&E reported it created approximately 70,000 work orders and closed approximately 95,000 in 2024.[145]

Figure 8-1 presents the number of distribution work orders for Level 1 and 2 closed in the HFTD and HFRA from 2020 to 2024.

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[141] 2026-2028 Base WMP: Vol 1 R3, p. 307.

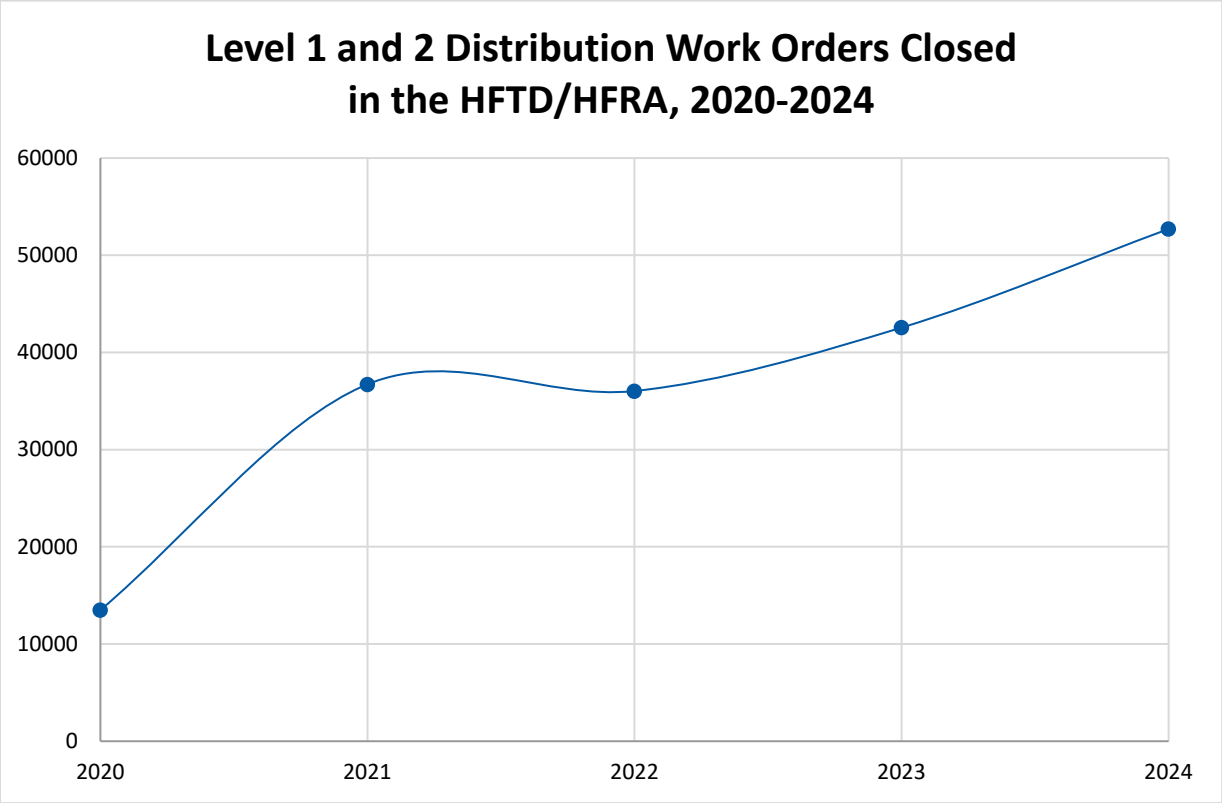
[142] 2026-2028 Base WMP: Vol 1 R3, p. 308; SCE 2026-2028 Base WMP R2, p. 306; SDG&E 2026-2028 Base WMP, pp. 214-217.

[143]Response to Data Request 005 Q01.

[144] ISM Report 5, p. 24.

[145] 2026-2028 WMP: Vol 1 R3, p. 322.

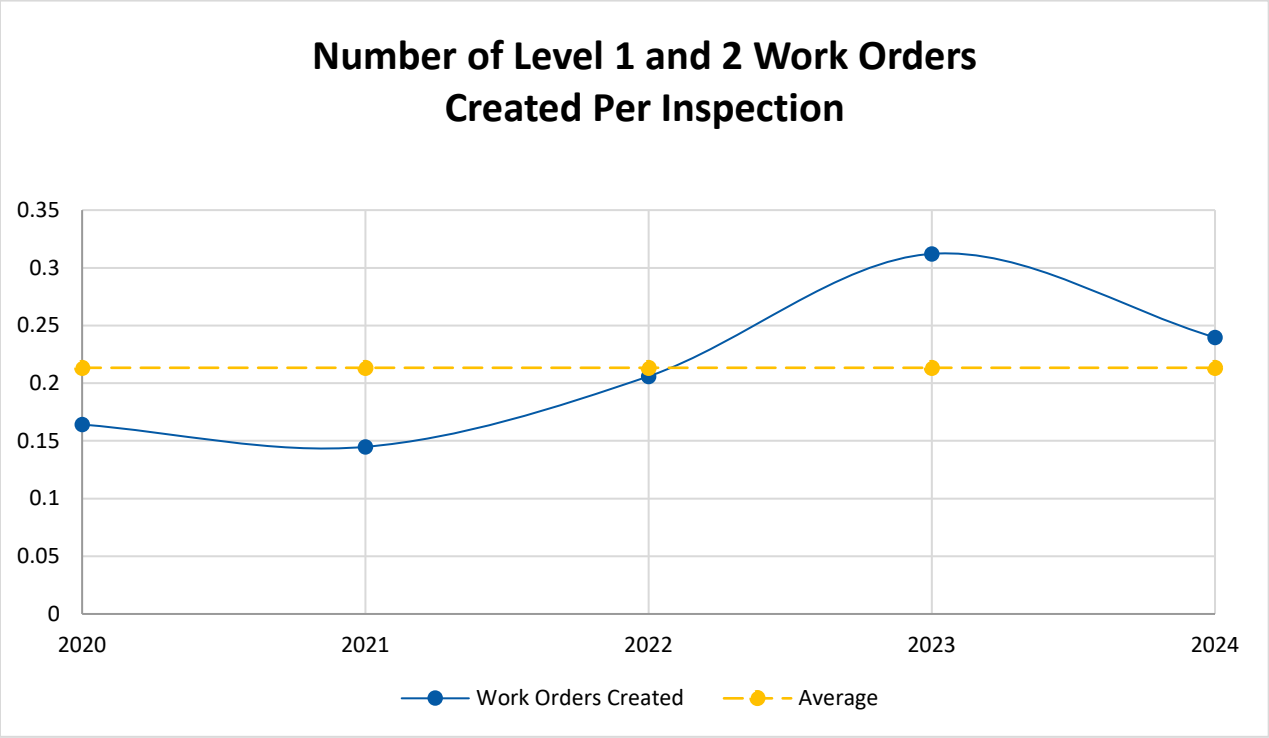
Figure 8-1: Distribution Work Orders Closed 2020-2024



While PG&E shows an upward trend in the number of work orders for Level 1 and 2 conditions closed, it demonstrates a stable number of work orders created per inspection (see Figure 8-2). This indicates that this backlog reduction is due to work being completed, rather than due to identifying fewer conditions; it demonstrates PG&E's continued growth over its previous WMPs. If the rate of work orders generated remains consistent with past years and PG&E meets its forecast for annual closures of work orders, PG&E will reduce the number of distribution work orders in its backlog in 2026, 2027, and 2028.

Figure 8-2 presents the number of Level 1 and 2 distribution work orders created per inspection.

Figure 8-2: Work Order Created per Inspection



8.2.5.2 Transmission Work Orders

From 2020 to 2023, PG&E created more Levels 1 and 2 transmission work orders than it closed.[146] In 2024, PG&E was able to close more Level 1 and 2 transmission work orders than it opened but this may be due to priority realignment of the conditions in the work orders.

In early 2023, PG&E aligned its internal A/B/E/F work order priority to GO 95 Level 1, 2, and 3 conditions.[147] The realignment resulted in due date modifications for many transmission work orders. PG&E reported that 40,159 of the modified work orders had their due dates extended beyond December 31, 2024.[148] PG&E reports it had 1,836 overdue work orders as of December 31, 2024, down from 6,764 on January 3, 2023.[149] PG&E did not otherwise make major changes to its process and planning for closing transmission work orders. A substantial portion of PG&E's reduction of overdue transmission work orders in 2024 can likely be attributed to the priority realignment and not to PG&E's completed work or planning. It is

[146] Response to Data Request 021 Q01.

[147] 2023-2025 Base WMP R8, pp. 540-541.

[148] Response to Data Request 021 Q01.

[149] 2024 Q4 QDR Table 13, 2022 Q4 QDR Table 13.

possible the number of overdue work orders will increase as the realigned work orders come due.

Energy Safety will continue to monitor PG&E's reduction of overdue transmission work orders.

8.2.6 Grid Operations and Procedures

8.2.6.1 Pole Mounted Sensors

PG&E's Gridscope device deployment may provide significant reliability benefits by rapid location of a fault causing an outage, thereby reducing outage duration. Continued testing and implementation of Gridscope devices may increase PG&E's overall plan maturity by reducing outage event durations.

PG&E is deploying Gridscope devices on its distribution system to detect mechanical disturbances (i.e., vibrations, acoustics, infrared light, and visible light).[150] PG&E has installed over 10,080 Gridscope devices covering approximately 900 circuit miles.[151] PG&E is reporting significant reliability benefits from the sensors, with one example where Gridscope data facilitated the reduction of the Customer Average Interruption Duration Index (CAIDI) from an outage by 70 percent (as compared to an average outage in that location) by allowing troubleshooters to quickly locate the fault causing the outage.

PG&E's states the program is still undergoing testing and PG&E cannot yet fully quantify the program's effectiveness.[152] Based on PG&E's limited examples, the Gridscope devices appear to have a positive impact. PG&E should continue the program's testing and implementation, and its review of the program's benefit and impact.

8.2.6.2 Rapid Earth Fault Current Limiter (REFCL)

PG&E has been testing its REFCL program, but does not have any reportable results yet.

PG&E's REFCL program is currently undergoing testing at its Calistoga Substation as part of the pilot phase.[153] The pilot at the Calistoga substation was initiated in 2018, paused later that year, and resumed in 2023.[154] PG&E states that it will be assessing an additional site for REFCL in 2025.[155] As part of PG&E-25U-03 from the Decision on PG&E's 2025 WMP Update, Energy Safety required PG&E to evaluate REFCL along with other new technologies in collaboration

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[150] 2026-2028 Base WMP: Vol 1 R3, p. 344.

[151] 2026-2028 Base WMP: Vol 1 R3, pp. 344-345.

[152] 2026-2028 Base WMP: Vol 1 R3, p. 345.

[153] 2026-2028 Base WMP: Vol 1 R3, p. 342.

[154] 2023-2025 Base WPM R8, pp. 583 and 585.

[155] Joint IOU Grid Hardening Report, p. 26.

with the other large electrical corporations and SMJUs. PG&E-25U-03 also required a joint report on grid hardening. In the Joint IOU Grid Hardening Working Group Report, PG&E refers to the ongoing assessment of the Calistoga Substation and the additional 2025 site;[156] however, PG&E did not include any analysis on the effectiveness or viability of REFCL.

PG&E must continue its collaboration with the other electrical corporations and report its findings on REFCL. Requirements for improvement are set forth in Section 8.5, PGE-26B-11 "Grid Hardening and Inspection Joint Studies."

8.3 Previous Areas for Continued Improvement

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

8.3.1 PG&E-25U-03. Continuation of Grid Hardening Joint Studies

For this area for continued improvement, Energy Safety required PG&E, in its 2026-2028 Base WMP, to collaborate with other large electrical corporations and SMJUs to evaluate various aspects of grid hardening and provide an updated Joint IOU[157] analysis covering the effectiveness of grid hardening approaches and the evaluation of new technologies.

8.3.1.1 PG&E-25U-03. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E in collaboration with the other Joint IOUs provided a report resulting from the joint study.[158] The report addressed the effectiveness of covered conductor and undergrounding, the evaluation of implementing protective equipment and device settings, new technologies, and the effectiveness of mitigations.[159]

8.3.1.2 PG&E-25U-04. Energy Safety Evaluation

PG&E provided the report addressing all required elements. As such, PG&E sufficiently responded to this area for continued improvement.

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[156] Joint IOU Grid Hardening Report, p. 26.

[157] "Joint IOUs" for Grid Hardening Joint Studies refers to large electrical corporations and SMJUs: PG&E, SCE, SDG&E, PacifiCorp, Liberty, and BVES.

[158] 2026-2028 Base WMP: Vol 1 R3, p. 573.

[159] Joint IOU Grid Hardening Report, pp. 3-22.

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. Requirements for improvement are set forth in Section 8.5, PGE-26B-11 "Grid Hardening and Inspection Joint Studies."

8.3.2 PG&E-25U-04. Decrease in Detailed Ground Distribution Inspections

For this area for continued improvement, Energy Safety required PG&E to compare the cost-benefit analysis and cost-benefit ratio of multiple inspection scenarios.[160] The scenarios consisted of different permutations of inspection frequences for assets in extreme, severe, high, medium, and low consequence areas.[161]

8.3.2.1 PG&E-25U-04. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E provides a cost-benefit analysis and the cost-benefit ratio of the five inspection scenarios required by Energy Safety, in addition to the scenario PG&E plans to use for its 2026-2028 detailed distribution inspections.[162]

PG&E's proposed distribution inspection plan for the 2026-2028 Base WMP cycle includes detailed inspections on three-year cycles for all structures and a new aerial scan inspection in extreme, severe, and high consequence and risk locations.[163] PG&E claims its proposed 2026-2028 scenario is the most efficient of the analyzed scenarios.[164]

The cost-benefit ratio calculated by PG&E for its selected scenario assumes a per inspection cost of 60 dollars for Aerial Scan Inspections and 160 dollars for Distribution Detailed Inspections.[165] Further, it assumes that Aerial Scan inspections achieve the same amount of "eyes-on-risk" as detailed inspections.[166]

8.3.2.2 PG&E-25U-04. Energy Safety Evaluation

PG&E provided the required analysis of the inspection frequency scenarios, and as such, has sufficiently responded to this area for continued improvement.

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[160] Decision on PG&E 2025 WMP Update, pp. 62-63.

[161] Decision on PG&E 2025 WMP Update, p. 63.

[162] 2026-2028 Base WMP: Vol 1 R3, p. 579.

[163] 2026-2028 Base WMP: Vol 1 R3, p. 579.

[164] 2026-2028 Base WMP: Vol 1 R3, p. 579.

[165] 2026-2028 Base WMP: Vol 1 R3, p. 576.

[166] Response to Data Request 001 Q20.

However, the details of how PG&E is incorporating Aerial Scan Inspections into its detailed inspection strategy to supplement the detailed inspections are not fully explained. Section 8.2.2.3 above further details Energy Safety's concerns about PG&E's Aerial Scan Inspection program, including an area for continued improvement.

8.3.3 PG&E-25U-05. Transformer Predictive Maintenance

For this area for continued improvement, Energy Safety required PG&E to provide testing results, reports, whitepapers, and other documentation relevant to the IONA Program.[167]

8.3.3.1 PG&E-25U-05. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E provided the detailed IONA Program results.[168] PG&E states that the IONA model has demonstrated that it can identify system risks and that the model will continue to be updated with new information.[169]

8.3.3.2 PG&E-25U-05. Energy Safety Evaluation

PG&E provided the documentation required by Energy Safety. As such, PG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

8.3.4 PG&E-25U-06. Evaluation and Reporting of Safety Impacts Relating to EPSS

For this area for continued improvement, Energy Safety required PG&E to provide its latest analysis pertaining to EPSS outages.[170]

8.3.4.1 PG&E-25U-06. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E provided a narrative response, and referenced a separate spreadsheet titled EPSS Reliability Study Analysis.[171]

PG&E reports that EPSS enablement criteria are based on meteorological forecasts for circuits in HFRA and associated buffer zones.[172] PG&E states that while its current criteria

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[167] Decision on PG&E 2025 WMP Update, p. 63.

[168] 2026-2028 Base WMP: Vol 1 R3, pp. 582-584.

[169] 2026-2028 Base WMP: Vol 1 R3, p. 582.

[170] Decision on PG&E 2025 WMP Update, pp. 63-64.

[171] 2026-2028 Base WMP: Vol 1 R3, p. 586.

[172] 2026-2028 Base WMP: Vol 1 R3, p. 586.

generally remain in place, it also evaluates field conditions and may adjust between "Peak" and "Non-Peak" postures to respond to changing wildfire risks.[173]

PG&E further reports that ignitions that occurred while EPSS was enabled were investigated by PG&E's EPSS Program Office and the findings of those investigations informed enhancements, such as expanding Downed Conductor Detection.[174]

Additionally, PG&E outlined mitigation activities aimed at reducing reliability impacts due to EPSS outages, including, targeted vegetation management, expanded Gridscope device deployment, and proactive animal protection work.[175]

8.3.4.2 PG&E-25U-06. Energy Safety Evaluation

PG&E provided the required data and supporting narrative. PG&E demonstrated that it is monitoring the safety and reliability tradeoffs associated with EPSS activation, particularly under lower FPI conditions, where ignition risk may be lower but customer outage risk remains significant.

PG&E's investigations into ignitions that occurred under EPSS enablement and the implementation of mitigations aimed at reducing the impacts of EPSS demonstrate PG&E's forward-looking growth at reducing both wildfire and outage risks.

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

8.4 Revision Notice Critical Issues

Energy Safety issued PG&E a Revision Notice for its 2026-2028 Base WMP. This section evaluates PG&E's response to that Revision Notice as it relates to grid design, operations, and maintenance.

8.4.1 RN-PGE-26-03. Decision-Making Process for System Hardening Is Insufficiently Supported

Energy Safety required PG&E to revise its 2026-2028 Base WMP to include explanations and analyses to support the use of individual thresholds for its grid hardening decision-making. PG&E includes multiple thresholds or steps in its grid hardening decision-making process, including a 50 percent CBR threshold, ingress and egress threshold, and tree strike potential

[173] 2026-2028 Base WMP: Vol 1 R3, p. 586.

[174] 2026-2028 Baes WMP: Vol 1 R3, p. 340.

[175] 2026-2028 Base WMP: Vol 1 R3, pp. 586-587.

threshold. These steps may be duplicative of considerations already included in PG&E's risk models and required additional explanation.

8.4.1.1 RN-PGE-26-03. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E explained three of its individual thresholds. PG&E uses a 50 percent CBR threshold for undergrounding, meaning if undergrounding a line has a 50 percent lower cost-benefit ratio than covered conductor with EPSS, PG&E will select undergrounding.[176] PG&E explains the 50 percent CBR threshold for undergrounding is primarily to account for significant risks which are not represented within CBR.[177]

PG&E explains it uses the ingress and egress and tree strike risk thresholds because the information captured for those ingress and egress concerns in the model is typically very high level.[178] PG&E states that the PSPS threshold is used because the risk model framework evalutes PSPS risk at an insufficently granular level.[179]

Finally, PG&E states that EPSS is not included as a specific driver for its hybrid analysis[180] because a partially undergrounded circuit does not eliminate the need for EPSS.[181]

8.4.1.2 RN-PGE-26-03. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue. PG&E provided the required explainations and support for its system hardening decision-making process. PG&E's system hardening decision-making process will be reviewed further in the Eletrical Undergrounding Plan evaluation.

Additionally, PG&E must present a plan to improve its capabilties to model ingress and egress and tree strike potential to better integrate these faactors in its risk models (See area for continued improvement PGE-26B-04 "Integration of Additional Factors into Risk Models," discussed in Section 6.1.2).

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[176] 2026-2028 Base WMP: Vol 1 R3, p. 188.

[177] Revision Notice Response R1, p. 9.

[178] Revision Notice Response R1, p. 10.

[179] Revision Notice Response R1, p. 16.

[180] PG&E's hybrid analysis is used to determine implementation of a hybrid mitigation solution that consists of overhead hardening and undergrounding portions of the same circuit segment. (2026-2028 Base WMP: Vol 1 R2, p. 185.)

[181] Revision Notice Response R1, p. 17.

8.4.2 RN-PGE-26-04. Combined Targets for Covered Conductor, Remote Grids, And Line Removal

Energy Safety required PG&E to separate its targets for covered conductor installation, remote grid installations, and distribution line removal.

8.4.2.1 RN-PGE-26-04. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E separated its combined overhead grid hardening target into two distinct targets.[182] Target GH-12 "Overhead Hardening – Distribution," tracks miles of covered conductor installed and target GH-14 "Line Removal Enabled by Remote Grid – Distribution" tracks miles of lines removed resulting from the installation of remote grids.[183] In total, four miles for 2026 were moved from overhead hardening to line removal.[184] PG&E does not plan any miles of line removal enabled by remote grid in 2027 or 2028.[185]

8.4.2.2 RN-PGE-26-04. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

8.4.3 RN-PGE-26-05. Rebuild Program Miles Are Combined into Undergrounding and Overhead Hardening Targets

Energy Safety required PG&E to revise its undergrounding and overhead hardening targets to exclude fire rebuild and community rebuild miles.[186] PG&E defines "fire rebuild" work as work done in "areas that have been impacted directly by wildfire within a HFTD" that consists of rebuilding "damaged assets that require hardening (i.e., overhead or underground)" and "community rebuild" work as "work in areas impacted by wildfires outside of an HFTD area."[187]

8.4.3.1 RN-PGE-26-05. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E removed Community Rebuild Program miles from its hardening targets.[188] Removing the Community Rebuild Program miles resulted in

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[182] Revision Notice Response R1, p. 19.

[183] 2026-2028 Base WMP: Vol 1 R3, Table 8-1, p. 179.

[184] Revision Notice Response R1, p. 19.

[185] Revision Notice Response R1, p. 19.

[186] Revision Notice for PG&E 2026-2028 Base WMP, p. 11.

[187] 2026-2028 Base WMP: Vol 1 R3, p. 190.

[188] Revision Notice Response R1, p. 23.

PG&E's distribution overhead hardening target from 318 to 294 miles in 2026, and 200 to 190 miles in both 2027 and 2028.[189]

PG&E did not remove Fire Rebuild Program miles from its hardening targets, but did include a breakdown differentiating between non-rebuild system hardening and fire rebuild work.[190]

8.4.3.2 RN-PGE-26-05. Energy Safety Evaluation

PG&E removed Community Rebuild Program miles from its undergrounding and overhead hardening targets as required in the Revision Notice. The Community Rebuild Program miles will not be part of PG&E's undergrounding and overhead hardening WMP initiatives. Rebuild miles are tracked separately from other WMP activities at the CPUC.[191] Removing rebuild miles from hardening targets increases the accuracy of tracking these projects for both Energy Safety and the CPUC. While PG&E did not remove Fire Rebuild Miles from the targets, it met the intent of the requirement by differentiating non-rebuild miles and Fire Rebuild Program miles.

Energy Safety finds that PG&E has resolved this critical issue.

8.4.4 RN-PGE-26-06. No Target and Lack of Detail for Aerial Scan Inspections Used to Supplement Detailed Distribution Inspections

Energy Safety required PG&E to set a target for aerial scan inspections. For years when PG&E elects not to set a target for aerial scan inspections, it must increase its distribution detailed inspections target to account for the eyes-on-risk planned to be achieved by the aerial scan inspections.[192]

8.4.4.1 RN-PGE-26-06. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E split its distribution detailed inspection target into two new targets: Aerial Scan Inspections – Distribution (AI-07A) and Detailed Inspections – Distribution (AI-07D).[193] The combined eyes-on-risk of the detailed inspection and aerial scan inspections is 57 percent for 2026, 2027, and 2028.[194]

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[189] Revision Notice Response R1, p. 19.

[190] Revision Notice Response R1, pp. 23-24.

[191] D.23-11-096, Ordering Paragraph 38, page 910.

[192] Revision Notice for PG&E 2026-2028 Base WMP, p. 13.

[193] Revision Notice Response R1, p. 25.

[194] Revision Notice Response R1, p. 25.

PG&E also increased its 2026 target for detailed inspections from 218,441 in the original 2026-2028 Base WMP to 300,000 in the revised 2026-2028 Base WMP due to an updated, more accurate, planning forecast.[195]

8.4.4.2 RN-PGE-26-06. Energy Safety Evaluation

PG&E set Aerial Scan Inspection targets for 2026, 2027, and 2028 as required in the Revision Notice.

PG&E also went beyond the requirement by increasing the number of detailed inspections targeted for 2026. Energy Safety appreciates PG&E's transparency and commitment to completing more inspections than originally targeted.

Energy Safety finds that PG&E has resolved this critical issue.

Distribution Detailed Inspections and Aerial Scan Inspections are discussed in further detail in Section 8.2.2.2 Distributuion Detailed Inspection Strategy.

8.4.5 RN-PGE-26-07. No Target for Transmission Switch Function Tests.

Energy Safety required PG&E to set a target for its transmission switch function tests.

8.4.5.1 RN-PGE-26-07. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E states that it is not planning on conducting switch function tests in the HFTD and HFRA in 2026, 2027, or 2028.[196] PG&E states that its Transmission Switch Function Test Program is conducted on an eight-year cycle and all transmission switches in the HFTD/HFRA are on track to complete testing by the end of 2025. Only non-HFTD and HFRA transmission switches will remain to be tested until the eight-year cycle restarts in 2029.[197]

PG&E states that transmission switch function tests are not suitable for annual targets due to the execution risks of performing the tests and that it is investigating new technologies and work methods that may reduce the execution risk of switch function tests and allow for more frequent testing.[198]

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[195] Revision Notice Response R1, p. 25.

[196] Revision Notice Response R1, p. 28.

[197] Revision Notice Response R1, p. 28.

[198] Revision Notice Response R1, p. 28.

8.4.5.2 RN-PGE-26-07. Energy Safety Evaluation

PG&E provided a reasonable explanation for why it does not have switch function test targets for 2026, 2027, or 2028. However, PG&E has not shown that its switch function testing strategy is an appropriate long-term strategy for reducing wildfire risk.

Energy Safety finds that PG&E has de-escalated this critical issue to an area for continued improvement. In its next WMP Update, PG&E must explain its eight-year transmission switch function testing cycle. Requirements are set forth in Section 8.5, PGE-26B-14 "Transmission Switch Function Tests."

8.5 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.

8.5.1 PGE-26B-08. Proactive Pole Replacement and Reinforcement Strategy

Summary: PG&E does not have a proactive strategy for pole replacements and reinforcements. PG&E's approach for distribution and transmission pole replacements and reinforcements is focused on remediating existing conditions. PG&E must integrate risk model outputs into its pole replacement and reinforcement strategy.

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

- Integrate Wildfire Distribution Risk Model (WDRM) outputs into its Distribution Pole Replacement Program and Distribution Pole Reinforcement Program. PG&E must explain how its distribution pole replacement and reinforcement work plans are informed by WDRM.
- Integrate Wildfire Transmission Risk Model (WTRM) outputs into its transmission pole and tower replacement and reinforcement activities. PG&E must explain how its transmission pole and tower replacement and reinforcement work plans are informed by WTRM.
- Identify a Tracking ID and set annual targets, separately, for its distribution and transmission pole and tower replacement and reinforcement activities in the HFTD.

Discussed in: Section 8.2.1.3 Distribution Pole Replacements and Reinforcements and Section 8.2.1.4 Transmission Pole/Tower Replacements and Reinforcements

8.5.2 PGE-26B-09. Evaluation and Strategic Decision on DTS FAST Pilot

Summary: PG&E has been piloting the Distribution, Transmission, and Substation – Fire Action Schemes and Technology (DTS FAST) system since 2020 with no clear next steps. DTS FAST provides high-speed detection of abnormal thermal events and is designed to shut off power before an ignition occurs. PG&E has already implemented different types of protective systems, Downed Conductor Detection (DCD) and Enhanced Powerline Safety Setting (EPSS), but has not analyzed whether or how DTS FAST will be integrated.

To support evidence-based decision making for the adoption of new technology, and to improve coordination across overlapping protective systems, PG&E must systematically evaluate the DTS FAST pilot.

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

- Provide a formal performance evaluation plan for DTS FAST, including analysis of ignition prevention, and false trip rates.
- Report key pilot outcomes, including trip events, fault verification data, and lessons learned from its implementation between 2020 to 2026.
- Provide an analysis on the integration feasibility between DTS FAST, DCD, and EPSS.

In its next Base WMP, PG&E must:

- Present a decision on whether to expand, redesign, or decommission the DTS FAST program based on the gathered data and performance trends.
- Provide a plan for the expansion or redesign if the decision is to expand or redesign the DTS FAST program. The plan must include timelines, milestones, and the metrics used to evaluate the program.

Discussed in: Section 8.2.1.6 Emerging Grid Hardening Technology Installations and Pilots

8.5.3 PGE-26B-10. 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 “idle,” “de-energized,” and “abandoned” lines also vary across electrical corporations, further complicating comparisons and evaluations across electrical corporations.

PG&E has three idle transmission lines in the HFTD. PG&E plans to remove two of the lines in 2025 and is evaluating the third to determine its risk of induction.

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, PG&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, PG&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.
    - Spatial distance between energized and idle 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 idle, de-energized, abandoned, or other similarly situated transmission lines;
    - A decision-making process for the removal, modification of grounding configuration, or other mitigation of idle, 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. PG&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, PG&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, PG&E must provide its decision-making process for reaching this determination.
    - Outline any planned changes to the inspection and maintenance of idle, de-energized, abandoned, or other similarly situated transmission circuits in the HFTD.

Discussed in: Section 8.2.1.9 Line Removal in the HFTD

8.5.4 PGE-26B-11. 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 PG&E-25U-03, PG&E 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 predominately aerial inspections, SCE performs combined aerial and ground inspections, and SDG&E performs ground inspections. Given that most electrical corporations' assets are monitored through visual inspection and only repaired or replaced when a condition is identified during an inspection, 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, PG&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 and report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base WMPs), and include the 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.

  - PG&E must report its recent findings from its REFCL deployment at the Calistoga Substation, including specific performance data, reliability outcomes, and operational challenges. PG&E must also report a roadmap for phasing out of the pilot and evaluation stage and transitioning to a permanent implementation framework if the REFCL technology proves effective.
  - PG&E must report on the results and effectiveness of its Gridscope pole-mounted sensor pilot program, including coverage percentages, CAIDI impacts, and validation testing timelines. PG&E must explain how Gridscope data informs its CC effectiveness evaluation and broader wildfire mitigation strategies.

- Distribution Detailed Inspection Benchmarking Study: a benchmarking study comparing PG&E, SCE, and SDG&E's detailed inspection job-aids, training, procedures, and checklists. The large electrical 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 minimum:
  - Review and compare PG&E's Overhead Inspection Job Aid TD-2305M-JA02, PG&E's Electrical Distribution Preventive Maintenance Manual TD-2305M, SCE's Distribution Inspection and Maintenance Program (DIMP), 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 inspection 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 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 of 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: PG&E's, SCE's, and SDG&E'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 PG&E has made or plans to make to its detailed inspection job-aids, training, procedures, and checklists because of the benchmarking study.
  - If PG&E elects to make no changes 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 PG&E's detailed inspections through conclusions supported by the benchmarking study.

Discussed in: Section 8.2.2.2 Distribution Detailed Inspection Strategy, Section 8.2.6.2 Rapid Earth Fault Current Limiter (REFCL), Section 8.3.1 PG&E-25U-03 Continuation of Grid Hardening Joint Studies

8.5.5 PGE-26B-12. Aerial Scan Inspections

Summary: PG&E's Distribution Detailed Inspections consist of either a ground-based or aerial-based inspection. Going forward, PG&E plans to use Aerial Scan Inspections to supplement its Distribution Detailed Inspections. PG&E does not describe Aerial Scan Inspections in sufficient detail and does not describe how Aerial Scan Inspections are different from aerial-based Distribution Detailed Inspections.

Further, PG&E calculates the cost-benefit ratio of Aerial Scan Inspections and Distribution Detailed Inspections using "eyes-on-risk," which is not appropriate for comparing the cost-benefit ratios of different inspection types.

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

- Provide a comprehensive list of differences between Aerial Scan Inspections and aerial-based Distribution Detailed Inspections.
- Provide the shot sheets, checklists, job aids, and all other procedural instructions and material used by inspectors during Aerial Scan Inspections and aerial-based Distribution Detailed Inspections.
- Provide the completed inspection checklist and all photographs taken for an Aerial Scan Inspection completed in 2025 during which at least one Level 2 condition was found.
- Provide the completed inspection checklist and all photographs taken for an aerial-based Distribution Detailed Inspection completed in 2025 during which at least one Level 2 condition was found.

- Discuss alternative methodologies for determining the effectiveness of different inspection types, such as applying a weighting factor to the eyes-on-risk value for cost benefit ratio calculations based on the type of inspection being performed.

Discussed in: Section 8.2.2.2 Distribution Detailed Inspection Strategy

8.5.6 PGE-26B-13. Distribution Infrared Inspections

Summary: PG&E does not provide adequate analysis supporting the discontinuation of its Routine Distribution Infrared Inspection Program. Infrared inspections can identify risky thermal conditions that are unlikely to be identified through other inspection methods. PG&E discontinued the program in 2022 and narrowed its focus to areas of emerging concern where PG&E estimated infrared inspections could be more effective.

PG&E must provide additional information on how it is evaluating the effectiveness and efficiency of routine distribution infrared inspections on its highest risk assets.

Requirements: In Figure 8.3.8.2-1 of its 2026-2028 Base WMP, PG&E reports 11,288 assets that either demonstrate “severe” or “extreme” wildfire risk and at least “high” consequence, or at least “high” wildfire risk and “extreme” or “severe” consequence. In its next Base WMP, PG&E must:

- Provide an effectiveness analysis, including consideration of cost-benefit ratio, of performing routine distribution infrared inspections on the 11,288 highest risk structures identified above, and a similar analysis of performing routine infrared inspections on the assets historically loaded over 60 percent. The analysis must include:
    - A list of all circuits of which these assets are a part of. Of these circuits, PG&E must identify the circuits that are historically loaded below 40 percent, between 40 and 60 percent, between 60 and 80 percent, and above 80 percent.
        - For historical loading, PG&E must use the 90th percentile amperage reading on the lowest rated line segment during daylight hours from May 1 through September 30.
    - The estimated cost per structure of truck-based infrared inspections in 2028 if PG&E were to inspect the circuits historically loaded over 60 percent, with a breakdown of how this cost was calculated.
    - The estimated cost per structure of drone-based infrared inspections in 2028 if PG&E were to inspect the above circuits historically loaded over 60 percent, with a breakdown of how this cost was calculated.
    - The methodology used to calculate the benefit of performing infrared inspections on the circuits.
- Discuss how it will identify thermal conditions on these assets if it is not using routine infrared inspections.

Discussed in: Section 8.2.2.5 Transmission Switch Function Testing

8.5.7 PGE-26B-14. Transmission Switch Function Tests

Summary: PG&E's transmission switches demonstrate high failure and ignition rates, and transmission switch function tests have high find rates. Despite this, PG&E performs transmission switch function tests on an eight-year interval. PG&E states that it is investigating new technologies and work methods that may reduce the execution risk of switch function tests and allow for more frequent testing.

Given the high inspection find rates, failure rates, and ignition rates associated with transmission switches, PG&E must provide an explanation and documentation to support its transmission switch inspection strategy, including its testing interval.

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

- Explain its transmission switch function test cycle length. PG&E must support its explanation with benchmarking, engineering reports, or other studies.
- Describe alternatives it considered for its transmission switch function test cycle length and an explanation for why each alternative was rejected.
- List all technologies and work methods that it is investigating that are related to reducing execution risk of switch function tests. For each, PG&E must provide a summary of the technology or work method and a timeline for PG&E's evaluation of the technology or work method.

Discussed in: Section 8.2.2.4 Distribution Infrared Inspections

8.5.8 PGE-26B-15. Conductor, Connector, and Splice Failure Tracking

Summary: PG&E does not track the failure rate and ignition rate of transmission and distribution conductor, connectors, and splices separately for each equipment type. Instead, PG&E groups all three together into a combined failure rate and a combined ignition rate. Conductor, connectors, and splices combined have a high failure rate and ignition rate compared to other distribution and transmission assets. Notably, the combined ignition rate of conductor, connectors, and splices represents the highest rate of all distribution equipment. A more granular record of failures and ignitions will provide increased visibility to the risks presented by each of the individual equipment types.

Requirements: In its next Base WMP, PG&E must either:

- Demonstrate it is tracking failure rate and ignition rate for each individual equipment type of, conductor, connectors, and splices, or
- Provide a plan to track failure rates and ignition rates for each individual equipment type of, conductor, connectors, and splices, or

- Explain its reasoning for combining conductor, connector, and splice failure and ignition tracking and explain the process used to ensure that a high failure or ignition rate of one equipment type is not masked by the low failure or ignition rates of the others.

Discussed in: Section 8.2.3.1 Conductor, Including Covered Conductor

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.[199] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

9.1 Summary of Anticipated Risk Reduction

PG&E's vegetation management and inspection practices described in its 2026-2028 Base WMP will likely reduce the risk of ignition on its system.

PG&E's new post-fire service restoration procedure will likely improve the safety of responders and customers, and reduce the probability of fire-damaged trees or tree parts falling into re-energized infrastructure. Its new procedures provide pre-inspectors guidance for assigning priority to fire-damaged trees during post-fire response.

PG&E's updates to its pole clearing program will lower fuel loads around its pole assets and likely reduce ignition risk. PG&E is adding a second pole clearing maintenance cycle each year, which will shorten the time between clearings and minimize vegetation regrowth.

PG&E demonstrates forward-looking growth by promoting the development of current and future vegetation management employees. A more experienced and educated workforce will be better equipped to identify hazardous vegetation and reduce wildfire risk. PG&E is funding tree worker-related certifications and memberships and community college scholarships. PG&E is also partnering with numerous organizations to support its workforce education and inform its vegetation management practices.

Despite these anticipated risk reductions, PG&E still has room to improve its vegetation management and inspections.

9.2 Discussion

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

[199] Pub. Util. Code § 8386(c)(3) and (9).

9.2.1 Inspections

9.2.1.1 Distribution Routine Patrol

PG&E is in the process of evaluating which components of Focused Tree Inspections (FTI) and Tree Removal Inventory (TRI) will be incorporated into its Distribution Routine Patrol Program.[200] This effort was effectuated, in part, by Energy Safety's requirement for PG&E to simplify its vegetation management programs to reduce overlapping scope.[201] PG&E states that it will complete the consolidation before January 1, 2026.[202] PG&E's consolidation of Tree Removal Inventory (TRI) and FTI into its Distribution Routine Patrol is discussed below in Sections 9.3.5 and 9.4.1.

9.2.1.2 Distribution Hazard Patrol

PG&E's plan for Distribution Hazard Patrol inspections demonstrates improved resource use efficiency.

PG&E's Distribution Hazard Patrol inspections are a second patrol of HFTD and HFRA areas scheduled approximately six months after Distribution Routine Patrol. Inspection procedures for Distribution Hazard Patrol are the same as Distribution Routine Patrol.[203]

Starting in 2026, PG&E will no longer perform Distribution Hazard Patrol on HFTD and HFRA circuits; instead, PG&E will use a risk-informed approach based on WDRM v4.[204] From a circuit miles per year perspective, PG&E is scaling back the mileage targets for this program from approximately 25,000 circuit miles per year in the 2023-2025 Base WMP to 10,000 circuit miles per year in the 2026-2028 Base WMP.[205] However, PG&E states that it will perform Distribution Hazard Patrol on all areas with a consequence or wildfire risk score of "medium" or higher.[206] These areas represent 75.14 percent of vegetation-related risk within the HFTD.[207] Despite greatly reducing the target for this program, PG&E will patrol areas that represent a large majority of the risk. PG&E's plan to focus Distribution Hazard Patrol inspections on the riskiest areas demonstrates improved resource use efficiency.

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[200] 2026-2028 Base WMP: Vol 1 R3, p. 696.

[201] Decision on PG&E 2023-2025 Base WMP, pp. 110-111.

[202] Revision Notice Response R1, p. 38.

[203] 2026-2028 Base WMP: Vol 1 R3, p. 372.

[204] 2026-2028 Base WMP: Vol 1 R3, p. 373.

[205] 2023-2025 Base WMP, p. 64 and 2026-2028 Base WMP: Vol 1 R3, Table 9-2, p. 362.

[206] Response to Data Request 005 Q02.

[207] Response to Data Request 007 Q01.

9.2.2 Pole Clearing

PG&E is incorporating a second maintenance cycle into its annual pole clearing work. PG&E states that the additional cycle "shortens the clearing gaps between initial clearing and maintenance cycles and reduces the amount of regrowth between clearing cycles."[208] The additional clearing will decrease fuel loading around PG&E's poles, likely leading to lower ignition risk.

9.2.3 Wood and Slash Management

9.2.3.1 Wood Management Procedures

PG&E's wood management procedures demonstrates continued progress. In its 2026-2028 Base WMP, PG&E updates its wood management procedures to apply to its entire portfolio of vegetation management distribution programs. Its previous procedures were limited to PG&E's legacy Enhanced Vegetation Management program and large wood generated from post-fire activities.[209] The updates also bring the procedures into alignment with defensible space laws by, for example, adding criteria for wood management services if wood is located within 100 feet of a structure or within 15 feet of an access road.[210]

By updating its wood management procedures, PG&E has created a more consistent approach to its wood management practices and matured its process to consider the safety impacts associated with leaving large woody debris in close proximity to structures and evacuation routes.

9.2.3.2 Wood and Slash Management Recordkeeping

PG&E's wood and slash management recordkeeping still has room for growth. In a data request response, PG&E stated that its procedures do not require tracking of slash and woody debris.[211] PG&E states instead, that its vegetation management contracts direct tree crews to manage debris less than four inches in diameter in coordination with tree work and when tree work is marked as complete, it is assumed that debris management has also been completed.[212] In its latest Substantial Vegetation Management Audit Report of PG&E, Energy Safety found that PG&E was unable to provide documentation that debris less than four inches in diameter was managed as described in its 2023-2025 WMP.[213]

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[208] 2026-2028 Base WMP: Vol 1 R3, p. 386.

[209] 2026-2028 Base WMP: Vol 1 R3, pp. 386-367.

[210] PG&E Utility Standard TD-7116S, p. 4.

[211] Response to Data Request 001 Q13.

[212] 2026-2028 Base WMP: Vol 1 R3, pp. 386-387.

[213] 2023 Substantial Vegetation Management Audit Report, pp. 15-17.

Relying on an assumption that work is complete, rather than tracking the completion of that work makes it difficult for PG&E to verify if debris is properly managed. PG&E should mature its recordkeeping of wood and slash management to include documentation of completed wood and slash work.

9.2.4 Defensible Space

PG&E's updated procedures for defensible space will improve its risk assessment at substation sites and demonstrate forward-looking growth.

In its 2026-2028 Base WMP, PG&E updates its procedures to include an assessment of risks specific to co-located PG&E switchyard and substation sites where achieving full defensible space is not feasible.[214] The updated procedure also requires collaboration across multiple PG&E teams to evaluate situations where full defensible space cannot be achieved. [215] These teams will additionally make recommendations if further mitigations are required.[216]

PG&E's updates to its defensible space procedures will improve its ability to assess risk at substation sites and conduct more detailed evaluations of alternative risk-reduction strategies where full defensible space is not possible.

9.2.5 Integrated Vegetation Management

PG&E's integrated vegetation management (IVM) plan and the corresponding benchmarking efforts will likely reduce risks in the short and long term, and demonstrate forward-looking growth.

In its 2026-2028 Base WMP, PG&E presents a comprehensive IVM plan to treat vegetation near electrical infrastructure. The plan consists of three elements: 1) educating customers on conflicts between trees and electrical infrastructure, 2) providing replacement trees that do not pose a risk to infrastructure, and 3) assessing transmission rights-of--way (ROWs).[217] PG&E annually analyzes approximately 17,500 transmission circuit miles to determine the need for IVM.[218]

In the near term, PG&E's IVM strategy will likely reduce the risk of vegetation igniting along its ROWs by decreasing vegetative fuel loads and the probability of vegetation contact with energized infrastructure. In the long term, PG&E's strategy will encourage the establishment of low-growing, utility-compatible, plant communities near its infrastructure. These plant

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[214] 2026-2028 Base WMP: Vol 1 R3, pp. 389-390.

[215] 2026-2028 Base WMP: Vol 1 R3, p. 390.

[216] 2026-2028 Base WMP: Vol 1 R3, pp. 389-390.

[217] 2026-2028 Base WMP: Vol 1 R3, p. 390.

[218] Response to Data Request 002 Q12.

communities are less susceptible to ignition and will likely suppress the growth of more ignition-prone plants, thereby reducing PG&E's wildfire risk.

PG&E also sets a target to benchmark IVM practices with peer electrical corporations.[219] PG&E is developing an IVM benchmarking study to identify best practices.[220] PG&E commits to implementing its findings from the benchmarking into to its procedures by the end of the WMP cycle.[221] Benchmarking will improve PG&E's ability to select treatments that most effectively encourage and maintain low-growing, stable plant communities adapted to low-intensity fire.

9.2.6 Partnerships

PG&E's many partnerships demonstrate clear forward-looking growth. Partnerships with California Community Colleges and the International Society of Arboriculture support workforce training and development.[222] Partnerships with Arbor Day Foundation, CAL FIRE, and Fire Safe Councils support planting of compatible plants under powerlines.[223] Finally, PG&E's partnerships with community organizations, national environmental and forestry non-profits, local fire and forestry districts and departments, tribal governments and associations, Fire Safe Councils and FireWise organizations, and Resource conservation Districts support landscape-scale wildfire fuel reduction work.[224]

9.2.7 Post-Fire Service Restoration

In Energy Safety's Final Action Statement on PG&E's 2021 WMP Update, Energy Safety required PG&E to develop a tool or standard to assess trees in post-wildfire response circumstances.[225] In its 2026-2028 Base WMP, PG&E states that "the Vegetation Management Post Wildfire procedure (TD-7114P-01) was drafted in 2024 and published to provide procedural guidance during post-wildfire operations."[226] In the procedure, PG&E provides guidance to assess damaged trees and anticipate tree survivability.[227] The procedure also lists

[219] 2026-2028 Base WMP: Vol 1 R3, p. 359.

[220] 2026-2028 Base WMP: Vol 1 R3, p. 391.

[221] 2026-2028 Base WMP: Vol 1 R3, Table 9-1, p. 360.

[222] 2026-2028 Base WMP: Vol 1 R3, p. 394.

[223] 2026-2028 Base WMP: Vol 1 R3, pp. 394-395.

[224] 2026-2028 Base WMP: Vol 1 R3, pp. 395-399.

[225] Final Action Statement on PG&E 2021 WMP Update, p. 79.

[226] 2026-2028 Base WMP: Vol 1 R3, p. 413.

[227] TD-7114P-01, p. 9.

criteria for identifying trees requiring different remediation timelines based on the extent of fire damage.[228] PG&E's implementation of the procedure demonstrates continued progress.

PG&E indicates generally that it may review and update the Vegetation Management Post Wildfire procedure as part of its standard procedure review process.[229] Energy Safety encourages PG&E, in its review, to remove ambiguous language about remediation of the highest priority (F1) trees in a future update. The procedure states that "F1 Immediate Priority trees [. . .] should be mitigated before Maintenance & Construction (M&C) energizes the overhead line."[230] Using "should" instead of "must" leaves open the option to re-energize infrastructure while F1 Immediate Priority trees remain a threat to electrical infrastructure.

Although PG&E's formal guidance on post-fire vegetation management activities may not directly reduce wildfire risk, it will positively impact safety as pre-inspectors now have a process to identify fire-damaged trees that require mitigation.

9.2.8 Quality Assurance and Quality Control

PG&E's vegetation management QA and QC programs include all components of a complete quality management system. PG&E's QA, QC, and corrective actions inform procedure adjustments, which likely reduces the number of non-compliant trees, improves the quality of inspections and tree work, and lowers wildfire risk.

9.2.8.1 Sample Sizes

PG&E efficiently applies resources by using statically-valid sample sizes for its QA and QC audits. All QC samples are 14.5 percent or more of the population size. QA sample sizes are relatively small compared to QC, but PG&E has a high historical pass rate for its QA audits of transmission (99.95 percent) and distribution (99.95 percent).[231] The QA sample sizes should still result in a confidence level of 95 percent with at most a 0.2 percent margin of error for the predicted pass rate.

9.2.8.2 Combined Audit Pass Rates

PG&E combines its audits of pre-inspection with audits of pruning and removal activities into a single QC pass rate.[232] Pre-inspections are a separate activity from pruning and removal and are often completed by different contractors. PG&E should consider independent QC pass

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[228] TD-7114P-01, p. 10-11.

[229] 2026-2028 Base WMP: Vol 1 R3, p. 413.

[230] TD-7114P-01, p. 11.

[231] 2024 Annual Report on Compliance, p. 25.

[232] 2026-2028 Baes WMP: Vol 1 R3, p. 416.

rates for pre-inspections and for pruning and removal activities. Separate pass rates will increase accountability and transparency for both PG&E and stakeholders.

9.2.8.3 Discontinued Audits

In its 2026-2028 Base WMP, PG&E eliminates its Field Quality Control audit.[233] This program consisted of real-time observation of contractor work, including "side-by-side observations" of eligible inspectors and pole clearing technicians. PG&E determined that Field Quality Control audits were redundant with operational oversight work.[234]

PG&E also eliminates its Pole Clearing Quality Assurance audit in the 2026-2028 Base WMP.[235] PG&E states that QC more effectively targets ignition sources and that it will continue to perform QC of Pole Clearing.[236] In 2024, PG&E's QA audit failed 5 out of 3,466 audited poles; in contrast, its QC audit failed 2,543 out of 21,740 audited poles.[237]

The elimination of Field Quality Control and Pole Clearing Quality Assurance audits is unlikely to negatively affect wildfire risk.

9.2.9 Work Orders

PG&E assigns priority to vegetation management work orders in accordance with GO 95, Rule 18(B)(1)(a). If PG&E is unable to remediate a Priority 2 or 3 work order due to external factors, it considers the work order "constrained."[238] PG&E categorizes "constrained" worked orders into: environmental permitting, encroachment permitting, customer interference, biological, active wildfire, weather conditions, or other.[239]

PG&E applies time requirements for remediating priority conditions once tree work has been prescribed by an inspection program, but "does not consider constrained units as past due."[240] Because of the broad range of attributes PG&E uses to determine if a location is "constrained," PG&E claims it has only three past due vegetation management work orders.[241]

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[233] 2026-2028 Base WMP: Vol 1 R3, p. 422.

[234] 2026-2028 Base WMP: Vol 1 R3, p. 422.

[235] 2026-2028 Base WMP: Vol 1 R3, p. 422.

[236] 2026-2028 Base WMP: Vol 1 R3, p. 422.

[237] 2024 Q4 QDR Table 1, rows 38 and 48, and 2024 EC ARC, p. 25.

[238] 2026-2028 Base WMP: Vol R3, p. 383.

[239] 2026-2028 Base WMP: Vol 1 R3, p. 423.

[240] Response to Data Request 001 Q06.

[241] 2026-2028 Base WMP: Vol 1 R3, p. 424.

By contrast, PG&E reported, as of April 15, 2025, it had 5,226 "constrained" Priority 2 condition work orders, of which 4,348 were incomplete beyond 91 days.[242] If these 4,348 work orders were not considered "constrained" by PG&E and instead had been applied the time requirements for priority conditions, they would be considered past due.[243]

Identifying a condition as "constrained" does not remove the risk of the Priority 2 or 3 condition and it is inappropriate to not consider "constrained" work orders as past due. To limit wildfire risk, PG&E must assign and maintain remediation timelines for work orders it considers "constrained" and resolve those work orders as rapidly as possible.

Furthermore, in its 2023-2025 Base WMP, PG&E committed to "build[ing] out a centralized constraints team" and implementing "a process for addressing each [major] constraint type."[244] As PG&E allocates more resources to constraint resolution, Energy Safety expects PG&E to further advance its ability to rapidly resolve "constrained" work orders. Requirements for improvement are set forth in Section 9.5, PGE-26B-16 "Constrained Work Order Resolution and Tracking."

9.2.10 Workforce Planning

PG&E plans to fund credentials for its vegetation management workforce and utility vegetation management scholarships demonstrate forward-looking growth. PG&E plans to allocate $10,000 annually to support arborist-related and tree worker-related certifications and memberships.[245] PG&E also states it will provide $1,500,000 of funding towards community college scholarships to recruit individuals looking to pursue a vegetation management career path.[246]

PG&E's vegetation management credential funding and scholarships will improve the qualifications of its vegetation management workforce, and thereby improve the quality of its vegetation management work.

9.3 Previous Areas for Continued Improvement

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

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[242] Response to Data Request 003 Q02.

[243] "Priority Level 2 (P2) tags must be mitigated within 20 business days of inspection, unless constrained." 2026-2028 Base WMP: Vol 1 R2, p. 384.

[244] 2023-2025 Base WMP R8, pp. 288-289.

[245] Revision Notice Response R1, p. 32.

[246] Revision Notice Response R1, p. 32.

areas for continued improvement, PG&E's response to those requirements, and Energy Safety's evaluation of the response.

9.3.1 PG&E-25U-07. Vegetation Management Recordkeeping

For this area for continued improvement, Energy Safety required PG&E to revise and improve its vegetation management recordkeeping to consistently and accurately capture factors considered when prescribing tress for removal. Energy Safety also required PG&E to consider adding the capability for documenting potential defects or issues with "inventory only" trees and other trees not prescribed for work.[247]

9.3.1.1 PG&E-25U-07. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E reported that it completed enhancements to its One VM tool[248] that include the capability to capture reasons for prescribing trees for removal in January 2024. In June 2024, PG&E refined the capability by adding a drop-down selection of reasons for removal that align with its Vegetation Management Distribution Inspection Procedure (TD-7102P-01).[249] PG&E also implemented a digital version of the International Society of Arboriculture's (ISA) Basic Tree Risk Assessment form into One VM.[250]

PG&E considered recording defects or other issues with "inventory only" trees and other trees not prescribed for work, but decided not to implement the approach due to the increased time required to document the inspection.[251]

9.3.1.2 PG&E-25U-07. Energy Safety Evaluation

PG&E's updates to its One VM tool will increase consistency in reporting reasons for tree removal.

PG&E met the requirement to consider recording defects and other issues with "inventory only" trees and other trees not prescribed for work. Because PG&E considered but did not implement this approach, Energy Safety will continue monitoring the effectiveness of PG&E's recordkeeping for trees not prescribed for work.

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[247] Decision for PG&E 2025 WMP Update, pp. 64-65.

[248] One VM is PG&E's system for all vegetation management programs.

[249] 2026-2028 Base WMP: Vol 1 R3, p. 588.

[250] 2026-2028 Base WMP: Vol 1 R3, p. 589.

[251] 2026-2028 Base WMP: Vol 1 R3, p. 589.

9.3.2 PG&E-25U-08. Reinspection of Trees in the Tree Removal Inventory

For this area for continued improvement, Energy Safety required PG&E, in its 2026-2028 Base WMP, to describe the results of a pilot study on the re-evaluation of trees listed for work in the TRI.[252] The pilot program re-evaluated trees to determine if they could be removed from the TRI.

9.3.2.1 PG&E-25U-08. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states it "began planning a pilot to re-evaluate trees listed for work" on the TRI to "determine if the trees still needed work, have been removed by another program, or are recommended for delisting."[253]

PG&E described a two-part inspection process for its pilot. First, a level 2 inspection by a TRAQ certified arborist, and second, a review by a Board-Certified Master Arborist of trees the TRAQ arborists recommended for delisting.[254]

9.3.2.2 PG&E-25U-08. Energy Safety Evaluation

PG&E provided the required documentation and will incorporate all functions from the reinspection pilot into its Distribution Routine Patrol and Distribution Hazard Patrol activities. Further discussion on the consolidation of TRI into routine patrols is in Sections 9.3.5 and 9.4.1.

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

9.3.3 PG&E-23B-15. Implementation of Focused Tree Inspections and Addressing the Risk from Hazard Trees

For this area for continued improvement, Energy Safety required PG&E to present a plan in its 2026-2028 Base WMP for consistent HFTD-wide hazard tree-related risk reduction, and to benchmark with other electrical corporations and Energy Safety "to remain abreast of hazard tree inspection and remediation strategies."[255]

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[252] Decision on PG&E 2025 WMP Update, p. 65.

[253] 2026-2028 Base WMP: Vol 1 R3, p. 590.

[254] 2026-2028 Base WMP: Vol 1 R3, p. 590.

[255] Decision on PG&E 2025 WMP Update, pp. 65-66.

9.3.3.1 PG&E-23B-15. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it will update its Distribution Hazard Patrol Program during the 2026-2028 WMP cycle to direct its inspectors to perform proactive risk based, rather than schedule-based inspections. Additionally, PG&E states it will "leverage remote sensing technologies to monitor and identify additional vegetation work necessary."[256]

PG&E also states that it will benchmark with its peer electrical corporations and Energy Safety to explore advancements in hazard tree inspections and remediation strategies.[257]

9.3.3.2 PG&E-23B-15. Energy Safety Evaluation

PG&E demonstrates continued growth and resource use efficiency by adopting a risk-based inspection strategy to identify hazard trees and committing to iterating its strategy based on emergent technologies and techniques. This strategy will help focus PG&E's resources on the greatest risks.

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

9.3.4 PG&E-23B-16. Updating the Wood Management Procedure

For this area for continued improvement, Energy Safety required PG&E to update its Wood Management Procedure and to benchmark its Wood Management program with other electrical corporations in its 2026-2028 Base WMP.[258]

9.3.4.1 PG&E-23B-16. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it updated its Wood Management Procedure in November 2024 to align with industry practices and to consider the risk and safety impacts of leaving woody debris on site.[259]

PG&E also states that it held benchmarking discussions with SCE and SDG&E in 2023, and reviewed Liberty's procedures. PG&E determined that differences in the large electrical corporations' wood and slash management scopes are attributed to differences in terrain and

[256] 2026-2028 Base WMP: Vol 1 R3, p. 591.

[257] 2026-2028 Base WMP: Vol 1 R3, p. 592.

[258] Decision on PG&E 2025 WMP Update, pp. 66-67.

[259] 2026-2028 Base WMP: Vol 1 R3, p. 594.

customer bases.[260] PG&E states that it will continue to benchmark with other large electrical corporations and SMJUs, including SCE, SDG&E, and Liberty.[261]

9.3.4.2 PG&E-23B-16. Energy Safety Evaluation

PG&E's updates to its Wood Management Procedure increases consistency in its wood management practices. PG&E's new process to consider safety impacts associated with leaving large woody debris near structures and evacuation routes demonstrates maturity of its wood management program.

PG&E benchmarked its Wood Management Procedure with SCE and SDG&E and reviewed Liberty's procedures. PG&E sufficiently responded to this area for continued improvement, but should pursue deeper collaboration with Liberty. PG&E should open a benchmarking discussion with Liberty in the same manner that benchmarking discussions were held with SCE and SDG&E. Benchmarking requires a greater analysis than reviewing procedures. Energy Safety expects PG&E to honor its commitment set in the 2026-2028 Base WMP to continue benchmarking its wood management practices with other large electrical corporations and SMJUs, including SCE, SDG&E, and Liberty.

PG&E sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

9.3.5 PG&E-23B-17. Consolidation of Vegetation Inspection Programs

For this area for continued improvement, Energy Safety required PG&E to present a plan to consolidate its vegetation inspection programs for distribution circuits in its 2026-2028 Base WMP.[262]

9.3.5.1 PG&E-23B-17. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it is in the process of evaluating the components of FTI and TRI to be consolidated into its Distribution Routine Patrol program.[263]

PG&E incorporated Vegetation Management for Operational Mitigation (VMOM) procedures into its PSPS preparation procedures and additional patrol procedures in advance of adverse weather.[264]

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[260] 2026-2028 Base WMP: Vol 1 R3, p. 594.

[261] 2026-2028 Base WMP: Vol 1 R3, p. 594.

[262] Decision on PG&E 2025 WMP Update, p. 67.

[263] 2026-2028 Base WMP: Vol 1 R3, p. 596.

[264] 2026-2028 Base WMP: Vol 1 R3, p. 596.

9.3.5.2 PG&E-23B-17. Energy Safety Evaluation

PG&E has improved its resource efficiency by consolidating VMOM into existing programs.

PG&E's plan for incorporating FTI and TRI into Distribution Routine Patrol did not include sufficient detail and Energy Safety issued a Revision Notice Critical Issue RN-PGE-26-09 requiring PG&E to provide more information on the incorporation of TRI and FTI into routine patrols. Section 9.4.2 includes Energy Safety's evaluation of PG&E's response to RN-PGE-26-09 and further discussion on the program consolidation.

PG&E must continue to improve in this area. Requirements for improvement are set forth in Section 9.5, PGE-26B-17 "Consolidated FTI, TRI, and Distribution Pole Procedures."

9.3.6 PG&E-23B-18. Improving Vegetation Management Inspector Qualifications

For this area for continued improvement, Energy Safety required PG&E, in its 2026-2028 Base WMP, to present a plan to improve the qualifications and training of its vegetation management inspectors and explain the decision-making process for updating the minimum qualifications and training requirements for its vegetation management inspectors.[265]

9.3.6.1 PG&E-23B-18. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E describes a multi-activity approach to improving vegetation management contractor and employee qualifications. The approach includes standardizing and "profiling" training requirements, providing refresher courses when there are programmatic and procedural changes, and on-the-job training such as onboarding and in-field training. Localized "Quality Learning forums" to review findings and trends inform PG&E's corrective actions and guide continuous improvement.[266, 267]

PG&E further describes that training requirements are updated when standards and procedures are changed.[268]

9.3.6.2 PG&E-23B-18. Energy Safety Evaluation

PG&E provided the required plan for improving the qualifications of its current vegetation management employees. PG&E also provided the required information on updating training requirements.

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[265] Decision on PG&E 2025 WMP Update, p. 67.

[266] 2026-2028 Base WMP: Vol 1 R3, p. 598.

[267] Response to Data Request 001 Q08.

[268] 2026-2028 Base WMP: Vol 1 R3, p. 598.

PG&E did not describe its process for updating minimum qualifications for new vegetation management employees; however, PG&E's minimum hiring requirements are comparable to both SCE and SDG&E.[269, 270] As such, PG&E's minimum qualifications do not require an immediate update, but PG&E should ensure that it has a process in place to regularly update its new hire minimum qualifications.

Given PG&E's commitment to fund certifications, memberships, and scholarships to advance its current and future workforce, PG&E has demonstrated continued progress in its vegetation management workforce planning and has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement.

9.3.7 PG&E-23B-21. Identification of High-Risk Species for Focused Tree Inspections

For this area for continued improvement, Energy Safety required PG&E to provide methodologies for determining which tree species "warrant increased scrutiny during Focused Tree Inspections and other inspections" in its 2026-2028 Base WMP.[271]

9.3.7.1 PG&E-23B-21. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it developed outage and ignition dashboards that "allows the user to drill down to the circuit or CPZ [circuit protection zone] level to see historical outage and ignition causes by species, diameter, and failure."[272] PG&E's vegetation management employees can view a count of which tree species or other characteristics are associated with increased tree or tree part failures.[273]

9.3.7.2 PG&E-23B-21. Energy Safety Evaluation

PG&E did not demonstrate the progress required by Energy Safety.

PG&E developed a tool to improve situational awareness, including outage and ignition dashboards.[274] The dashboards are useful for presenting data to inspectors, but the data that PG&E provides is raw outage and ignition numbers by tree species. This data is insufficient to determine species-specific probabilities of failure in PG&E's regional areas of concern (AOCs).

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[269] SCE 2026-2028 Base WMP R0, p. 373.

[270] SDG&E 2026-2028 Base WMP R1, p. 259.

[271] Decision on PG&E 2025 WMP Update, p. 68.

[272] 2026-2028 Base WMP: Vol 1 R3, p. 599.

[273] 2026-2028 Base WMP: Vol 1 R3, p. 599.

[274] 2026-2028 Base WMP: Vol 1 R3, p. 599.

For example, a given area may have a large population of a single or a small number of tree species (e.g., *Quercus agrifolia* in the eastern region of the San Francisco Bay Area) and so these species often cause the most ignitions and outages. When looking at simple ignition count, a large population of species with a low ignition rate might show more ignitions and overshadow a small population of species with a significantly higher ignition rate. In this case, PG&E's dashboard would show the large population of species as causing many outages and ignitions when the individual trees of the small population species may actually be riskier.

In response to a data request, PG&E stated "there is not enough data at the CPZ level to confidently estimate the outage or ignition probability of tree species at such a granular level. PG&E plans to evaluate ignition probability of tree species at the eco-region level in 2025."

To reduce wildfire risk and focus vegetation management efforts, PG&E must calculate the probability that a given tree species impacts electrical infrastructure regardless of the population size. Put simply, PG&E must be able to determine the probability of a tree failing given its location, species, and health.

As such, PG&E must continue to improve in this area for its next WMP Update. Requirements for improvement are set forth in PGE-26B-18, "Developing Tree Specific Outage Probabilities."

9.3.8 PG&E-23B-22. Continuation of Effectiveness of Enhanced Clearances Joint Study

For this area for continued improvement, Energy Safety required PG&E, SCE, and SDG&E to report on the progress and outcomes of the study on enhanced clearances effectiveness in its 2026-2028 Base WMP. Energy Safety also required PG&E to attach a white paper that discusses recommendations for updates to utility vegetation management operations based on the results of the study.[275]

9.3.8.1 PG&E-23B-22. PG&E Response Summary

In its 2026-2028 Base WMP, PG&E states that it, in conjunction with SCE and SDG&E, conducted a joint study to quantify the benefits of proactive vegetation pruning to a 12 feet or greater clearance.[276] PG&E provided a link to the white paper that includes the findings from the joint study and third-party recommendations.[277]

[275] Decision on PG&E 2025 WMP Update, p. 68.

[276] 2026-2028 Base WMP: Vol 1 R3, page 600.

[277] 2026-2028 Base WMP: Vol 1 R3, pages 600-601.

9.3.8.2 PG&E-23B-22. Energy Safety Evaluation

The white paper provided by PG&E details the large investor-owned utilities' joint evaluation of the effectiveness of enhanced clearances in reducing tree-caused outages and ignitions. The data and analysis of the joint study support the recommendations for updates to vegetation management operations and PG&E's implementation plan includes appropriate milestones and timelines.

However, PG&E was unable to analyze the effectiveness of enhanced clearances combined with other mitigations due to insufficient data.[278] As such, PG&E must build off its progress and continue to improve in this area for its next Base WMP. Requirements for improvement are set forth in Section 9.5, PGE-26B-19 "Quantifying Enhanced Clearances Effectiveness."

PG&E is in various stages of implementing the six recommendations outlined in Table 9 of the white paper and is demonstrating progress in improving its vegetation management practices. PG&E must continue its progress in implementing these recommendations. Requirements for improvement are set forth in Section 9.5 PGE-26B-20 "Implementation of Enhanced Clearances Joint Study Recommendations."

9.4 Revision Notice Critical Issues

Energy Safety issued PG&E a Revision Notice for its 2026-2028 Base WMP. This section evaluates PG&E's response to that Revision Notice as it relates to vegetation management and inspections.

9.4.1 RN-PGE-26-08. Vegetation Management Qualitative Targets Are Not Specific or Measurable

Energy Safety required PG&E to revise its vegetation management qualitative targets to be specific and measurable.[279]

9.4.1.1 RN-PGE-26-08. PG&E Response Summary

PG&E revised its vegetation management qualitative targets to increase detail and made the targets specific and measurable.[280] For example, added seven phases to its workforce planning target with a start and end date for each phase, such as "complet[ing] discussions with other utilities regarding potential agreement on best practices" by September 30,

[278] 2026-2028 Base WMP: Vol 1 R3, p. 601.

[279] Revision Notice for PG&E 2026-2028 Base WMP, pp. 14-15.

[280] Revision Notice Response R1, pp. 30-34.

2027.[281] In its Revision Notice Response, PG&E also detailed milestones and timelines for each vegetation management qualitative target.[282]

9.4.1.2 RN-PGE-26-08. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

9.4.2 RN-PGE-26-09. No Plan for Incorporating TRI And FTI Into Routine Patrols

Energy Safety required PG&E to revise its 2026-2028 Base WMP to include a plan for evaluating the components of TRI and FTI that it will incorporate into Distribution Routine Patrol and ensure vegetation risks are effectively mitigated during the transition to the consolidated program.[283] PG&E was also required to set quantitative targets for mitigating trees in the TRI for 2026, 2027, and 2028.

9.4.2.1 RN-PGE-26-09. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E describes a general framework for incorporating the functions of TRI and FTI activities into Distribution Routine Patrol.[284] PG&E presents a timeline that shows it intends to finish integrating TRI and FTI into Distribution Routine Patrol by the beginning of 2026.[285]

PG&E revised its WMP to include a target for mitigating trees remaining in the TRI.[286] PG&E also changed its definition of “mitigate” in the context of TRI to include: trees removed by the Distribution Routine or other vegetation management program, trees no longer a threat due to relocated PG&E facilities, and trees de-listed through Level 2 inspection review.

9.4.2.2 RN-PGE-26-09. Energy Safety Evaluation

Plans for Incorporating TRI and FTI into Routine Patrols

PG&E’s plans for incorporating TRI and FTI will preserve the original purpose of both TRI and FTI. The consolidation will be completed before Janauary 1, 2026, and therefore, all Routine Distribution Patrol activities described in the 2026-2028 Base WMP will reflect the

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[281] Revision Notice Response R1, p. 31.

[282] Revision Notice Response R1, p. 33.

[283] Revision Notice for PG&E 2026-2028 Base WMP, p. 16.

[284] Revision Notice Response R1, p. 38.

[285] Revision Notice Response R1, p. 41.

[286] Revision Notice Response R1, p. 42.

consolidated program. PG&E must submit its procedures for the consolidated program to Energy Safety by Janauary 1, 2026.

Mitigating Trees in the TRI

PG&E's targets for mitigating trees in the TRI are set as cumulative year-end targets, which provides flexibility around adverse site and permitting conditions, but still maintains a pace that will likey allow PG&E to complete full TRI mitigation by 2030. PG&E's changes to the definition of "mitigate" are appropriate for determining that a tree no longer requires TRI listing. However, this definition stretches across multiple types of activities which may lead to issues with clear recordkeeping. For example, in the 2023 Substantial Vegetation Management Audit Report, Energy Safety found that PG&E could not provide documentation of proper review for trees in the TRI determined to no longer require work.[287] PG&E should ensure that all mitigated trees in the TRI are supported by documentation verifying the specfic means of mitigation.

Energy Safety finds that PG&E has de-escalated this critical issue to an area for continued improvement. Requirements for improvement are set forth in Section 9.5, PGE-26B-17 "Consolidated FTI, TRI, and Distribution Patrol Procedures."

9.4.3 RN-PGE-26-10. Pole Clearing Targets Do Not Follow WMP Guideline Requirements

Energy Safety required PG&E to separate its pole clearing targets into two separate targets: pole clearing completed in compliance with California Public Resources Code (PRC) section 4292, and pole clearing completed outside of PRC section 4292 requirements.

9.4.3.1 RN-PGE-26-10. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E separates its pole clearing target into two targets for the years 2026, 2027, and 2028. VM-02C "Pole Clearing Program – Compliance" tracks pole clearing completed in compliance with PRC section 4292, and VM-02R "Pole Clearing Program – Risk Reduction" tracks pole clearing completed outside of PRC section 4292 requirements.[288] For each year of 2026, 2027, and 2028, PG&E plans to clear 45,710 poles in compliance with PRC section 4292 and 24,290 poles for risk reduction outside of PRC section 4292 requirements.

9.4.3.2 RN-PGE-26-10. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

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[287] 2023 Substantial Vegetation Management Audit Report, pp. 12-14.

[288] Revision Notice Response R1, p. 44.

9.4.4 RN-PGE-26-11. Integrated Vegetation Management Rights-of-Way Reassessment Timescales Are Unclear

Energy Safety required PG&E to revise its 2026-2028 Base WMP to clearly state the cadence of work performed for IVM and add definitions to vague terminology.[289] PG&E provided various, seemingly contradicting, descriptions for its IVM work, impacting Energy Safety's ability to evaluate the activities.[290]

9.4.4.1 RN-PGE-26-11. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E describes the cadence for IVM assessment and re-assessment work: "PG&E annually assess rights-of-way using LiDAR data and other inputs."[291] PG&E also defineds "previously-worked rights of way" as areas where vegetation maintenance was performed to meet NERC FAC-003 requirements, areas with rights-of-way reclamation or expansion efforts, or areas with ongoing IVM maintenance.[292]

9.4.4.2 RN-PGE-26-11. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

9.4.5 RN-PGE-26-12. Vegetation Management QA/QC Units Are Inconsistent

Energy Safety required PG&E to revise its QA and QC activities to have consistent units across each individual QA and QC activity.[293]

9.4.5.1 RN-PGE-26-12. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E states that the population/sample units for its QA audit are circuit miles, and that the population/sample units for its QC audits are spans and poles.[294] QA audits consist of all circuit miles, regardless of whether pre-inspectors have inspected particular circuit miles. QC audits consist of spans and poles that pre-inspectors have recently inspected and vegetation management crews may have recently worked.

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[289] Revision Notice for PG&E 2026-2028 Base WMP, p. 19.

[290] Revision Notice for PG&E 2026-2028 Base WMP, p. 19.

[291] Revision Notice Response R1, p. 44.

[292] Revision Notice Response R1, pp. 46-47.

[293] Revision Notice on PG&E 2026-2028 Base WMP, p. 20.

[294] Revision Notice Response R1, p. 48-49

9.4.5.2 RN-PGE-26-12. Energy Safety Evaluation

PG&E provided the required consitent units for each audit type in *Table 9-6, Vegetation Management QA and QC Activity*.

Energy Safety finds that PG&E has resolved this critical issue.

9.5 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.

9.5.1 PGE-26B-16. Constrained Work Order Resolution and Tracking

Summary: PG&E considers work orders that remain open due to delays as "constrained." PG&E does not consider "constrained" work orders to be past due. Allowing "constrained" work orders to remain unresolved beyond the timeline set by the work order's priority level likely exposes PG&E's service territory to increased wildfire risk as unmitigated vegetation becomes more likely to contact infrastructure.

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

- Present a plan, with steps that are specific, measurable, achievable, realistic, and timebound, to improve its constraint resolution processes with the goal of resolving "constrained" work orders as quickly as possible for each constraint category:
    - Biological and Cultural.
    - Customer.
    - Encroachment Permitting.
    - Environmental Permitting.
    - Other.
- Update *Table 9-7, Number of Past Due Vegetation Management Work Orders Categorized by Age and HFTD Tier* and *Table 9-8, Number of Past Due Vegetation Management Work Orders Categorized by Age and Priority Levels* to include "constrained" work orders that would be past due if they were not categorized as "constrained."

Discussed in: Section 9.2.11 Work Orders

9.5.2 PGE-26B-17. Consolidated FTI, TRI, and Distribution Patrol Procedures

Summary: In its response to critical issue RN-PG&E-26-09, PG&E states that it intends to operationalize the consolidation of Focused Tree Inspection and Tree Removal Inventory functions into Distribution Routine Patrol and/or Distribution Hazard Patrol on or by December 31, 2025.

Requirements: PG&E must provide the following:

- By January 1, 2026, PG&E must submit the most recent versions of all procedures governing Distribution Routine Patrol (VM-16) and Distribution Hazard Patrol (VM-17) to the 2026-2028 Base Wildfire Mitigation Plan Docket.
- In its next WMP Update, PG&E must:
    - Provide finalized procedures governing Distribution Routine Patrol (VM-16) and Distribution Hazard Patrol (VM-17).
    - List these finalized procedures, including the version(s) and effective date(s) in the Vegetation Management "Distribution Routine Patrol" section of its WMP.

Discussed in: Section 9.3.5 PG&E-23B-17 Consolidation of Vegetation Inspection Programs

9.5.3 PGE-26B-18. Developing Tree-Specific Outage Probabilities

Summary: In its response to area for continued improvement PGE-23B-21 "Identification of High-Risk Trees for Focused Tree Inspections," PG&E states that it developed a dashboard for vegetation management employees to view ignition and outage data by tree species at the circuit or circuit protection zone level. The outage and ignition dashboards are useful, but they only provide simple count data. Instead, providing outage count data weighted by the area's population size of a particular species or genus would better inform pre-inspectors of riskier trees. Knowledge of which trees are more likely to cause an outage could supplement a basic tree risk assessment and inform decisions on appropriate mitigations.

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

- Present a plan for calculating tree species-specific or genus-specific probabilities of an outage occurring at the division, area of concern, and circuit level.
- Describe its methodology for (e.g., using its Strike Tree Species Model Prediction) and findings from calculating tree species-specific or genus-specific outage probabilities at the USGS Ecoregion Level III scale (https://pubs.usgs.gov/of/2016/1021/ofr20161021_sheet1.pdf). At minimum, PG&E must list the 15 tree species or genera that have caused the highest percentage of outages within its HFTD for each Ecoregion. When an Ecoregion has fewer than 15 tree species or genera that caused

outages, PG&E must list all tree species or genera that caused outages. PG&E must include the following:

- The percentage each tree species or genus represents of population in the Ecoregion.
- The percentage of outages caused by each tree species or genus in the Ecoregion.
- The number of outages in the Ecoregion caused by each species or genus per 1,000 trees.

Discussed in: Section 9.3.7 PG&E-23B-21 Identification of High-Risk Species for Focused Tree Inspections

9.5.4 PGE-26B-19. Quantifying Enhanced Clearances Effectiveness

Summary: In its response to PG&E-23B-22, PG&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, PG&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.
- Cost-benefit ratios for enhanced clearances and non-enhanced clearances.
- 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). 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 9.3.8 PG&E-23B-22 Continuation of Effectiveness of Enhanced Clearances Joint Study

9.5.5 PGE-26B-20. Implementation of Enhanced Clearances Joint Study Recommendations

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

Requirements: In its next Base WMP, for each recommendation in Table 9 of the Effectiveness of Enhanced Clearances Joint Study, PG&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. PG&E&E must be ready to provide additional documentation upon request by Energy Safety.

Discussed in: Section 9.3.8 PG&E-23B-22 Continuation of Effectiveness of Enhanced Clearances Joint Study

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

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. [295, 296] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

10.1 Summary of Anticipated Risk Reduction

PG&E demonstrates forward-looking growth by planning on greatly increasing the number of continuous grid monitoring sensors installed on its system. In each year of the 2026-2028 Base WMP, PG&E aims to install 720 Line Sensor devices, 45 Distribution Fault Anticipation (DFA) sensors, and 540 Early Fault Detection (EDF) sensors.

These sensors continually monitor the system and detect abnormal conditions. PG&E uses "eyes-on-risk" to describe the risk reduction benefits of the sensors.[297] While the sensors themselves do not directly reduce risk, they provide information that informs other risk reducing activities.

10.2 Discussion

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

10.2.1 Environmental Monitoring Systems

PG&E's calibration commitment for its weather station calibration and its process for identifying network gaps demonstrates forward-looking growth.

PG&E has an extensive weather station network consisting of 1,582 weather stations.[298] PG&E deems its weather station network as fully mature, so has not set a target to install any new weather stations.[299] However, PG&E has set other weather station-related commitments that will reduce risk.

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

[296] WMP Guidelines, pages 125-139.

[297] 2026-2028 Base WMP: Vol 1 R3, p. 436.

[298] 2026-2028 Base WMP: Vol 1 R3, p. 440.

[299] 2026-2028 Base WMP: Vol 1 R3, p. 470.

Firstly, PG&E commits to ensuring 95 percent of weather stations are calibrated and in a "trusted" state.[300] PG&E aims to perform calibration of each weather station once per calendar year and within 15 months of the last calibration.[301] If a station goes beyond 15 months without a calibration, it is considered "untrusted" and removed from live data and situational awareness systems.[302] 95 percent of weather stations being in a "trusted" state is a reasonable commitment that ensures PG&E has adequate and accurate weather station coverage to monitor its service territory for risks.

Secondly, PG&E sets forth an annual process to discuss any identified gaps in its weather station network.[303] Potential new locations are identified through GIS analysis and lessons learned from the past season's PSPS events.[304] Even though PG&E considers its weather station network fully mature, it continues to analyze the system for gaps which demonstrates PG&E's forward-looking growth.

10.2.2 Grid Monitoring Systems

PG&E has committed to installing more Line Sensors, Distributed Fault Anticipation (DFA) sensors, and Early Fault Detection (EFD) sensors. The installation of these additional sensors will increase PG&E's grid monitoring capabilities and likely reduce risk.

Line Sensors detect current and are used to detect and assist in locating faults.[305] PG&E has deployed 1,295 Line Sensor locations across 297 circuits and commits to installing an additional 240 units each year from 2026 through 2028,[306] representing a 56 percent growth of its Line Sensor installations.

DFA measures current and voltage flow anomalies and is used to detect and assist in locating faults.[307] PG&E has deployed 96 DFA sensors and commits to installing 15 additional sensors each year from 2026 through 2028,[308] representing a 47 percent growth of its DFA sensor locations.

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[300] 2026-2028 Base WMP: Vol 1 R3, p. 469.

[301] 2026-2028 Base WMP: Vol 1 R3, p. 469.

[302] 2026-2028 Base WMP: Vol 1 R3, p. 469.

[303] 2026-2028 Base WMP: Vol 1 R3, p. 470.

[304] 2026-2028 Base WMP: Vol 1 R3, p. 470.

[305] 2026-2028 Base WMP: Vol 1 R3, p. 447.

[306] 2026-2028 Base WMP: Vol 1 R3; p. 448 and Table 10-1, p. 436.

[307] 2026-2028 Base WMP: Vol 1 R3, p. 447.

[308] 2026-2028 Base WMP: Vol 1 R3; p. 448 and Table 10-1, p. 436.

EFD monitors the radio frequency spectrum for indicators of equipment degradation or arcing.[309] PG&E has deployed EFD sensors at 203 locations along eight circuits and commits to installing 180 EFD sensors each year from 2026 through 2028,[310] representing a 266 percent increase in its EFD locations.

The expansion of these sensor networks will likely reduce PG&E's risk. PG&E should also ensure it has a clear strategy to efficiently deploy systems with similar purposes.

10.2.3 Ignition Detection Systems

PG&E's high weather camera coverage and commitments to maintain and improve its camera system will likely reduce the risk of wildfires.

PG&E sponsors over 600 cameras covering over 90 percent of its HFTD Tiers 2 and 3 areas.[311] In the 2026-2028 Base WMP, PG&E commits to a minimum of 90 percent average weekly uptime for wildfire cameras.[312] PG&E's cameras have been equipped with AI technology to detect smoke with algorithms.[313] PG&E commits to further evaluate new AI capabilities by December 31, 2026.[314]

10.3 Areas for Continued Improvement

PG&E did not have any areas for continued improvement to report on and Energy Safety identifies no new areas for continued improvement in the Situational Awareness and Forecasting section.

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[309] 2026-2028 Base WMP: Vol 1 R3, p. 448.

[310] 2026-2028 Base WMP: Vol 1 R3, p. 450.

[311] 2026-2028 Base WMP: Vol 1 R3, p. 456.

[312] 2026-2028 Base WMP: Vol 1 R3, Table 10-1, p. 436.

[313] 2026-2028 Base WMP: Vol 1 R3, p. 457.

[314] 2026-2028 Base WMP: Vol 1 R3, Table 10-1, p. 436.

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. [315] The PG&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 PG&E 2026-2028 Base WMP.

11.1.1 External Collaboration and Coordination

As part of PG&E's external collaboration and coordination, PG&E's Community Resilience Corridors pilot shows promise and, if successful, will increase the efficiency of wildfire mitigation work for both PG&E and local communities.

Additionally, PG&E identified a gap in its collaboration on local and regional wildfire mitigation planning: PG&E's wildfire and climate resiliency work is not connected with similar work undertaken by local communities and agencies.[316] To address the gap, PG&E is developing a Wildfire Resilience Corridors pilot. The pilot program's goal is to co-develop wildfire mitigation programs that will benefit both community assets and utility infrastructure.[317] Projects planned under the pilot may also have an opportunity to be jointly funded with the community.[318]

11.1.2 Public Communication, Outreach, and Education Awareness

PG&E's wildfire and PSPS communication, outreach, and education are relatively mature and, by comparison, its EPSS communication has been lacking. EPSS communication has

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[315] Pub. Util. Code § 8386(c)(7), (11), (16), (19)-(21).

[316] 2026-2028 Base WMP: Vol 1 R3, p. 506.

[317] 2026-2028 Base WMP: Vol 1 R3, p. 506.

[318] 2026-2028 Base WMP: Vol 1 R3, p. 506.

been raised as a concern from stakeholders in the past.[319] PG&E's EPSS communication, as described in its 2026-2028 Base WMP, demonstrates continued progress.

PG&E states it will focus on increasing awareness and education about EPSS into its broader customer messaging about wildfire safety outages.[320] PG&E communicates to customers impacted by multiple outages on EPSS-enabled circuits to explain outages and the actions PG&E is taking to reduce future impacts.[321] When not in peak wildfire season, PG&E states that it communicates with customers served by EPSS-enabled circuits to explain the EPSS program and identify opportunities for improvement.[322]

PG&E's focus on improving its EPSS messaging is encouraging and demonstrates incremental maturity of its outreach and education strategy from its 2023-2025 Base WMP.

11.2 Areas for Continued Improvement

PG&E did not have any areas for continued improvement to report on and Energy Safety identifies no new areas for continued improvement in the Emergency Preparedness, Collaboration, and Community Outreach section.

[319] Cal Advocates Comments on Large IOU 2023-2025 Base WMPs; Joint CCAs Comments on PG&E 2023-2025 Base WMP, p. 3pp. 40-41; Joint Local Governments Comments on PG&E 2023-2025 Base WMP, pp. 5-6; RCRC Comments on Large IOU 2023-2025 Base WMPs, p. 2.

[320] 2026-2028 Base WMP: Vol 1 R3, p. 519.

[321] 2026-2028 Base WMP: Vol 1 R3, p 520.

[322] 2026-2028 Base WMP: Vol 1 R3, p. 520.

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. [323] The PG&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 PG&E 2026-2028 Base WMP.

PG&E sets several notable enterprise system commitments to complete by the end of the WMP cycle that demonstrate its forward-looking growth and will likely improve the effectiveness of the programs that the data support.

PG&E commits to improve its vegetation management data by identifying and remediating data quality issues.[324] PG&E targets 18 of its highest priority vegetation management datasets for quality improvement: four in 2026, six in 2027, and eight in 2028.[325] Notably, PG&E states that it will establish a process to determine the root cause of data quality issues and address those root causes.[326] Improved quality of vegetation management data and an established process to identify the root cause of data quality issues will likely improve the effectiveness of PG&E's vegetation management programs.

PG&E also commits to integrate data from its continuous grid monitoring technologies (i.e., Line Sensors, DFA) into its existing systems.[327] PG&E states that it will create a centralized dashboard to streamline the monitoring of independent systems of sensors.[328] PG&E's commitment to integrate its continuous monitoring sensor data will improve the effectiveness of its grid monitoring programs.

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[323] Pub. Util. Code § 8386(c)(10), (14), (18).

[324] 2026-2028 Base WMP: Vol 1 R3, p. 543.

[325] Revision Notice Response R1, p. 34.

[326] 2026-2028 Base WMP: Vol 1 R3, p. 543.

[327] 2026-2028 Base WMP: Vol 1 R3, p. 543.

[328] 2026-2028 Base WMP: Vol 1 R3, pp. 543-544.

12.2 Areas for Continued Improvement

PG&E did not have any areas for continued improvement to report on and Energy Safety identifies no new areas for continued improvement in the Enterprise Systems section.

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. [329] The PG&E 2026-2028 Base WMP met the requirements of the WMP Guidelines for this section.

13.1 Discussion

This section discusses Energy Safety's evaluation of the lessons learned section of the PG&E 2026-2028 Base WMP.

PG&E identified 30 lessons learned in its 2026-2028 Base WMP.[330] The lessons learned cover a wide range of topics, including reduction of EPSS impact, increasing collaboration with local communities, and consolidation of similarly scoped activities.

An example of a lessons learned leading to improved efficiency is PG&E's phased approach to engaging with low-readiness emerging technologies. PG&E ended its funding of a proof-of-concept technology for the rapid location of faults.[331] PG&E found that that the device did not demonstrate unique value over market-available sensors and was not cost effective at scale, so ended the project at the end of the second of three planned phases.[332] PG&E was able to exit the agreement by using a phased approach in its contract structure and will enter engagements with low-readiness emerging technologies in a similar manner.[333]

PG&E has also participated in all Energy Safety required working groups and demonstrated the required progress set forth in the associated areas for continued improvement.[334] These collaborative efforts are a venue for PG&E and the other electrical corporations to share lessons learned, establish best practices, standardize procedures, and explore new methods and technologies.

13.2 Areas for Continued Improvement

PG&E did not have any areas for continued improvement to report on and Energy Safety identifies no new areas for continued improvement in the Lessons Learned section.

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[329] Pub. Util. Code §§ 8386(a) & (c)(5), (22).

[330] 2026-2028 Base WMP: Vol 1 R3; Table 13-1, pp. 554-586, Table 13-2, p. 562, and Table 13-3, pp. 564-568.

[331] 2026-2028 Base WMP: Vol 1 R3, p. 564.

[332] 2026-2028 Base WMP: Vol 1 R3, p. 564.

[333] 2026-2028 Base WMP: Vol 1 R3, p. 564.

[334] 2026-2028 Base WMP: Vol 1 R3, p. 558.

14. Cross-Category

14.1 Revision Notice Critical Issues

Energy Safety issued PG&E a Revision Notice for its 2026-2028 Base WMP. This section evaluates PG&E's response to that Revision Notice as it relates to cross-category themes.

14.1.1 RN-PGE-26-01. Targets Include Caveats for Future Changes

Energy Safety required PG&E to remove footnotes that indicated that some targets may be adjusted in future WMP years. For example, PG&E included a footnote that its underground miles for 2028 may change.[335]

14.1.1.1 RN-PGE-26-01. PG&E Response Summary

In the PG&E Revision Notice Response, PG&E removed the caveating footnotes.[336]

14.1.1.2 RN-PGE-26-01. Energy Safety Evaluation

Energy Safety finds that PG&E has resolved this critical issue.

[335] Revision Notice for PG&E 2026-2028 Base WMP, p. 4.

[336] Revision Notice Response R1, p. 2.

15. Conclusion

15.1 Discussion

Each electrical corporation must build, operate, and maintain its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment. When Energy Safety approves a WMP, it does so with the aim of continued improvement and may list areas for continued improvement which the electrical corporation must address. Energy Safety's evaluation of PG&E's 2026-2028 Base WMP identified both notable progress and areas that continue to require improvement.

PG&E's planned actions set in its 2026-2028 Base WMP will reduce wildfire risk.

PG&E has grown its risk modeling capabilities and made incremental improvements in the latest iterations of its Wildfire Distribution Risk Model and Wildfire Transmission Risk Model.

PG&E is making progress on reducing the backlog of open work orders by increasing the amount of work being done to close work orders. PG&E is also exploring new technologies to inform the proactive repair or replacement of assets, updating its pole clearing procedures to shorten time between clearings, and greatly increasing the number of continuous grid monitoring sensors on its system.

In addition to PG&E's progress, Energy Safety identified 20 areas for continued improvement (Appendix C) and expects PG&E to effectively address these concerns. Energy Safety will closely monitor PG&E's progress on the areas for continued improvements.

15.2 Approval

The PG&E 2026-2028 Wildfire Mitigation Plan is approved.

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electrical corporations, including PG&E, must continue to make progress toward reducing wildfire risk.

Energy Safety expects PG&E to effectively implement its wildfire mitigation activities to reduce wildfire and outage program risk.

PG&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 PG&E 2025 WMP Update identified areas for continued improvement. Areas for continued improvement are areas in which PG&E must continue to improve its WMP. As part of the 2026-2028 Base WMP evaluation, Energy Safety reviewed the progress reported by PG&E in addressing previously identified areas for continued improvement.

Areas for continued improvement identified in Energy Safety Decisions for the PG&E 2025 WMP Update and that required progress reporting in the PG&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. PG&E Previous Areas for Continued Improvement

ID	Title	Status
PG&E-25U-01	Outage-to-Ignition Risk Analysis	PG&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 for Energy Safety's evaluation of this area for continued improvement.
PG&E-23B-03	Incorporation of Extreme Weather Scenarios in Planning Models	PG&E has not sufficiently addressed the required progress. PG&E must continue to improve in this area for its next Base WMP. See Section 5.2.2 for Energy Safety's evaluation of this area for continued improvement. Section 5.4 sets forth the requirements for improvement.
PG&E-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	PG&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 for Energy Safety's evaluation of this area for continued improvement.
PG&E-25U-03	Continuation of Grid Hardening Joint Studies	PG&E has sufficiently responded to this area for continued improvement. PG&E must continue collaborative efforts for its next WMP Update. See Section 8.3.1 for Energy Safety's evaluation of this area for continued improvement. Section 8.5 sets forth the requirements for improvement.
PG&E-25U-04	Decrease in Detailed Ground Distribution Inspections	PG&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 for Energy Safety's evaluation of this area for continued improvement.

ID	Title	Status
PG&E-25U-05	Transformer Predictive Maintenance	PG&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 for Energy Safety's evaluation of this area for continued improvement.
PG&E-25U-06	Evaluation and Reporting of Safety Impacts Relating to EPSS	PG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 8.3.4 for Energy Safety's evaluation of this area for continued improvement.
PG&E-25U-07	Vegetation Management Recordkeeping	PG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 9.3.1 for Energy Safety's evaluation of this area for continued improvement.
PG&E-25U-08	Reinspection of Trees in the Tree Removal Inventory	PG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 9.3.2 for Energy Safety's evaluation of this area for continued improvement.
PG&E-23B-15	Implementation of Focused Tree Inspections and Addressing the Risk from Hazard Trees	PG&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 for Energy Safety's evaluation of this area for continued improvement.
PG&E-23B-16	Updating the Wood Management Procedure	PG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 9.3.4 for Energy Safety's evaluation of this area for continued improvement.
PG&E-23B-17	Consolidation of Vegetation Inspection Programs	PG&E has not sufficiently addressed the required progress. PG&E must continue to improve in this area for its next Base WMP. See Section 9.3.5 for Energy Safety's evaluation of this area for continued improvement. Section 9.5 sets forth the requirements for improvement.

ID	Title	Status
PG&E-23B-18	Improving Vegetation Management Inspector Qualifications	PG&E has sufficiently responded to this area for continued improvement. No further reporting is required for this area for continued improvement. See Section 9.3.6 for Energy Safety's evaluation of this area for continued improvement.
PG&E-23B-21	Identification of High-Risk Species for Focused Tree Inspections	PG&E has not sufficiently addressed the required progress. PG&E must continue to improve in this area for its next Base WMP. See Section 9.3.7 for Energy Safety's evaluation of this area for continued improvement. Section 9.5 sets forth the requirements for improvement.
PG&E-23B-22	Continuation of Effectiveness of Enhanced Clearances Joint Study	PG&E has not sufficiently addressed the required progress. PG&E must continue to improve in this area for its next Base WMP. See Section 9.3.8 for Energy Safety's evaluation of this area for continued improvement. Section 9.5 sets forth the requirements for improvement.

Appendix C. Consolidated List of Areas for Continued Improvement and Requirements

The list below consolidates all PG&E's areas for continued improvement and requirements that PG&E must address in future WMPs.

Risk Methodology and Assessment

PGE-26B-01. Further Evaluation of Climate Change Impact on Extreme Scenarios

Summary: Many large electrical corporations and SMJUs, including PG&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.

Requirements: In its next Base WMP, PG&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 implementing mitigations. This report must include identification of variables impacted by climate change and how those variables impact risk 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 and as directed by Energy Safety, PG&E must contribute to discussions and reports on topics such as how the joint study impacted PG&E's risk modeling efforts and how PG&E plans to implement any changes and findings discussed regarding climate change.

Discussed in: Section 5.1.3 Risk Scenarios

PGE-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 a 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 or BLF (building loss factor) 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.

Requirements: In its next WMP Update, PG&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 these methods impact overall risk.

In its next Base WMPs, PG&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 5.1.6 Quality Assurance and Quality Control

PGE-26B-03. Collaboration on Meteorological Scenarios

Summary: The weather scenarios used by the large electrical corporations and SMJUs in the calculation of probability and consequences 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.

Requirements: In its next Base WMP, PG&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 with the adopted Monte Carlo simulation method within the consequence risk model account for extreme weather that are not included within the referenced historical period. For example, demonstrate how PG&E is matching the distribution of predicted fire size with historical distributions with significant tail risks.
- Collaborate with other electrical corporations via participation in the Risk Modeling Working Group (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 5.2.2 PG&E-23B-03: Incorporation of Extreme Weather Scenarios in Planning Models

Wildfire Mitigation Strategy Development

PGE-26B-04. Inclusion of Additional Mitigation Activity Effectiveness Values

Summary: In Table 6-3, PG&E provides mitigation effectiveness values for four of the eleven activities in the table. These values are necessary to determine whether wildfire mitigation activities are appropriately selected and cost-effective. PG&E must update the table with effectiveness values for all activities.

Requirements: In its next WMP Update, PG&E must provide an updated Table 6-3 that includes effectiveness value calculations for all activities in the table. Where PG&E is unable to calculate an activity's effectiveness value, PG&E must estimate an effectiveness value and explain the barriers to calculating the effectiveness value.

Discussed in: Section 6.1.1 Risk Evaluation

PGE-26B-05. Joint Study for Mitigation Activity Effectiveness Estimates

Summary: The large electrical corporations, PacifiCorp, and Liberty 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. In addition, the effectiveness for mitigations in combination with covered conductor, including FCP and EFD, are rough estimates, lacking a proper evaluation of overlapping and added benefits.

Requirements: In its next Base WMP, PG&E must collaborate with SCE, SDG&E, PacifiCorp, and Liberty to determine more consistent methodologies and evaluations of mitigation activity effectiveness. PG&E, in collaboration with SCE, SDG&E, PacifiCorp, and Liberty 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 its subsequent Base WMP submission. The report must cover the following topics and summary:

- What type of data to use for determining mitigation activity effectiveness. This topic must include discussions of the following:
    - How to share available data across electrical corporations,
    - Evaluation of all mitigation activities performed by the collaborating IOUs listed out with the current effectiveness estimates being used, including shortcomings for any mitigation activities that do not currently have effectiveness values calculated,
    - Evaluation of the use of ignition vs. outage vs. other data for evaluating ignition risk, including a comparison of benefits and weakness,
    - 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 for translating data into probability of ignition.
- How mitigation activities are effective against various risk drivers are measured. This topic must include reporting on completion of the following:
  - Synchronization among collaborating IOUs on ways to calculate effectiveness of various mitigation activities against various risk drivers, including benefits and weaknesses of currently used approaches.
  - 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 the collaborating IOUs.
- How to evaluate mitigation activities in combination. This topic must include reporting on completion of the following:
  - Synchronization among collaborating IOUs on potential combinations to calculate 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 current efforts across the collaborating IOUs.

PG&E 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 Risk Evaluation

PGE-26B-06. Sensitivity Analysis for Risk Averse Scaling or Approach

Summary: PG&E employs a risk-averse scaling function to modify wildfire and PSPS consequence risk scores. PG&E accounts for tail risk by employing a risk-adverse Risk Attitude Function to weight low-frequency, high consequence events. 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, PG&E must:

- Provide an updated version of OEIS Table 5-5 with an additional column showing the unscaled risk scores.

In its next Base WMP, PG&E must:

- Collaborate with other large electrical corporations to:
    - Describe what risk scaling methodology each electrical corporation currently uses, provide justification for why that that methodology is used, and analyze the differences between methodologies across electrical corporations.
    - Describe what methodologies are appropriate for risk scaling and why.
    - 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 6.1.2 Wildfire Mitigation Strategy

PGE-26B-07. Integration of Additional Factors into Risk Models

Summary: The foundation of PG&E's grid hardening scoping decision-making process is its risk models. Risk models must be comprehensive, however, PG&E's grid hardening scoping decision-making process includes additional analysis of tree strike potential, ingress and egress concerns, and community vulnerability. Ideally, PG&E's grid hardening decision-making should not rely on additional, separate analysis for these factors. Instead, these factors should be accurately accounted for in PG&E's risk models. However, PG&E's risk models are not currently advanced enough to fully capture tree strike potential, ingress and egress concerns, and community vulnerability. PG&E must present a plan to increase its risk models' capabilities for capturing these factors.

Requirements: In its next WMP Update, PG&E must present a plan to improve its ability to model the following risks:

- Tree strike potential. The plan must ensure that tree strike potential is captured in the risk models so the grid hardening decision-making process does not rely on an additional, separate threshold.

- Ingress and egress concerns. The plan must ensure that ingress and egress concerns are captured in the risk models so the grid hardening decision-making process does not rely on an additional, separate threshold.
- Community vulnerability. The plan must ensure that community vulnerability is captured in the risk models so the grid hardening decision-making process does not rely on additional, separate, outside subject matter expertise to identify areas with significant community vulnerability risk.

Discussed in: Section 6.1.2 Wildfire Mitigation Strategy

Grid Design, Operations, and Maintenance

PGE-26B-08. Proactive Pole Replacement and Reinforcement Strategy

Summary: PG&E does not have a proactive strategy for pole replacements and reinforcements. PG&E's approach for distribution and transmission pole replacements and reinforcements is focused on remediating existing conditions. PG&E must integrate risk model outputs into its pole replacement and reinforcement strategy.

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

- Integrate Wildfire Distribution Risk Model (WDRM) outputs into its Distribution Pole Replacement Program and Distribution Pole Reinforcement Program. PG&E must explain how its distribution pole replacement and reinforcement work plans are informed by WDRM.
- Integrate Wildfire Transmission Risk Model (WTRM) outputs into its transmission pole and tower replacement and reinforcement activities. PG&E must explain how its transmission pole and tower replacement and reinforcement work plans are informed by WTRM.
- Identify a Tracking ID and set annual targets, separately, for its distribution and transmission pole and tower replacement and reinforcement activities in the HFTD.

Discussed in: Section 8.2.1.3 Distribution Pole Replacements and Reinforcements and Section 8.2.1.4 Transmission Pole/Tower Replacements and Reinforcements

PGE-26B-09. Evaluation and Strategic Decision on DTS FAST Pilot

Summary: PG&E has been piloting the Distribution, Transmission, and Substation – Fire Action Schemes and Technology (DTS FAST) system since 2020 with no clear next steps. DTS FAST provides high-speed detection of abnormal thermal events and is designed to shut off power before an ignition occurs. PG&E has already implemented different types of protective systems, Downed Conductor Detection (DCD) and Enhanced Powerline Safety Setting (EPSS), but has not analyzed whether or how DTS FAST will be integrated.

To support evidence-based decision making for the adoption of new technology, and to improve coordination across overlapping protective systems, PG&E must systematically evaluate the DTS FAST pilot.

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

- Provide a formal performance evaluation plan for DTS FAST, including analysis of ignition prevention, and false trip rates.
- Report key pilot outcomes, including trip events, fault verification data, and lessons learned from its implementation between 2020 to 2026.
- Provide an analysis on the integration feasibility between DTS FAST, DCD, and EPSS.

In its next Base WMP, PG&E must:

- Present a decision on whether to expand, redesign, or decommission the DTS FAST program based on the gathered data and performance trends.
- Provide a plan for the expansion or redesign if the decision is to expand or redesign the DTS FAST program. The plan must include timelines, milestones, and the metrics used to evaluate the program.

Discussed in: Section 8.2.1.6 Emerging Grid Hardening Technology Installations and Pilots

PGE-26B-10. 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 “idle,” “de-energized,” and “abandoned” lines also vary across electrical corporations, further complicating comparisons and evaluations across electrical corporations.

PG&E has three idle transmission lines in the HFTD. PG&E plans to remove two of the lines in 2025 and is evaluating the third to determine its risk of induction.

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, PG&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, PG&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.
    - Spatial distance between energized and idle 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 idle, de-energized, abandoned, or other similarly situated transmission lines;
    - A decision-making process for the removal, modification of grounding configuration, or other mitigation of idle, 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. PG&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, PG&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, PG&E must provide its decision-making process for reaching this determination.
    - Outline any planned changes to the inspection and maintenance of idle, de-energized, abandoned, or other similarly situated transmission circuits in the HFTD.

Discussed in: Section 8.2.1.9 Line Removal in the HFTD

PGE-26B-11. 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 PG&E-25U-03, PG&E 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 predominately aerial inspections, SCE performs combined aerial and ground inspections, and SDG&E performs ground inspections. Given that most electrical corporations' assets are monitored through visual inspection and only repaired or replaced when a condition is identified during an inspection, 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, PG&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 and report by March 1, 2028, to the 2026-2028 Base WMP Docket (#2026-2028-Base WMPs), and include the 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.
    - PG&E must report its recent findings from its REFCL deployment at the Calistoga Substation, including specific performance data, reliability outcomes, and operational challenges. PG&E must also report a roadmap for phasing out of the pilot and evaluation stage and transitioning to a permanent implementation framework if the REFCL technology proves effective.
    - PG&E must report on the results and effectiveness of its Gridscope pole-mounted sensor pilot program, including coverage percentages, CAIDI impacts, and validation testing timelines. PG&E must explain how Gridscope data informs its CC effectiveness evaluation and broader wildfire mitigation strategies.

- Distribution Detailed Inspection Benchmarking Study: a benchmarking study comparing PG&E, SCE, and SDG&E's detailed inspection job-aids, training, procedures, and checklists. The large electrical 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 minimum:
    - Review and compare PG&E's Overhead Inspection Job Aid TD-2305M-JA02, PG&E's Electrical Distribution Preventive Maintenance Manual TD-2305M, SCE's Distribution Inspection and Maintenance Program (DIMP), 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 inspection 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 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 of 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: PG&E's, SCE's, and SDG&E'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 PG&E has made or plans to make to its detailed inspection job-aids, training, procedures, and checklists because of the benchmarking study.
            - If PG&E elects to make no changes 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 PG&E's detailed

inspections through conclusions supported by the benchmarking study.

Discussed in: Section 8.2.2.2 Distribution Detailed Inspection Strategy, Section 8.2.6.2 Rapid Earth Fault Current Limiter (REFCL), Section 8.3.1 PG&E-25U-03 Continuation of Grid Hardening Joint Studies

PGE-26B-12. Aerial Scan Inspections

Summary: PG&E's Distribution Detailed Inspections consist of either a ground-based or aerial-based inspection. Going forward, PG&E plans to use Aerial Scan Inspections to supplement its Distribution Detailed Inspections. PG&E does not describe Aerial Scan Inspections in sufficient detail and does not describe how Aerial Scan Inspections are different from aerial-based Distribution Detailed Inspections.

Further, PG&E calculates the cost-benefit ratio of Aerial Scan Inspections and Distribution Detailed Inspections using "eyes-on-risk," which is not appropriate for comparing the cost-benefit ratios of different inspection types.

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

- Provide a comprehensive list of differences between Aerial Scan Inspections and aerial-based Distribution Detailed Inspections.
- Provide the shot sheets, checklists, job aids, and all other procedural instructions and material used by inspectors during Aerial Scan Inspections and aerial-based Distribution Detailed Inspections.
- Provide the completed inspection checklist and all photographs taken for an Aerial Scan Inspection completed in 2025 during which at least one Level 2 condition was found.
- Provide the completed inspection checklist and all photographs taken for an aerial-based Distribution Detailed Inspection completed in 2025 during which at least one Level 2 condition was found.
- Discuss alternative methodologies for determining the effectiveness of different inspection types, such as applying a weighting factor to the eyes-on-risk value for cost benefit ratio calculations based on the type of inspection being performed.

Discussed in: Section 8.2.2.2 Distribution Detailed Inspection Strategy

PGE-26B-13. Distribution Infrared Inspections

Summary: PG&E does not provide adequate analysis supporting the discontinuation of its Routine Distribution Infrared Inspection Program. Infrared inspections can identify risky thermal conditions that are unlikely to be identified through other inspection methods. PG&E discontinued the program in 2022 and narrowed its focus to areas of emerging concern where PG&E estimated infrared inspections could be more effective.

PG&E must provide additional information on how it is evaluating the effectiveness and efficiency of routine distribution infrared inspections on its highest risk assets.

Requirements: In Figure 8.3.8.2-1 of its 2026-2028 Base WMP, PG&E reports 11,288 assets that either demonstrate "severe" or "extreme" wildfire risk and at least "high" consequence, or at least "high" wildfire risk and "extreme" or "severe" consequence. In its next Base WMP, PG&E must:

- Provide an effectiveness analysis, including consideration of cost-benefit ratio, of performing routine distribution infrared inspections on the 11,288 highest risk structures identified above, and a similar analysis of performing routine infrared inspections on the assets historically loaded over 60 percent. The analysis must include:
    - A list of all circuits of which these assets are a part of. Of these circuits, PG&E must identify the circuits that are historically loaded below 40 percent, between 40 and 60 percent, between 60 and 80 percent, and above 80 percent.
        - For historical loading, PG&E must use the 90th percentile amperage reading on the lowest rated line segment during daylight hours from May 1 through September 30.
    - The estimated cost per structure of truck-based infrared inspections in 2028 if PG&E were to inspect the circuits historically loaded over 60 percent, with a breakdown of how this cost was calculated.
    - The estimated cost per structure of drone-based infrared inspections in 2028 if PG&E were to inspect the above circuits historically loaded over 60 percent, with a breakdown of how this cost was calculated.
    - The methodology used to calculate the benefit of performing infrared inspections on the circuits.
- Discuss how it will identify thermal conditions on these assets if it is not using routine infrared inspections.

Discussed in: Section 8.2.2.5 Transmission Switch Function Testing

PGE-26B-14. Transmission Switch Function Tests

Summary: PG&E's transmission switches demonstrate high failure and ignition rates, and transmission switch function tests have high find rates. Despite this, PG&E performs transmission switch function tests on an eight-year interval. PG&E states that it is investigating new technologies and work methods that may reduce the execution risk of switch function tests and allow for more frequent testing.

Given the high inspection find rates, failure rates, and ignition rates associated with transmission switches, PG&E must provide an explanation and documentation to support its transmission switch inspection strategy, including its testing interval.

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

- Explain its transmission switch function test cycle length. PG&E must support its explanation with benchmarking, engineering reports, or other studies.
- Describe alternatives it considered for its transmission switch function test cycle length and an explanation for why each alternative was rejected.
- List all technologies and work methods that it is investigating that are related to reducing execution risk of switch function tests. For each, PG&E must provide a summary of the technology or work method and a timeline for PG&E's evaluation of the technology or work method.

Discussed in: Section 8.2.2.4 Distribution Infrared Inspections

PGE-26B-15. Conductor, Connector, and Splice Failure Tracking

Summary: PG&E does not track the failure rate and ignition rate of transmission and distribution conductor, connectors, and splices separately for each equipment type. Instead, PG&E groups all three together into a combined failure rate and a combined ignition rate. Conductor, connectors, and splices combined have a high failure rate and ignition rate compared to other distribution and transmission assets. Notably, the combined ignition rate of conductor, connectors, and splices represents the highest rate of all distribution equipment. A more granular record of failures and ignitions will provide increased visibility to the risks presented by each of the individual equipment types.

Requirements: In its next Base WMP, PG&E must either:

- Demonstrate it is tracking failure rate and ignition rate for each individual equipment type of, conductor, connectors, and splices, or
- Provide a plan to track failure rates and ignition rates for each individual equipment type of, conductor, connectors, and splices, or
- Explain its reasoning for combining conductor, connector, and splice failure and ignition tracking and explain the process used to ensure that a high failure or ignition rate of one equipment type is not masked by the low failure or ignition rates of the others.

Discussed in: Section 8.2.3.1 Conductor, Including Covered Conductor

Vegetation Management and Inspections

PGE-26B-16. Constrained Work Order Resolution and Tracking

Summary: PG&E considers work orders that remain open due to delays as "constrained." PG&E does not consider "constrained" work orders to be past due. Allowing "constrained" work orders to remain unresolved beyond the timeline set by the work order's priority level

likely exposes PG&E's service territory to increased wildfire risk as unmitigated vegetation becomes more likely to contact infrastructure.

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

- Present a plan, with steps that are specific, measurable, achievable, realistic, and timebound, to improve its constraint resolution processes with the goal of resolving "constrained" work orders as quickly as possible for each constraint category:
    - Biological and Cultural.
    - Customer.
    - Encroachment Permitting.
    - Environmental Permitting.
    - Other.
- Update *Table 9-7, Number of Past Due Vegetation Management Work Orders Categorized by Age and HFTD Tier* and *Table 9-8, Number of Past Due Vegetation Management Work Orders Categorized by Age and Priority Levels* to include "constrained" work orders that would be past due if they were not categorized as "constrained."

Discussed in: Section 9.2.11 Work Orders

PGE-26B-17. Consolidated FTI, TRI, and Distribution Patrol Procedures

Summary: In its response to critical issue RN-PG&E-26-09, PG&E states that it intends to operationalize the consolidation of Focused Tree Inspection and Tree Removal Inventory functions into Distribution Routine Patrol and/or Distribution Hazard Patrol on or by December 31, 2025.

Requirements: PG&E must provide the following:

- By January 1, 2026, PG&E must submit the most recent versions of all procedures governing Distribution Routine Patrol (VM-16) and Distribution Hazard Patrol (VM-17) to the 2026-2028 Base Wildfire Mitigation Plan Docket.
- In its next WMP Update, PG&E must:
    - Provide finalized procedures governing Distribution Routine Patrol (VM-16) and Distribution Hazard Patrol (VM-17).
    - List these finalized procedures, including the version(s) and effective date(s) in the Vegetation Management "Distribution Routine Patrol" section of its WMP.

Discussed in: Section 9.3.5 PG&E-23B-17 Consolidation of Vegetation Inspection Programs

PGE-26B-18. Developing Tree-Specific Outage Probabilities

Summary: In its response to area for continued improvement PGE-23B-21 "Identification of High-Risk Trees for Focused Tree Inspections," PG&E states that it developed a dashboard for vegetation management employees to view ignition and outage data by tree species at the circuit or circuit protection zone level. The outage and ignition dashboards are useful, but they only provide simple count data. Instead, providing outage count data weighted by the area's population size of a particular species or genus would better inform pre-inspectors of riskier trees. Knowledge of which trees are more likely to cause an outage could supplement a basic tree risk assessment and inform decisions on appropriate mitigations.

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

- Present a plan for calculating tree species-specific or genus-specific probabilities of an outage occurring at the division, area of concern, and circuit level.
- Describe its methodology for (e.g., using its Strike Tree Species Model Prediction) and findings from calculating tree species-specific or genus-specific outage probabilities at the USGS Ecoregion Level III scale (https://pubs.usgs.gov/of/2016/1021/ofr20161021_sheet1.pdf). At minimum, PG&E must list the 15 tree species or genera that have caused the highest percentage of outages within its HFTD for each Ecoregion. When an Ecoregion has fewer than 15 tree species or genera that caused outages, PG&E must list all tree species or genera that caused outages. PG&E must include the following:
    - The percentage each tree species or genus represents of population in the Ecoregion.
    - The percentage of outages caused by each tree species or genus in the Ecoregion.
    - The number of outages in the Ecoregion caused by each species or genus per 1,000 trees.

Discussed in: Section 9.3.7 PG&E-23B-21 Identification of High-Risk Species for Focused Tree Inspections

PGE-26B-19. Quantifying Enhanced Clearances Effectiveness

Summary: In its response to PG&E-23B-22, PG&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, PG&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.
- Cost-benefit ratios for enhanced clearances and non-enhanced clearances.
- 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). 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 9.3.8 PG&E-23B-22 Continuation of Effectiveness of Enhanced Clearances Joint Study

PGE-26B-20. Implementation of Enhanced Clearances Joint Study Recommendations

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

Requirements: In its next Base WMP, for each recommendation in Table 9 of the Effectiveness of Enhanced Clearances Joint Study, PG&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. PG&E&E must be ready to provide additional documentation upon request by Energy Safety.

Discussed in: Section 9.3.8 PG&E-23B-22 Continuation of Effectiveness of Enhanced Clearances Joint Study

Appendix D. Public Comments

Public Comments on the PG&E 2026-2028 Base WMP

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

- Green Power Institute (GPI)
- Mussey Grade Road Alliance (MGRA)
- Rural County Representatives of California (RCRC)
- The Utility Reform Network (TURN)

Comments received on the PG&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 comments into this Decision for the PG&E 2026-2028 Base WMP:

- GPI commented that PG&E has an "undergrounding first" mitigation selection process.
    - Energy Safety issued Revision Notice critical issue RN-PGE-26-03 which required PG&E to provide additional explanation of its grid hardening decision-making process.
- MGRA commented that it objects to PG&E's risk attitude function.
    - Energy Safety requires PG&E to collaborate with other large electrical corporations to determine appropriate scaling functions in area for continued improvement PGE-26B-02.
- MGRA commented that PG&E's suppression model should not be accepted in its present form.
    - Energy Safety requires PG&E's to improve its suppression modeling as part of area for continued improvement PGE-26B-02.
- MGRA commented that PG&E should be required to continue work on developing an egress metric.
    - Energy Safety requires PG&E to improve its egress modeling as part of area for continued improvement PGE-26B-02.
- MGRA commented that the grid hardening decision-making tree should specify justifications for selecting mitigations with a lower CBR.

  - Energy Safety issued Revision Notice critical issue RN-PGE-26-03 which required PG&E to provide additional explanation of its grid hardening decision-making process.
- RCRC commented that there is a lack of clarity on the consolidation of FTI, TRI, and VMOM.
  - Energy Safety issued Revision Notice critical issue RN-PGE-26-09 which required PG&E to revise its WMP with additional details on the consolidation of vegetation management programs.
  - Energy Safety requires PG&E to provide finalized procedures in area for continued improvement PGE-26B-17.
- TURN commented that PG&E's grid hardening decision tree heavily favors undergrounding.
  - Energy Safety issued Revision Notice critical issue RN-PGE-26-03 which required PG&E to provide additional explanation of its grid hardening decision-making process.

Public Comments on the PG&E Revision Notice Response and Revised 2026-2028 Base WMP

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

- Mussey Grade Road Alliance (MGRA)
- The Utility Reform Network (TURN)

Comments received on the PG&E Revision Notice Response and revised 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 comments into this Decision for the PG&E 2026-2028 Base WMP:

- MGRA commented that PG&E's justification of its 50 percent CBR threshold for undergrounding is unreasonable.
    - Energy Safety requires PG&E to collaborate with other large electrical corporations to determine appropriate scaling functions in area for continued improvement PGE-26B-02.
- MGRA commented that PG&E's use of Net Benefit and its risk averse function is not appropriate.
    - Energy Safety requires PG&E to collaborate with other large electrical corporations to determine appropriate scaling functions in area for continued improvement PGE-26B-02.
- MGRA commented that PG&E's use of AFN population as a proxy for an egress analysis is incorrect.
    - Energy Safety requires PG&E to improve its egress modeling as part of area for continued improvement PGE-26B-02.
- TURN commented that PG&E's explanation of its 50 percent CBR threshold for undergrounding is not well supported.
    - Energy Safety requires PG&E to collaborate with other large electrical corporations to determine appropriate scaling functions in area for continued improvement PGE-26B-02.

Public Comments on the Draft Decision for the PG&E 2026-2028 Base WMP

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

- Pacific Gas and Electric Company (PG&E)
- Mussey Grade Road Alliance (MGRA)
- The Utility Reform Network (TURN)

Comments received on the PG&E Revision Notice Response and revised 2026-2028 Base WMP can be viewed in the 2026-2028 Base WMP (#2026-2028-Base-WMPs) docket log.

Energy Safety made the following changes to the Decision for the PG&E 2026-2028 Base WMP as a result of comments received on the Draft Decision.

- MGRA commented that area for continued improvement PGE-26B-06 (Sensitivity Analysis for Risk Averse Scaling or Approach) should also require the electrical corporations to state the goals and purpose of adopting a risk scaling function and to support their positions.
    - Energy Safety revised area for continued improvement PGE-26B-06.
- PG&E commented that area for continued improvement PGE-26B-09 (Evaluation and Strategic Decision on DTS Pilot) incorrectly refers to a 2028-2031 Base WMP, which is misaligned with statutory timeline set forth by Senate Bill 254 (2025-2026).
    - Energy Safety revised area for continued improvement PGE-26B-09.
- PG&E commented that that categories of “constrained” vegetation management work orders presented in area for continued improvement PGE-26B-16 (Constrained Work Order Resolution and Tracking) are misaligned with the categories PG&E uses to track those work orders.
    - Energy Safety revised area for continued improvement PGE-26B-16.
- PG&E commented that requirements for area for continued improvement PGE-26B-18 (Developing Tree-Specific Outage Probabilities) should be refined.
    - Energy Safety revised area for continued improvement PGE-26B-18.

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

PG&E's responses to the Maturity Survey, listed by category, are depicted in the figure below.

Figure E-1: PG&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.	0.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	1.0	1.0	1.0	1.0
	Average of Sub-Cap.	2.7	2.7	2.8	2.8	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	2.7	2.7	2.7	2.7
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.	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Average of Sub-Cap.	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.6	3.6	3.6	3.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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.	2.0	3.0	3.0	4.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	2.0				
	Average of Sub-Cap.	3.5	3.8	3.8	4.0	3.3	3.3	3.3	3.3	2.0	2.0	2.0	2.0	3.5	3.5	3.5	3.5	2.5	3.0	3.3	3.5				
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.	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1.0	1.0	1.0	1.0	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0				
	Average of Sub-Cap.	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	1.8	1.8	1.8	1.8				
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.	2.0	2.0	2.0	2.0	1.0	1.0	3.0	3.0	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.	3.7	3.7	3.7	3.7	3.0	3.0	3.8	3.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0				
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	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	1.0	1.0	1.0	1.0
	Average of Sub-Cap.	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.4	3.4	3.4	3.4	3.0	3.5	3.5	3.5	4.0	4.0	4.0	4.0	1.5	1.5	1.5	1.5
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.
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.

Term	Definition
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: Emergency services sector: • Police stations • Fire stations • Emergency operations centers • Public safety answering points (e.g., 9-1-1 emergency services) Government facilities sector: • Schools • Jails and prisons Health care and public health sector: • Public health departments • 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) Energy sector: • 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 • Water and wastewater systems sector: • Facilities associated with provision of drinking water or processing of wastewater, including facilities that pump, divert, transport, store, treat, and deliver water or wastewater Communications sector: • Communication carrier infrastructure, including selective routers, central offices, head ends, cellular switches, remote terminals, and cellular sites Chemical sector: • Facilities associated with manufacturing, maintaining, or distributing hazardous materials and chemicals (including Category N-Customers as defined in D.01-06-085) Transportation sector: • Facilities associated with transportation for civilian and military purposes: automotive, rail, aviation, maritime, or major public transportation (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).

Term	Definition
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, 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.

Term	Definition
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. (Glossary of Wildland Fire)
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 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. (Glossary of Wildland Fire)
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. (Glossary of Wildland Fire)
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. (Glossary of Wildland Fire)
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.
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.

Term	Definition
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.
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.

Term	Definition
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.
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.

Term	Definition
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 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). (Adapted from Substantiating a Fire Model for a Given Application.)
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 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).

Term	Definition
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 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.

Term	Definition
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.
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 governments; Energy Safety; the Commission; the California Office of Emergency Services; and CAL FIRE.

Term	Definition
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. (Adapted from Introduction to International Disaster Management.)
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.)
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: • Ignitions • Outages not caused by vegetation • Outages caused by vegetation • Wire-down events • Faults • 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.

Term	Definition
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.)
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. (Glossary of Wildland Fire)
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. (Pub. Res. Code §4525.7)
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.
Utility-related ignition	An event that meets the criteria for a reportable event subject to fire-related reporting requirements. (D.14-02-015, p. C-3)
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.

Term	Definition
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.
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.

Term	Definition
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).
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).