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

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Caroline Thomas Jacobs, Director

August 29, 2024

To: Stakeholders for the Pacific Gas and Electric Company 2025 Wildfire Mitigation Plan Update

Enclosed is the Draft Decision of the Office of Energy Infrastructure Safety (Energy Safety), presenting its evaluation of the Pacific Gas and Electric Company 2025 Wildfire Mitigation Plan Update.

This Draft Decision is published for public review and comment. Opening comments must be submitted no later than September 18, 2024. Reply comments must be submitted no later than September 30, 2024.[1]

Comments must be submitted to Energy Safety's e-filing system in the 2023-2025 Wildfire Mitigation Plans docket (2023-2025-WMPs).[2]

Sincerely,

Tony Marino

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

[1] Dates falling on a Saturday or holiday as defined in Government Code Section 6700 have been adjusted to the next business day in accordance with Government Code Section 6707.
[2] Submit comments via the 2023-2025-WMPs docket on Energy Safety's e-filing system (https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMPs, accessed July 31, 2024).

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

DRAFT DECISION

PACIFIC GAS AND ELECTRIC COMPANY
2025 WILDFIRE MITIGATION PLAN UPDATE

August 2024

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1. Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) works to ensure electrical corporations take effective actions to reduce utility-related wildfire risk. This Decision approves Pacific Gas and Electric Company's (PG&E's) 2025 Wildfire Mitigation Plan (WMP) Update, submitted on April 2, 2024.

In rendering this Decision Energy Safety considered and, in some cases, incorporated comments from stakeholders and members of the public.

PG&E provided a total of 57 reportable updates in its 2025 WMP Update submission. These include two updates to risk models; 13 changes to approved targets, objectives, and projected expenditures; 21 new quarterly inspection targets; and 21 reports on progress required for areas for continued improvement.

The above-listed updates encompass seven initiative categories. These include risk methodology and assessment; wildfire mitigation strategy development; grid design, operations, and maintenance; vegetation management and inspections; situational awareness and forecasting; community outreach and engagement; and Public Safety Power Shutoff.

Energy Safety evaluated PG&E's 2025 WMP Update and finds several strengths. For example, PG&E's updates to mileage targets for overhead system hardening and undergrounding result in more efficient projected capital investments than its previously approved Base WMP. PG&E is also increasing its risk reduction by setting a more aggressive open workorder closeout target. Additionally, PG&E's updates to its Wildfire Distribution Risk Model provide key demonstrable improvements to asset strategy work planning and hazard and threat modeling. Further, PG&E is maturing its vegetation management programs in response to areas for continued improvement issued in Energy Safety's previous decisions.

PG&E also has areas of its WMP that can be further developed and improved. Energy Safety identified 15 areas for continued improvement for which PG&E is required to demonstrate progress in its 2026-2028 Base WMP submittal.

2. Introduction and Background

Pacific Gas and Electric Company (PG&E) submitted its 2023-2025 Wildfire Mitigation Plan (2023-2025 Base WMP) in 2023.[1] Energy Safety approved PG&E's 2023-2025 Base WMP on December 29, 2023. On April 2, 2024, PG&E submitted its 2025 Wildfire Mitigation Plan Update (2025 WMP Update). On July 5, 2024, PG&E submitted its revised 2025 WMP Update[2] to its 2023-2025 Base WMP in accordance with Energy Safety's 2025 Wildfire Mitigation Plan Update Guidelines (2025 WMP Update Guidelines)[3] and Energy Safety's 2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines (WMP Process Guidelines).[4]

Pursuant to Public Utilities Code section 8386.3(a), this Decision approves PG&E's 2025 WMP Update to its 2023-2025 Base WMP.

2.1 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 corporations' WMPs and WMP Updates. The Office of the State Fire Marshal provided consultation and input into Energy Safety's evaluation, but this Decision is an action of Energy Safety and not the Office of the State Fire Marshal or CAL FIRE.

2.2 Stakeholder Comments

Energy Safety invited stakeholders and members of the public to provide comments on the electrical corporations' 2025 WMP Updates and Revision Notices. Opening comments on

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[1] In accordance with Energy Safety's 2023-2025 Wildfire Mitigation Plan Technical Guidelines (December 6, 2022) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed April 9, 2024).

[2] As discussed in Section 3.4, in response to Energy Safety's Notice on Errata and Supplemental Reportable Updates for Pacific Gas and Electric Company, PG&E submitted a revised 2025 WMP Update (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024) and revised 2023-2025 Base WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56964&shareable=true, accessed July 15, 2024).

[3] Energy Safety's 2025 Wildfire Mitigation Plan Update Guidelines (adopted Jan. 2024, published Feb. 2024) (hereafter 2025 WMP Update Guidelines) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed May 6, 2024).

[4] Energy Safety's 2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines (Revised) (adopted Jan. 2024, published Feb. 2024) (hereafter Revised WMP Process Guidelines) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56255&shareable=true, accessed May 6, 2024).

PG&E's 2025 WMP Update were due on May 7, 2024, and reply comments were due on May 17, 2024. See Appendix D for lists of stakeholders and members of the public who submitted comments, including a summary of comments Energy Safety concurred with and incorporated into its evaluation.

3. Energy Safety 2025 WMP Update Evaluation Process

Energy Safety issued the following guidelines for electrical corporations' 2025 WMP Updates:

- **2025 Wildfire Mitigation Plan Update Guidelines (January 2024)** (hereafter 2025 WMP Update Guidelines), which sets forth reportable updates and general instructions for each electrical corporation's 2025 WMP Update.
- **2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines (Revised January 2024)** (hereafter WMP Process Guidelines), which outlines the process for Energy Safety's evaluation of WMPs, details the public participation process, and establishes submission requirements for the electrical corporations.
- **2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (Revised January 2024)** and **2023-2025 Electrical Corporation Wildfire Mitigation Maturity Survey (Revised February 2024)** (hereafter Maturity Model and Maturity Survey), which together provide a quantitative method for assessing electrical corporation wildfire risk mitigation capabilities and examining how electrical corporations continue to improve in key areas of their WMPs.[5, 6]

3.1 Reportable Updates

Energy Safety's 2025 WMP Update Guidelines delineate the following five categories of updates that the electrical corporations are required to report:[7]

1. Updates to risk models
2. Updates to approved targets, objectives, and projected expenditures[8]
3. Quarterly inspection targets for 2025 for vegetation management and asset inspections

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[5] Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (revised and adopted Jan. 2024, published Feb. 2024) (hereafter Maturity Model) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed May 6, 2024).

[6] Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Survey (adopted Jan. 2024, revised and published Feb. 2024) (hereafter Maturity Survey) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56306&shareable=true, accessed May 6, 2024).

[7] 2025 WMP Update Guidelines, "Reportable Updates," p. 3 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid= 56254&shareable=true, accessed May 6, 2024).

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

4. New or discontinued programs
5. Progress on areas for continued improvement

The 2025 WMP Update Guidelines direct electrical corporations that they may not include any updates in their 2025 WMP Update that do not fall under one of these categories.[9]

The 2025 WMP Update Guidelines further direct that if an electrical corporation does not have any updates that fall within any of the above categories, it must affirm that it has no reportable updates for 2025 and that the information provided in its 2023-2025 Base WMP is current and accurate.[10]

3.2 Maturity Model and Survey

Energy Safety used the Maturity Model[11] and the electrical corporations' 2023 and 2024 responses to the Maturity Survey[12] to assess the maturity of each electrical corporation's wildfire risk mitigation program.[13]

The Maturity Model consists of 37 individual capabilities describing the ability of electrical corporations to mitigate wildfire risk and Public Safety Power Shutoff (PSPS) risk within their service territory.[14] The 37 capabilities are aggregated into 7 categories.[15] Maturity levels range from 0 (below minimum requirements) to 4 (beyond best practice). For each electrical corporation, Energy Safety calculated maturity levels for each capability, each category, five

[9] 2025 WMP Update Guidelines, p. 3 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed March 29, 2024).

[10] 2025 WMP Update Guidelines, p. 3 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed March 29, 2024).

[11] Maturity Model (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed May 6, 2024).

[12] Maturity Survey (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56306&shareable=true, accessed May 6, 2024).

[13] Energy Safety revised the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model and Maturity Survey in January 2024. The revisions did not result in any changes to Maturity Survey questions, therefore the responses from 2024 are directly comparable to the responses from 2023. See the Maturity Survey issued by Energy Safety to the electrical corporations in 2023: Revised Final 2023 Electrical Corporation Wildfire Mitigation Maturity Survey (April 24, 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53708&shareable=true, accessed May 6, 2024).

[14] Maturity Model, Section 1, "Introduction" (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed April 9, 2024).

[15] Maturity Model, Section 3.1, "Capabilities and Categories" (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed April 9, 2024).

cross-category themes, and the overall WMP, based on the electrical corporation's answers to Maturity Survey questions and the scoring system described in the Maturity Model.[16]

Appendix F summarizes PG&E's 2024 Maturity Survey results and changes in PG&E's maturity compared to its 2023 Maturity Survey results.

3.3 Areas for Continued Improvement

Energy Safety's Decisions on the 2023-2025 Base WMPs focused on each electrical corporation's strategies for reducing the risk of utility-related ignitions. In those Decisions, Energy Safety identified areas where the electrical corporation must continue to improve its wildfire mitigation capabilities in future plans. For some areas, the electrical corporation was required to report its progress in its 2025 WMP Update. Energy Safety discusses the results of its evaluation of the electrical corporation's progress in each of those areas in Sections 5 through 9 of this Decision.

3.4 Errata

PG&E submitted a corrected version of its 2025 WMP Update incorporating self-identified errata on May 14, 2024. On June 20, 2024, Energy Safety requested that PG&E submit a new version of its 2025 WMP Update and revised 2023-2025 Base WMP incorporating corrections to non-substantive errata identified by Energy Safety. In response, PG&E submitted corrected versions of its 2025 WMP Update and 2023-2025 Base WMP on July 5, 2024.[17, 18] The corrected versions fixed errors in high-risk ignition circuit tables, Enhanced Powerline Safety Settings (EPSS) tradeoff analyses, grid hardening mileage forecasts, and undergrounding workplans.[19]

Energy Safety considered PG&E's corrected versions of its 2025 WMP Update and revised 2023-2025 Base WMP in its evaluation.

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[16] Maturity Model, Section 4, "Maturity Level Determination" (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed April 9, 2024).

[17] PG&E 2025 WMP Update (R1) (clean version, July 2024) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[18] PG&E 2023-2025 WMP (R6) (clean version, July 2024) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56964&shareable=true, accessed July 15, 2024).

[19] PG&E 2025 WMP Update Non-substantive Errata (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56678&shareable=true, accessed July 15, 2024).

3.5 Revision Notice

Public Utilities Code section 8386.3(a) states, "Before approval, [Energy Safety] may require modifications of the [WMP]." If Energy Safety requires modifications to a WMP, it does so by issuing a Revision Notice to an electrical corporation.[20]

Energy Safety did not issue PG&E a Revision Notice for its 2025 WMP Update.

3.6 Decision

In its evaluation of an electrical corporation's 2025 WMP Update, Energy Safety considers the information provided by the electrical corporation regarding its reportable updates and the associated justifications. Energy Safety's approval of a 2025 WMP Update constitutes collective approval of the reported items in the electrical corporation's 2025 WMP Update. The approval therefore authorizes the updates to the electrical corporation's 2023-2025 Base WMP, as shown in the "Redlined 2023-2025 Base WMP" and "Clean Updated 2023-2025 Base WMP" provided as part of the electrical corporation's 2025 WMP Update submission.[21]

Energy Safety recognizes that planning for wildfire risk is a maturing capability and expects that electrical corporations will continue to improve year over year. Therefore, Energy Safety's Decision includes areas for continued improvement, identifying areas where the electrical corporation must continue to mature in its capabilities.

PG&E's reported updates reduce risk, increase efficiencies, and demonstrate continued improvement in several key wildfire mitigation initiatives. Therefore, Energy Safety approves PG&E's 2025 WMP Update.

[20] Revised WMP Process Guidelines, Section 4.4, "Revision Notice," pp. 6-8 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56255&shareable=true, accessed May 6, 2024).

[21] 2025 WMP Update Guidelines, pp. 3-4 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed March 29, 2024).

4. PG&E 2025 WMP Update

In accordance with the 2025 WMP Update Guidelines,[22] PG&E provided the following for its 2025 WMP Update submission:

1. **2025 WMP Update**: A standalone 2025 WMP Update document that describes PG&E's reportable updates, or confirmation of no updates to the approved 2023-2025 Base WMP.
2. **Redlined 2023-2025 Base WMP**: A redlined version of PG&E's 2023-2025 Base WMP showing reportable updates to the approved 2023-2025 Base WMP.
3. **Clean Updated 2023-2025 Base WMP**: A clean, updated copy of PG&E's 2023-2025 Base WMP (i.e., without any updates marked in redline) incorporating the reportable updates from PG&E's 2025 WMP Update as demonstrated in the redlined version.

Specifically, in response to the five categories of reportable updates of the 2025 WMP Update Guidelines, PG&E provided the required information for each category. Energy Safety discusses each reportable update under the relevant mitigation initiative in Sections 5 through 9 of this Decision.

[22] 2025 WMP Update Guidelines (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid= 56254&shareable=true, accessed May 6, 2024).

5. Overview of the Service Territory

In its 2025 WMP Update, PG&E did not report any updates to the overview of the service territory section of its 2023-2025 Base WMP.

6. Risk Methodology and Assessment

In its 2025 WMP Update, PG&E reported significant risk model updates, as discussed below.[23]

6.1 Risk Model Updates

PG&E reported the following significant risk model updates to its Wildfire Distribution Risk Model (WDRM), moving from Version 3 (WDRM V3) to Version 4 (WDRM V4):[24]

- Implementing new equipment asset models, an improved vegetation model, and improved data quality for assets, ignitions, and outages.
- Converting four equipment asset models from spatial-based to asset-based.
- Incorporating covariates such as tree health and wind direction into the vegetation models.
- Improving historical fire data quality, longer fire simulation times, and including dry wind conditions and impacts for egress and suppression in consequence assessments.
- Integrating feedback from T-Line Asset Strategy and Applied Technology Services (ATS) and refining the model's accuracy.
- Adding two machine learning-based hazard models addressing risks from vegetation (Veg Hazard) and birds (Avian Hazard).
- Revising the Atmospheric Corrosion module to reduce prediction errors for wall loss in steel structures.
- Adjusting the Wood Pole module to estimate failure rates more accurately for reinforced poles.
- Improving the outage calibration method for wind-caused outages by expanding the data pool to include outages labeled as "wind caused," "equipment," and "unknown."
- Updating the Polymers Insulators Degradation model to better calculate the design life reduction factor (DLRF) based on the location of polymer insulators.

[23] 2025 WMP Update Guidelines, Section 1, "Updates to Risk Models," p. 6 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid= 56254&shareable=true, accessed May 6, 2024).

[24] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 6-15 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Energy Safety finds that these updates meet the reportable update criteria set forth in the 2025 WMP Update Guidelines.[25]

6.1.1 Energy Safety Evaluation

As a result of these significant risk model updates, PG&E's wildfire mitigation prioritization has changed. The number of circuit segments comprising the top 5 percent of total utility risk decreased from 49 circuits to 14 circuits.[26] PG&E stated that the decrease is due to a flattening of the risk buydown curve, with a more even distribution of risk across the system when compared to WDRM V3.[27] When comparing the top 100 riskiest circuit segments in the WDRM V4 output to the WDRM V3 output, the majority of the circuit segments still fall in the top 20 percent of risk between WDRM V3 and WDRM V4, with only 10 circuit segments within the top 20 percent for WDRM V4 falling outside of the top 20 percent in WDRM V3. This indicates that the changes made by PG&E are improvements to the precision of its risk model. Additionally, while some movement occurred to the risk ranking based on model output changes, the changes in prioritization that result from the risk model updates from WDRM V3 to WDRM V4 do not have as much movement as the previous changes in prioritization when PG&E implemented a new model version.[28] This indicates that PG&E's modeling may be advancing to the point that its updates are more refinements to previous model versions instead of significant changes, which should be indicative of PG&E having a better understanding of the risk on its system.

6.1.2 Areas for Continued Improvement

PG&E must continue to improve in the following areas specific to the risk model updates and report its progress in its 2026-2028 Base WMP. Additionally, in its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[29]

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[25] 2025 WMP Update Guidelines, "Reportable Updates," p. 3 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid= 56254&shareable=true, accessed May 6, 2024).

[26] Data Request OEIS_016-Q003 Supplemental Response 001, Attachment 01 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56640&shareable=true, accessed July 15, 2024).

[27] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 12 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[28] Final Decision on 2022 Wildfire Mitigation Plan Update for PG&E, p. 64 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53226&shareable=true, accessed July 15, 2024).

[29] Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

6.1.2.1 Outage-to-Ignition Risk Analysis

In its 2023-2025 Base WMP, PG&E stated that an "area for future improvement" is to "[pass] outage probabilities through a probability of ignition given an outage model."[30] However, PG&E's modeling improvements do not include any modifications for evaluating the outage-to-ignition likelihood, and instead PG&E relies on outages to determine ignition risk. This may lead to inaccurate assessment of ignition risk given that various outage types have different likelihoods of resulting in an ignition. Additionally, inclusion of only outages may not accurately capture ignitions that occurred without an associated outage. PG&E must provide additional details on how it is working to improve upon this area for various outage and ignition drivers for its ignition risk analysis.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

6.2 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[31] PG&E reported its progress on three areas for continued improvement in the risk methodology and assessment section in its 2025 WMP Update.

6.2.1 PG&E-23B-01.[32] Cross-Utility Collaboration on Risk Model Development

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E and the other investor-owned utilities (IOUs)[33] to continue participating in the Energy Safety-led risk modeling working group, as established by the 2021 WMP Action Statements.[34]

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[30] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 1012 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[31] Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[32] Energy Safety is instituting a new naming convention for its areas for continued improvement. Moving forward, areas for continued improvement identified in Energy Safety's evaluation of Base WMPs will be designated with a "B" and areas for continued improvement identified in Energy Safety's evaluation of WMP Updates will be designated with a "U." Accordingly, areas for continued improvement that were identified in Energy Safety's evaluation of 2023-2025 Base WMPs are retitled "23B" and new areas for continued improvement identified in Energy Safety's evaluation of 2025 Update WMPs herein are titled "25U."

[33] The IOUs include Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric Company (SDG&E), Bear Valley Electric Service (BVES), Liberty Utilities (Liberty), and PacifiCorp.

[34] Decision on PG&E 2023-2025 WMP, p. 100 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

In response, PG&E discussed its continued participation in the risk modeling working group meetings, and how the meetings have provided valuable insight and input from other electrical corporations and stakeholders.[35]

6.2.1.1 Energy Safety Evaluation

PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

6.2.2 PG&E-23B-02. PSPS and Wildfire Risk Trade-Off Transparency

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to describe how it prioritizes PSPS risk in its risk-based decisions, including trade-offs between wildfire risk and PSPS risk.[36] Additionally, PG&E was required to explain how the rank order of the mitigation initiatives it plans on implementing compares to the rank order of mitigation initiatives ranked by risk buydown estimate, along with an explanation for any instances where the order differs.[37]

In its response, PG&E explained that its program includes wildfire risk, accounting for the use and negative impacts of PSPS and Enhanced Powerline Safety Settings (EPSS).[38] PG&E stated that it assesses the effectiveness of PSPS as a wildfire mitigation measure and offsets the risk reduction benefits by considering the negative reliability and safety impacts caused by PSPS. PG&E provided a chart that illustrates the trade-off between wildfire risk and the impacts of EPSS and PSPS.[39] The chart showed inherent wildfire risk without mitigations, risk reduction from EPSS and PSPS, residual wildfire risk after these mitigations, and the customer impacts of PSPS and EPSS. PG&E stated that while the chart is preliminary and may be updated in the 2024 Risk Assessment and Mitigation Phase (RAMP) filing, they offer insight into the wildfire/PSPS risk trade-off.

PG&E stated that it believes that the data demonstrates reasonable trade-offs between wildfire mitigation and PSPS impacts. PG&E stated that it uses multiple models to review and

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[35] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 36 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[36] Decision on PG&E 2023-2025 WMP, p. 100 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[37] Decision on PG&E 2023-2025 WMP, p. 100 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[38] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 41 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[39] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 41 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

prioritize wildfire mitigation measures, recognizing that no single model can perfectly quantify all risks.[40] PG&E stated that wildfire risk is the primary driver for many mitigation programs, including inspections, tag backlog strategy, and some vegetation management activities.[41] PG&E also stated that PSPS risk is also used to inform the overall risk approach for overhead system hardening and undergrounding programs, as outlined in its draft Wildfire Benefit Cost Analysis (WBCA).[42]

In addition, PG&E noted that its WBCA quantifies the wildfire and PSPS risk reduction at the circuit segment level, incorporating various cost and benefit components. PG&E noted that while rank order and risk buydown (RBD) guide its planning, operational considerations, such as maintenance and inspection efficiencies, also influence how PG&E executes its work.[43]

In terms of how rank order differs from initiatives compared to risk buydown, PG&E stated that rank order for mitigation selection varies due to factors like risk-spend efficiency for tag backlog reduction and wildfire consequence value for asset inspection frequency.[44] PG&E stated that different models for vegetation management and system hardening further drive variations in prioritization, and a universal model for all mitigations would not account for the highest risk drivers for a given circuit segment.[45]

6.2.2.1 Energy Safety Evaluation

PG&E provided a detailed description of how it prioritizes PSPS risk in its risk-based decisions, including trade-offs between wildfire risk and PSPS risk, including its WBCA breakdown. PG&E also explained how the rank order of the mitigation initiatives it plans on implementing compares to the rank order of mitigation initiatives ranked by risk buydown estimate, along with an accounting of and the reasons for the differences. PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

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[40] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 41 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[41] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 41 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[42] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 41 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[43] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 42 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[44] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 43 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[45] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 43 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

6.2.3 PG&E-23B-03. Incorporation of Extreme Weather Scenarios into Planning Models

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to report on its progress developing statistical estimates of potential wind events over at least the maximum asset life for its system when it submits its 2026-2028 Base WMP.[46]

[46] Decision on PG&E 2023-2025 WMP, p. 101 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

7. Wildfire Mitigation Strategy Development

In its 2025 WMP Update, PG&E provided one update related to the wildfire mitigation strategy development section of its 2023-2025 Base WMP. The update PG&E provided related to this section included reporting on one area for continued improvement.

7.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[47] PG&E reported its progress on one area for continued improvement in the wildfire mitigation strategy development section in its 2025 WMP Update.

7.1.1 PG&E-23B-04. 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

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety found that PG&E did not make substantive efforts to collaborate with other IOUs[48] in the areas of climate change forecasts in consequence modeling, community vulnerability in consequence modeling, and utility vegetation management for wildfire safety.[49]

Accordingly, Energy Safety required PG&E to participate in all Energy Safety-organized activities related to best practices for:[50]

- Inclusion of climate change forecasts in consequence modeling.
- Inclusion of community vulnerability in consequence modeling.

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[47] Decision on PG&E 2023-2025 WMP (December 29, 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[48] The IOUs include Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric Company (SDG&E), Bear Valley Electric Service (BVES), Liberty Utilities (Liberty), and PacifiCorp.

[49] Decision on PG&E 2023-2025 WMP (December 29, 2023), p. 34 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[50] Decision on PG&E 2023-2025 WMP (December 29, 2023), p. 104 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed August 6, 2024).

- Utility vegetation management for wildfire safety.

Energy Safety also required PG&E to collaborate with the other IOUs on the above-mentioned best practices.[51] Energy Safety required PG&E to provide a status update on any cross-utility collaboration on the topics listed above, including a list of any resulting changes to its WMP since its 2023-2025 Base WMP.[52]

PG&E stated that it participated in Energy Safety-sponsored risk modeling working group meetings in 2023.[53] PG&E stated that it continued its collaboration with other IOUs through the Effectiveness of Joint Clearances Study.[54] PG&E also scheduled recurring meetings with SDG&E and SCE including a weekly joint IOU meeting,[55] a monthly joint WMP meeting,[56] and an undergrounding working group.[57]

7.1.1.1 Energy Safety Evaluation

The original area for continued improvement directed all of the IOUs to collaborate. The IOUs include not only the large IOUs (SDG&E, PG&E, and SCE), but also the small and multijurisdictional utilities (SMJUs) (Bear Valley Electric Service, Liberty Utilities, and PacifiCorp). Energy Safety notes that this same area for continued improvement is present in the 2023 Base WMP Decisions for SMJUs.[58,59,60] While PG&E demonstrated the first step by collaborating with SDG&E and SCE, it must also make efforts to include the SMJUs.

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[51] Decision on PG&E 2023-2025 WMP (December 29, 2023), p. 104 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed August 6, 2024).

[52] Decision on PG&E 2023-2025 WMP (December 29, 2023), p. 45 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed August 6, 2024).

[53] PG&E 2025 WMP Update (R1) (clean version, July 5, 2024), p. 49 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 6, 2024).

[54] PG&E 2025 WMP Update (R1) (clean version, July 5, 2024), p. 48 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 6, 2024).

[55] PG&E 2025 WMP Update (R1) (clean version, July 5, 2024), p. 49 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 6, 2024).

[56] PG&E 2025 WMP Update (R1) (clean version, July 5, 2024), p. 48 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 6, 2024).

[57] PG&E 2025 WMP Update (R1) (clean version, July 5, 2024), p. 49 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[58] Decision on Bear Valley Electric Service, Inc. 2023-2025 WMP (November 6, 2023), p. 74 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55945&shareable=true, accessed Jun 4, 2024).

[59] Decision on Liberty Utilities 2023-2025 WMP (February 5, 2024), p. 75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56276&shareable=true, accessed June 4, 2024).

[60] Decision on PacifiCorp 2023-2025 WMP (February 12, 2024), p. 83 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56309&shareable=true, accessed June 4, 2024).

Accordingly, in its 2026-2028 Base WMP, PG&E must demonstrate that it made efforts to include Bear Valley, Liberty Utilities, and PacifiCorp in these efforts where appropriate and relevant to each IOU's interests.

Energy Safety has modified the area for continued improvement to provide additional guidance for PG&E. PG&E must respond to this revised area for continued improvement in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

7.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the wildfire mitigation strategy development section of its 2023-2025 Base WMP.

7.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E did not report any updates to approved targets, objectives, or projected expenditures related to the wildfire mitigation strategy development section of its 2023-2025 Base WMP.

8. Wildfire Mitigation Initiatives

This section provides Energy Safety's evaluation of PG&E's reportable updates related to the following wildfire mitigation initiatives:

- Grid design, operations, and maintenance, including grid design and system hardening, asset inspections, equipment maintenance and repair, and grid operations and procedures
- Vegetation management and inspections
- Situational awareness and forecasting
- Emergency preparedness
- Community outreach and engagement

Energy Safety discusses its evaluation of PG&E's reportable updates related to PSPS in Section 9. Energy Safety includes discussion of any reportable updates affecting PG&E's process for continuous improvement in Section 10.

8.1 Grid Design, Operations, and Maintenance

In its 2025 WMP Update, PG&E provided 18 total updates related to the grid design, operations and maintenance section of its 2023-2025 Base WMP. The updates PG&E provided related to this section included reporting required progress on 11 areas for continued improvement and reporting updates to five approved targets and five projected expenditures.

8.1.1 Grid Design and System Hardening

8.1.1.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[61] PG&E reported its progress on three areas for continued improvement in the grid design and system hardening section in its 2025 WMP Update.

PG&E-23B-05. Updating Grid Hardening Decision Making

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to provide more accurate effectiveness estimates for its hardening efforts. This included calculation details and justifications based on in-field effectiveness, analysis on ignition and wildfire risk reduction, location-specific effectiveness for undergrounding compared to combinations of

[61] Energy Safety Decision on PG&E's 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

other initiatives, integrating time value of risk, and further justification of undergrounding as a choice.[62] Energy Safety also required PG&E to provide details on any projects driven by reliability risk as opposed to wildfire risk, including a list of specific requirements.[63]

In its response, PG&E highlighted its shift toward prioritizing undergrounding as a preferred mitigation strategy, particularly in high wildfire risk areas. PG&E stated that this transition was supported by the development of its WDRM, which was used to select projects based on wildfire risk and factors that affect project timing and costs.[64] PG&E noted the importance of cumulative risk reduction and the time value of risk when selecting mitigation strategies, highlighting the long-term benefits of undergrounding compared to overhead hardening.[65]

PG&E reported that it surpassed its target of completing 350 miles on its undergrounding initiative in 2023.[66] PG&E stated that it plans for further improvements, including the development of its WBCA tool.[67] This tool is designed to incorporate cost-effectiveness components, reliability considerations, and location-specific mitigation effectiveness into its decision-making framework for selecting undergrounding projects.[68]

PG&E reported updates on how it uses location-specific data and historical outage information to assess the effectiveness in preventing ignitions of various mitigation

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[62] Energy Safety Decision on PG&E's 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[63] Energy Safety Decision on PG&E's 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[64] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 51. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[65] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 57-58. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[66] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 51. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[67] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 52. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[68] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 52-57. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

alternatives.[69] PG&E noted that it will continue to review and update the effectiveness values used in its WBCA tool to ensure that its mitigation strategies remain effective and relevant.[70]

Finally, PG&E reported details on its projects aimed at improving reliability and reducing PSPS impacts, particularly in high-risk areas. PG&E included a table which identified each project, whether it was in the High Fire Threat District (HFTD), and the planned mileage. The mileage of these projects totaled 53 miles and were all within HFTD Tier 2 or Tier 3.[71] PG&E stated that these projects were selected for grid hardening based on their potential to reduce PSPS impacts and improve reliability, even in areas outside the top 20% risk-ranked circuit segments.[72] PG&E did not provide cost effectiveness scores for these projects focusing on reliability risk due to its workplan methodology not incorporating those scores for individual projects. PG&E stated that it did not adjust its hardening scope after performing the required evaluation.

Energy Safety Evaluation

To demonstrate its undergrounding effectiveness estimates, PG&E provided a breakdown showing various failure modes and an effectiveness rating scale comparing three mitigation combinations: undergrounding, covered conductor with EPSS, and bare conductor with EPSS and downed conductor detection (DCD).[73] PG&E also provided comparisons of the average effectiveness scores for nine scenarios based on historical outages from 2015 through 2022, including the three mitigation combinations listed above.[74] The covered conductor effectiveness was reportedly 66.4%, similar to the 64% that the joint IOUs found for covered

[69] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 54-56. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[70] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 57. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[71] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 60. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[72] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 58-62. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[73] PG&E 2025 WMP Update (R1) (clean version, July 2024), Table ACI-PG&E-23-05-2, p. 55. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[74] PG&E 2025 WMP Update (R1) (clean version, July 2024), Table ACI-PG&E-23-05-3, p. 56. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

conductor effectiveness.[75] PG&E will continue to develop the effectiveness calculation for covered conductor and other mitigations through joint IOU efforts, as discussed in PG&E-23B-06 below, including implementation of in-field observed data as mitigation deployment continues to expand.

PG&E supplied a chart, demonstrating risk reduction over time comparing overhead hardening to underground hardening, to address the cumulative risk differences due to the longer implementation of undergrounding projects.[76] This chart shows that although undergrounding leaves more unaddressed risk initially, undergrounding will reportedly address the equivalent amount of risk as overhead hardening by around 2032, with an overall greater permanent risk reduction due to an additional 21% of cumulative risk reduction by 2036. PG&E also states that it factors lifetime benefits and cumulative risk exposure within its WBCA tool.[77]

PG&E stated that the projects focusing on reliability risk, as opposed to wildfire risk, only comprise of five percent by mileage, or 53 miles, of PG&E's current portfolio.[78] Therefore, the percentage of projects focusing on reliability risk is relatively minor, demonstrating that wildfire risk primarily drives PG&E's prioritization for project selection. Additionally, PG&E states that these reliability risk projects fall within the HFTD and are based on high frequency of PSPS events,[79] showing reliability benefits for reducing PSPS impacts in the future with an overlap for areas with wildfire risk. Given that the projects focused on increasing reliability make up a small percentage of PG&E's total grid hardening portfolio, PG&E provided sufficient detail to justify those projects as part of its grid hardening plan.

PG&E provided the required updates to its effectiveness estimates and provided comparisons between mitigation combinations to justify its grid hardening decision making. Therefore,

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[75] PG&E 2025 WMP Update (R1) (clean version, July 2024), Table ACI-PG&E-23-05-3, p. 56. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[76] PG&E 2025 WMP Update (R1) (clean version, July 2024), Figure ACI-PG&E 23-05-1, p. 58. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[77] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 57. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[78] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 58-62. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

[79] PG&E 2025 WMP Update (R1) (clean version, July 2024), Table ACI-PG&E 23-05-4, pp. 60-62. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed August 26, 2024).

PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

PG&E-23B-06. Continuation of Grid Hardening Joint Studies

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E and other IOUs to report on the progress and outcomes of relevant studies and meetings, including next steps, lessons learned, applicable updates with timelines, and summaries of completed and planned workshops related to grid hardening.[80] This included submitting updates related to the Joint IOU[81] Covered Conductor Working Group Report, as initiated by Energy Safety's 2021 WMP Update Final Action Statements and provided initially in 2022,[82] as well as a new report that includes evaluation for: the effectiveness of undergrounding, lessons learned from applying undergrounding, various approaches to protective equipment and device settings, progress on new technologies, and effectiveness of mitigations in combination with one another.

In response, the joint IOUs expanded the existing Joint IOU Covered Conductor Working Group, established when responding to the initial required report in 2021, to include additional workstreams covering the required topics. To cover the workstreams, the IOUs conducted bi-weekly meetings to review testing results and held workshops with Energy Safety to discuss corrosion testing, aging susceptibility testing, and the status of remaining testing results. The IOUs concluded that the corrosion testing showed minor aluminum degradation below the covering, with copper covered conductor performing similarly to exposed bare conductors. As a result, PG&E stated that it implemented changes to its inspection job aids.[83] Based on the discussions and supplemental testing results, the Joint IOUs concluded that no additional testing is warranted at this time. The Joint IOUs also discussed covered conductor effectiveness, shared lessons learned and practices for new technologies, and concluded that no additional technology considerations were needed. Lastly, each IOU reviewed unit costs of covered conductor and undergrounding and gained a better understanding of cost drivers.[84]

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[80] Energy Safety Decision on PG&E's 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[81] "Joint IOU" includes SDG&E, PG&E, SCE, PacifiCorp, Bear Valley Electric Service, Inc., and Liberty Utilities.

[82] Final Action Statement on PG&E 2021 WMP Update, key area for improvement PG&E-21-09, p. 56 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51745&shareable=true, accessed July 15, 2024).

[83] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 67 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[84] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 67-68 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Energy Safety Evaluation

Cross-collaboration among IOUs has provided improvements for transparency and increased consistency in approaches when it comes to grid design and system hardening. However, many of these workstreams must continue given ongoing developments and importance of sharing knowledge as various utilities continue implementing mitigations, observing actual in-field effectiveness, and observing potential alternatives and new technologies to deploy. For instance, through the 2023 working group meetings, IOUs learned more about various potential covered conductor failure modes and associated needs to modify maintenance as a result, needing alignment on determining the estimated effectiveness for covered conductor, and developing an undergrounding working group.[85]

The IOUs must continue these efforts and reporting on lessons learned to further explore various mitigation approaches. While the IOUs collaborated on each of the various required areas from 2023, Energy Safety has modified the area for continued improvement to provide additional guidance for PG&E. PG&E must respond to this revised area for continued improvement in its 2026-2028 Base WMP given the dynamic nature of the topics and continued research.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

PG&E-23B-07. Deployment of New Technologies

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to report its progress on new technology pilots including Early Fault Detection (EFD), Distribution Fault Anticipation (DFA), Falling Conductor Protection (FCP), and Rapid Earth Fault Current Limiter (REFCL). PG&E was also required to provide wildfire mitigation and cost effectiveness estimates for each technology compared to, and in combination with, other mitigations. Energy Safety required PG&E to provide a detailed workplan for the rollout of new technology and adjust the new technology targets if pilots prove successful. For pilots that were successful but did not lead to target changes, Energy Safety required PG&E to provide an analysis demonstrating that its decision promoted the maximum safety, reliability, and cost effectiveness to customers.[86]

In its response, PG&E stated that its REFCL pilot is progressing but remains in the testing and evaluation phase, that operationalizing REFCL on its legacy distribution system required upgrades, testing and training; and that the project has been delayed due to equipment

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[85] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 67-68 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[86] Energy Safety Decision on PG&E's 2023-2025 WMP, p. 104 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

failure and lead time.[87] PG&E stated it will use lessons learned from the REFCL pilot to evaluate feasibility of the technology and stated it currently estimates a 65 percent mitigation effectiveness for REFCL.[88]

PG&E described FCP as a protection that attempts to de-energize a broken wire before or shortly after it contacts the ground. FCP requires sensing devices and communication connections, which PG&E asserted are difficult to implement in forested areas. Additionally, PG&E stated a sensing device would need to be installed at the end of every lateral branch of a circuit to provide circuit wide protection, which would be cost prohibitive. PG&E stated this technology may be used in certain high-risk locations to protect a limited section of distribution circuit. PG&E reported that it is in the early stages of a pilot to test FCP using existing cellular connectivity, and that it will evaluate lessons learned such as cellular connectivity latency, device compatibility, and ignition mitigation effectiveness.[89]

PG&E reported that EFD and DFA have proceeded beyond the pilot phase and included detailed workplans for both programs. PG&E stated that EFD has been deployed at 103 locations and DFA at 79 substations.[90] PG&E stated it has developed a system to track the effectiveness of the technology and it will be able to determine the cost and mitigation effectiveness moving forward. PG&E did not provide target changes for EFD and DFA technologies. PG&E stated that it plans to study the feasibility of using EFD/DFA incipient failure identifications to supplement field inspections in 2024-2025, with a decision and implementation plan for large-scale deployment based on the study's results.[91]

Energy Safety Evaluation

PG&E reported its progress on new technology pilots, and provided updates on wildfire mitigation and cost effectiveness estimates for each technology. PG&E provided a workplan for EFD and DFA technologies, with a decision and implementation plan for large-scale deployment of these technologies awaiting a feasibility study. Therefore, PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

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[87] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 69 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[88] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 69 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[89] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 69 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[90] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 69 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[91] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 69 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

8.1.1.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the grid design and system hardening section of its 2023-2025 Base WMP.

8.1.1.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E reported updates to approved targets and projected expenditures related to the grid design and system hardening section of its 2023-2025 Base WMP. Energy Safety finds that these reportable updates meet the requirements set forth in the 2025 WMP Update Guidelines.

Specifically, PG&E provided an update to its overhead system hardening 2025 targets from zero to two transmission lines, moving the target from 360 miles to 778 miles, its undergrounding 2025 targets from 2,000 miles to 1,230 miles, and its 2025 PSPS impact reduction from 22,000 customers to 13,000 customers. PG&E stated that these shifts are largely due to the California Public Utilities Commission (CPUC) Decision on PG&E's Test Year 2023 General Rate Case (GRC),[92] which authorizes lower funding for undergrounding than PG&E requested in its GRC application and more funding for covered conductor installation.[93] PG&E also reported an update to its projected expenditures for covered conductor installation from around $41 million to $241 million, for undergrounding from approximately $1.8 billion to $1.2 billion, and for traditional overhead hardening from approximately $20 million to $66 million, which are all related to the target changes.[94]

PG&E's 2025 WMP Update stated it will target 4.7 percent risk reduction through hardening 520 miles, compared to the originally proposed 5 percent risk reduction through hardening 580 miles.[95] PG&E reduced its corresponding undergrounding and covered conductor expenditure projections by approximately 23 percent, indicating PG&E will target approximately 0.3 percent less wildfire risk with 23 percent fewer projected capital expenditures.[96]

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[92] CPUC Decision 23-11-069 (Nov. 17, 2023) (https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M520/K896/520896345.pdf, accessed July 17, 2024).

[93] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 21 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024)

[94] PG&E 2025 WMP Update (R1) (clean version, July 2024), Table B.2.2.1, p. 29 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[95] PG&E's 2023-2025 WMP (R6) (redline version, July 2024), p. 380 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56965&shareable=true, accessed July 17, 2024).

[96] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 22 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Energy Safety Evaluation

Energy Safety finds that, while PG&E's target reductions for system hardening, undergrounding, and PSPS impact reduction result in PG&E reducing slightly less risk in 2025 than originally projected, the updated targets are intended to align with the authorized revenue requirement from PG&E's GRC decision and will increase the cost efficiency of the programs.

Energy Safety finds that PG&E's reportable update to increase its target and projected expenditure for its traditional overhead hardening of transmission conductor from zero to two transmission lines[97] will substantively reduce wildfire risk.

Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in grid design and system hardening. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[98]

8.1.2 Asset Inspections

8.1.2.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[99] PG&E reported its progress on two areas for continued improvement in the asset inspection section in its 2025 WMP Update.

PG&E-23B-08. Covered Conductor Inspection and Maintenance

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to report how its inspection programs will address water intrusion in covered conductor.[100] Energy Safety required PG&E to provide its inspection checklists and procedures demonstrating changes made to address water intrusion.

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[97] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 25-26 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[98] Energy Safety Decision on PG&E's 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[99] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[100] Energy Safety Decision on PG&E 2023-2025 WMP, p. 105 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

In its response, PG&E stated that it agrees water intrusion is a threat to covered conductor health but does not consider water intrusion to be a failure mode.[101] Instead, PG&E considers water intrusion an accelerant for other degradation modes such as corrosion, conductor sag, and hoop stress. PG&E stated that it has updated its Overhead Assessment Job Aid TD-2305M-JA02 to check for theses degradation modes.[102]

To check for corrosion, PG&E stated it has updated its inspection process to check for indications of covering degradation caused by heating or arcing. PG&E stated it has updated its Overhead Assessment Job Aid to check for conductor sag and signs of overloading, which can be caused by water intrusion. Additionally, PG&E stated it has updated its inspection procedure to check for bulging or cracking of the conductor cover, which indicates water intrusion undergoing freeze/thaw cycles subjecting the cover to additional hoop stress.[103]

Energy Safety Evaluation

PG&E reported how its inspection programs will address water intrusion in covered conductor and provided Overhead Assessment Job Aid (TD-2305M-JA02), which includes checks for corrosion, surface damage, and conductor sag.[104] PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

PG&E-23B-09. Decrease in Detailed Distribution Inspections

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety found that PG&E significantly reduced the number of detailed distribution inspections planned each year from 2023 to 2025. Energy Safety required PG&E to provide an analysis supporting its decision to inspect its "high" risk plat map every two years as opposed to annually and "medium" risk plat map every three years. Energy Safety also required PG&E to discuss how it would monitor risk in the "high," "medium," and "low" risk plat maps given less frequent detailed distribution inspections, and if any alternative inspections would be implemented on assets experiencing less frequent detailed inspections.

In its response, PG&E stated that by including aerial, in addition to ground inspections, and adjusting inspection frequencies relative to location-based ignition consequence, PG&E was

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[101] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 72 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[102] PG&E 2025 WMP Update (R1) (clean version, July 2024), p.71 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[103] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 72 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[104] Overhead Assessment Job Aid TD-2305M-JA02. (https://www.pge.com/assets/pge/docs/outages-and-safety/outage-preparedness-and-support/TD-2305M-JA02-Electric-Distribution-Overhead-Inspection-Job-Aid.pdf, accessed August 6, 2024).

able to achieve a comparable level of "eyes-on-risk"[105] with a lower total number of annual inspections.[106]

PG&E stated that the decision to inspect the high consequence structures every two years was based on the risk per structure, with high consequence structures demonstrating approximately 40 percent less risk per structure than the severe and extreme consequence structures.[107] PG&E also stated that the only structures being inspected less frequently under the new methodology are structures in the HFTD Tier 3 that fall into the high consequence or lower plat maps, while structures in the HFTD Tier 2 that are in the high consequence or higher plat maps are inspected more frequently.[108]

PG&E stated the decision to inspect medium consequence structures every three years was also based on the risk per structure, with the medium consequence plat map average risk per structure approximately 47 percent less than the high consequence plat map.[109] PG&E stated that the medium risk structures that fall into the high, extreme, and severe plat maps will be inspected more frequently under the new methodology, while the medium and lower risk plat maps will be inspected at the same frequency.[110]

PG&E stated that approximately 82 percent of structures in the high consequence plat map were inspected in 2023, approximately 30,000 by ground and 26,000 by aerial.[111] PG&E also stated that it annually inspects by ground all structures that make up the top 10 percent of wildfire risk that are not already included in the plat map inspections.[112]

PG&E stated that inspecting all assets in the high consequence plat map annually would cost roughly $4.3 million more per year, inspecting medium risk structures every other year would cost roughly $1.7 million more per year, and performing these inspections would require

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[105] PG&E calculates eyes-on-risk by aggregating the amount of risk on the structures being inspected divided by the total risk on the structures on the system.

[106] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 74-75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[107] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[108] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[109] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 76 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[110] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 75-76 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[111] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 76 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[112] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 77 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

reductions to other inspection programs or maintenance work.[113] PG&E stated that the established inspection frequencies allow it to scale up its aerial inspection program and close more inspection tags.[114]

PG&E stated it will monitor risk in all plat maps through its aerial inspections, GO 165 patrol program, open tag programs, aerial patrol pilot, sensing and monitoring devices, infrared inspections, equipment inspections, and vegetation management programs.[115]

Energy Safety Evaluation

PG&E's response demonstrated that the detailed distribution inspection frequency presented in its 2023-2025 Base WMP is more risk efficient than its previous methodology and provided analysis supporting its established inspection frequencies for "high" and "medium" risk plat maps. While the analysis PG&E provided supports the efficiency of its inspection frequencies compared to PG&E's previous methodology, it does not demonstrate that the inspection frequencies mitigate risk more efficiently than alternatives. In its 2026-2028 Base WMP, PG&E must provide cost benefit analyses and cost benefit ratios for specific detailed distribution inspection frequency scenarios.[116] The calculations must only consider distribution detailed inspections and exclude any assumed reductions to other inspection or maintenance programs.

Energy Safety has modified the area for continued improvement to provide additional guidance for PG&E. PG&E must respond to this revised area for continued improvement in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

8.1.2.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the asset inspection section of its 2023-2025 Base WMP.

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[113] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[114] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 76 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[115] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 78 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[116] The specific scenarios can be found in Section 11.3.

8.1.2.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E provided quarterly targets (end of Q2 and end of Q3) for eight of its 2025 asset inspection programs, as required by the 2025 WMP Update Guidelines.[117]

Additionally, PG&E reported updates to projected expenditures related to the asset inspection section of its 2023-2025 Base WMP. Energy Safety finds that these reportable updates meet the requirements set forth in the 2025 WMP Update Guidelines.

Specifically, PG&E provided updates to its projected operational expenditures for its QA/QC program. PG&E's reportable update increased its 2025 projected operational expenditures for its QA/QC program from $11.3 to $30.6 million.

Energy Safety Evaluation

With regard to PG&E's reportable updates on projected expenditures, as summarized above, Energy Safety finds that this increase in projected operational expenditures is expected, given the changes in targets and scope of PG&E's QA/QC program required by RN-PG&E-23-02. With regard to RN-PG&E-23-02, PG&E established a QA minimum sample size of 500 locations for transmission inspections and 1,500 locations for distribution inspections, and a pass rate of 95 percent for each.[118] PG&E also established a QC minimum sample size target of 16,000 desktop and 1,450 field locations for transmission inspections and 140,000 desktop and 30,000 field locations for distribution inspections.[119]

Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in asset inspections. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[120]

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[117] Energy Safety 2025 Wildfire Mitigation Plan Update Guidelines (January 2024), See Section 3 for Quarterly Inspection Targets for 2025 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed April 9, 2023).

[118] PG&E 2023-2025 Base WMP, Table 8-7-1, p. 525 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true, accessed July 17, 2024).

[119] PG&E 2023-2025 Base WMP, Table 8-7-2, p. 528 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true, accessed July 17, 2024).

[120] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

8.1.3 Equipment Maintenance and Repair

8.1.3.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[121] PG&E reported its progress on three areas for continued improvement in the equipment maintenance and repair section in its 2025 WMP Update.

PG&E-23B-10. Current Limiting Fuse Replacement

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to provide a plan to reduce the risk of the current limiting fuse failures associated with certain fuse models installed in its service territory.[122]

In its response, PG&E stated it identified 26 incidents between April 2022 and April 2023 in which a specific model of current limiting fuse ignited due to an internal weld separation.[123] PG&E stated that it stopped installing the model in October 2022 and purged its inventory.[124]

PG&E stated its investigation revealed that 88 percent of the fuse failures occurred within 300 days of installation, and all failures occurred within 543 days.[125] PG&E concluded that the probability of failure decreases relative to time.

PG&E stated that the last of the affected current limiting fuses were installed over 500 days ago, and there have been no failures since April 2023. PG&E stated that it does not plan to replace the remaining fuses in the field.[126]

PG&E stated that it performed laboratory testing, which revealed that the affected fuses heat up for approximately 1 to 90 days prior to a thermal runaway event. PG&E also stated that it performed infrared inspections on the affected fuses most recently installed in 2022 and again in 2023. PG&E concluded that there were no infrared findings signaling an upcoming

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[121] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[122] Energy Safety's Decision on PG&E 2023-2025 WMP, p. 106 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[123] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 79 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[124] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 79 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[125] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 79 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[126] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 79 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

thermal runaway in either year.[127] PG&E stated it has worked with the manufacturer of the affected fuses to develop and implement controls for weld quality over the course of the manufacturing process, and if the fuse is recertified PG&E will evaluate it for use.[128]

Energy Safety Evaluation

PG&E provide its plan to reduce the risk of the current limiting fuse failures associated with certain fuse models installed in its service territory. Therefore, PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

PG&E-23B-11. Transformer Predictive Maintenance

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to provide a timeline for the evaluation and roll out of its predictive maintenance model for transformers, the "Electric Program Investment Charge (EPIC) 3.20" project and describe how the model will be incorporated into its maintenance and inspection programs.[129]

In its response, PG&E stated that the objective of the EPIC 3.20 project was to identify if machine learning models could use existing datasets to predict equipment failures so preventive action could be taken prior to failure.[130] PG&E stated the program was able to identify transformer voltage anomalies but could not precisely identify when a transformer would fail.[131]

PG&E stated that a power quality management tool was operationalized after the conclusion of the EPIC 3.20 project, which uses the base model to detect high voltage on distribution transformers and service points. PG&E stated this tool improved the efficiency of the power quality team, increased data quality, and reduced process error risk.[132]

The EPIC 3.20 project transitioned to the IONA project in 2022. PG&E stated that in 2023, the predictive model was improved by incorporating oil temperature, transformer aging

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[127] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 79-80 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[128] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 80 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[129] Energy Safety Decision on PG&E 2023-2025 WMP, p. 106 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[130] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 81 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[131] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 81 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[132] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 81 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

calculations, and additional years of data. PG&E also stated that additional transformer outages were labeled and input to the training model.[133]

PG&E stated it will test the accuracy of the model in 2024, and if the model is able to achieve beneficial risk-spend efficiency, it will be operationalized.[134]

Energy Safety Evaluation

In its 2025 WMP Update, PG&E provided a timeline for the evaluation and potential implementation of EPIC 3.20. While PG&E stated its plans to test the accuracy and evaluate the risk-spend efficiency of the transformer predictive maintenance project in 2024, PG&E did not commit to reporting on the evaluation outcomes. In its 2026-2028 Base WMP, PG&E must provide all testing results and documentation, reports, and/or whitepapers related to the IONA project. PG&E must also provide all risk-spend efficiency calculations relevant to the IONA project.

Energy Safety has modified the area for continued improvement to provide additional guidance for PG&E. PG&E must respond to this revised area for continued improvement in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

PG&E-23B-12. Distribution Backlog Open Tag Reductions

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety found that PG&E's targets for addressing its distribution backlog tags did not reflect the pace of its revised plan. Energy Safety required PG&E to set targets for 2025 that align with the pace of its revised backlog reduction plan.[135] PG&E was required to target the closure of 79,2000 backlog tags in 2025[136] to ensure PG&E remained on pace to close 154,200 backlog tags from 2023-2025.

In its response, PG&E provided an increase to its 2025 target to achieve a three-year cumulative backlog reduction of 154,200 tags.[137] PG&E stated it was able to exceed its 2023

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[133] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 82 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[134] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 82 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[135] Energy Safety's Decision on PG&E's 2023-2025 WMP, pp. 106-107 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[136] Energy Safety's Decision on PG&E's 2023-2025 WMP, p. 107 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[137] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 83 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

target by 15,453 backlog tags, and as a result applied those tags toward the cumulative 2023-2025 target of 154,200. PG&E has set its 2025 target at 63,747 tags.[138]

Energy Safety Evaluation

While PG&E did not provide a backlog reduction target of 79,000 for 2025, PG&E did provide an increase to its 2025 backlog target from 55,000 to 63,747. Based on PG&E's claimed exceedance of its 2023 target and the target increase provided, Energy Safety finds that if PG&E meets its 2024 and 2025 targets, it will remain on pace to close 154,200 backlog tags from 2023 to 2025. Therefore, PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

8.1.3.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the equipment maintenance and repair section of its 2023-2025 Base WMP.

8.1.3.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E provided an update to the approved target related to the equipment maintenance and repair section of its 2023-2025 Base WMP. Energy Safety finds that this reportable update meets the requirements set forth in the 2025 WMP Update Guidelines.

Specifically, PG&E provided an update to its target for HFTD/HFRA Open Tag Reduction – Distribution Backlog. PG&E reported an increase this target from 55,000 to 63,747 units.

Energy Safety Evaluation

Energy Safety finds that this update was required by Energy Safety's Decision on PG&E's 2023-2025 WMP (as discussed above in "PG&E-23B-12. Distribution Backlog Open Tag Reductions") and will reduce wildfire risk.

Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in equipment maintenance and repair. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[139]

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[138] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 84 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[139] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

8.1.4 Grid Operations and Procedures

8.1.4.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[140] PG&E reported its progress on two areas for continued improvement in the grid operations and procedures section in its 2025 WMP Update.

PG&E-23B-13. Workforce Planning and Resource Allocation to Respond to EPSS Events

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to provide a workplan for resourcing EPSS-enabled outages in its 2025 WMP Update. The workplan was to include a discussion of how PG&E plans to obtain additional workforce resources, additional training, the development of additional resources, and how PG&E intends to balance its existing workforce. Additionally, PG&E was to provide an analysis showing proper workforce coverage and planning to respond to both EPSS-enabled outages and potential ignitions during high-risk weather events.[141]

In its response, PG&E detailed its restoration response and resource staffing plan, which it states consists of standard outage response protocols and resource escalation, PG&E's Storm Outage Prediction Project (SOPP) model, rapid response patrol helicopters, and surge personnel. PG&E also stated that its current resource plan is adequate and provided EPPS reliability metrics to support its argument.[142]

PG&E stated that its standard protocols involve dispatching trouble personnel within the division of the outage and escalating to general construction crews or neighboring divisions if necessary.[143]

PG&E stated that its SOPP model predicts outage numbers using wind, snow, and heat data to help local divisions plan resource needs. PG&E stated that in 2022 it incorporated actual EPSS outage data into the model for better planning.[144]

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[140] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[141] Energy Safety Decision on PG&E 2023-2025 WMP, p. 107 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[142] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 84-87 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[143] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 86 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[144] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 86 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Additionally, PG&E stated that its EPSS program analyzed resource needs for aerial patrols, leading to a Rapid Response Helicopter strategy with 16 helicopters staged at nine locations to support ground patrols.[145]

Lastly, PG&E stated that its surge personnel plans involve supplementing field resources with system inspection staff when it identifies resource shortfalls, while contract resources maintain normal inspection operations.[146] The program evaluates in-season requirements and works with the System Inspection program if additional resources are needed.[147]

PG&E claimed that its resource plan for responding to EPSS outages is adequate, demonstrated by its performance metrics.[148] In 2022, PG&E set a Customer Average Interruption Duration Index (CAIDI) target to restore outages on EPSS-enabled circuits within 240 minutes, which was reduced to 210 minutes in 2023.[149] PG&E stated that it exceeded these targets, with average restoration times of 176 minutes in 2022 and 193 minutes in 2023.[150] Additionally, PG&E stated that the likelihood of customers experiencing extended outages of 12 hours or more on EPSS-enabled lines was 29 percent lower compared to all PG&E outages in 2022.[151]

PG&E stated that it continuously monitors EPSS outages and response times by conducting daily reviews.[152] It states that if targets are exceeded, the Project Management Office's Operations Section and Field Operation partners identify drivers and determine corrective actions. PG&E stated that in 2023, it set a target to respond to 85 percent of outages initiated

[145] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 87 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[146] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 88 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[147] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 87 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[148] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 85 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[149] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 85 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[150] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 85 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[151] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 86 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[152] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 87 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

at EPSS-enabled devices within 60 minutes and achieved a 90 percent response rate within 60 minutes, with an average response time of 45 minutes, surpassing its target.[153]

Energy Safety Evaluation

PG&E provided a workplan for resourcing EPSS-enabled outages and provided an analysis demonstrating its workforce's ability to respond to EPSS-enabled outages. PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

PG&E-23B-14. Effectiveness Analysis for EPSS Including Implementation of DCD

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to provide an updated analysis of the potential reliability impacts and mitigation effectiveness of implementing EPSS based on observed data from 2023, particularly in combination with DCD.[154] As part of this analysis, Energy Safety required PG&E to provide an evaluation of effectiveness based on EPSS outage causes in relation to avoided ignitions as well as PG&E's methodology for determining DCD effectiveness including ignitions that have occurred when each is implemented. [155] Energy Safety also required PG&E to provide the number of outages and outage frequency on circuits with DCD implemented and measures to alleviate any associated reliability and safety impacts observed since the implementation of DCD.[156]

In its response, PG&E reported on the expansion of its DCD pilot in 2023 to approximately 17,000 miles of protection.[157] PG&E stated that throughout 2023 it collected key insights regarding ignition effectiveness, reliability, and risk management, which it will incorporate into further improvements as the technology is more broadly deployed.

PG&E's evaluation of DCD effectiveness, based on EPSS distribution outage causes in relation to avoided ignitions through 2023, showed that CPUC-reportable fire ignitions on EPSS-enabled circuits were reduced by approximately 72 percent compared to the 3-year historical

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[153] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 87 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[154] Energy Safety's Decision on PG&E's 2023-2025 WMP, p. 108 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[155] Energy Safety's Decision on PG&E's 2023-2025 WMP, p. 108 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[156] Energy Safety's Decision on PG&E's 2023-2025 WMP, p. 108 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[157] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 88 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

average.[158] PG&E explained this effectiveness calculation compares current EPSS deployment against historical ignitions under similar conditions, leveraging historical meteorology data.

PG&E stated that in 2023, there were 332 outages on EPSS circuits with DCD enabled, and the System Average Interruption Frequency Index (SAIFI)[159] for these circuits was 0.062.[160] PG&E stated that its methodology for determining DCD effectiveness includes comparing the current year's percentage of ignition reduction on EPSS-enabled circuits to the historical average. In 2023, 2 ignitions occurred on DCD-enabled circuits; however, PG&E claims that DCD settings mitigated at least 17 potential ignition events, which would have likely resulted in ignitions without DCD.[161] These events included fault types such as wire on ground or vegetation into line.

To address any associated reliability and safety impacts observed since implementing DCD, PG&E stated that it implemented several operational measures and continues to work with DCD technology vendors to improve algorithms. PG&E stated that these measures include real-time engineering analysis to quickly differentiate credible events from nuisance operations, planned switching and clearance work restoration procedures, post-restoration detailed patrols, and a settings tuning strategy to reduce nuisance faults.[162]

Additionally, PG&E stated that its technology improvements to the DCD algorithm include reviewing all DCD events for categorization and feedback to vendors, tuning parameters, and settings via post-event playback, developing improved algorithm features to reduce nuisance trips, and evaluating additional DCD algorithms for effectiveness on different circuit types.[163] Lastly, PG&E stated that lessons learned from the 2023 widespread DCD pilot have informed future algorithm firmware changes, which will be implemented in 2024 to further reduce nuisance trip events on both existing and new devices.[164]

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[158] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 88 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[159] System Average Interruption Frequency Index is defined as the average number of times a system customer experiences an outage during a specified time period.

[160] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 88 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[161] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 89 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[162] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 90 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[163] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 90-91 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[164] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 90 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Energy Safety Evaluation

PG&E provided the mitigation effectiveness, SAIFI, number of ignitions, and number of ignitions prevented in on circuits with EPSS and DCD enabled for 2023. PG&E also outlined its plan to reduce the safety and reliability impacts associated with DCD. Energy Safety finds PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

PG&E-23B-26. Evaluation and Reporting of Safety Impacts Relating to EPSS

In its Decision on PG&E's 2023-2025 WMP, Energy Safety required PG&E to continue reporting on EPSS-related outages in its 2025 Update, including providing detailed information on the number of outages, Circuit Protection Zone (CPZ) locations, HFTD status, outage duration, customer impact, and specifics on vulnerable populations affected. PG&E was also required to report on community impact, response times, asset health, vegetation data, and resource constraints. Additionally, PG&E was required to analyze EPSS outages for each CPZ, detailing the number of outages, HFTD status, customer impact, outage duration, circuit-mile-days meeting EPSS criteria, percentage of time EPSS was enabled, and an evaluation of EPSS-enablement thresholds. The analysis was required demonstrate trade-offs between reliability and wildfire risk mitigation for each FPI level, including non-HFTD areas.

In its response, PG&E provided a reliability study on its EPSS-related outages for 2023. The 2023 Reliability Study[165] addressed nine of the 11 reporting data points required, including the number of outages, CPZ locations, outage duration, customer impact, vulnerable population impact, community values, outage response time, asset health, and vegetation data. The study did not include data on whether outages occurred in the HFTD or resource constraints.

PG&E stated that all EPSS outages are due to faults detected by devices protecting HFRAs, indicating that outages would affect HFRA areas but not necessarily those defined as HFTD.[166] PG&E reported no resource constraints impacting its CAIDI metrics, and has established a resource plan to support EPSS outages response and duration metrics. PG&E stated that the methodology, analysis, and final data for the community values will be in the 2024 RAMP filing.[167]

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[165] PG&E 2023 Reliability Study (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56408&shareable=true, accessed August 28, 2024)

[166] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[167] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

PG&E stated that data aggregation was performed for CPZs experiencing outages with EPSS enabled in 2023.[168] PG&E explained that 61 percent of customers were not impacted by EPSS in 2023.[169] PG&E stated that it leverages the 2023 EPSS Reliability Study to enhance reliability for affected customers. The study's information, combined with 2022 data, helps PG&E evaluate operational mitigations and future improvement plans to reduce outage activity.[170]

PG&E stated that in 2024, it will focus on targeted vegetation management (VMOMs) to reduce outages caused by vegetation near EPSS-enabled devices. This includes conducting patrols to identify and remove vegetation risks.[171] Additionally, PG&E stated that it will implement animal mitigation measures for animal-caused outages and install FuseSaver equipment to decrease customer impact from outages in EPSS-enabled zones. It stated that customer communication and engagement will also be improved using reliability information to identify and support the highest impacted customers.[172] Lastly, PG&E stated that the EPSS program experienced a CAIDI of 193 minutes.[173]

PG&E provided an analysis for ignition and reliability risk using multiple methodologies to understand the trade-offs between them and with respect to the EPSS program enablement criteria and each Fire Potential Index (FPI). PG&E stated that the results supported enabling EPSS settings in R3+ FPI conditions during both peak and non-peak wildfire risk seasons, and some R2 and R1 FPI conditions throughout the year.[174] PG&E stated that although the analysis indicated a higher outage risk compared to ignition risk during R2 FPI conditions, this trade-off was significantly lower than the ignition risk to outage risk at higher FPI conditions.[175] PG&E stated that it considers this analysis, which leverages historical FPI conditions, supportive of continuing EPSS enablement during R2 FPI conditions in peak wildfire risk

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[168] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[169] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[170] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 135 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[171] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[172] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[173] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 134 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[174] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 143-144 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[175] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 143-144 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

season.[176] PG&E emphasized the importance of maintaining its current EPSS enablement criteria, but also recognized that the impact on customer reliability is a critical issue that presents an opportunity for improvement.[177]

Energy Safety Evaluation

While PG&E states that outage risk is higher than ignition risk in R2, it still plans on initiating during R2 and R1 FPI conditions moving forward. Given the potential reliability and associated safety impacts relating to EPSS enablement, particularly during years with higher wildfire risk conditions, PG&E must continue tracking the related impacts to EPSS enablement.

Energy Safety has modified the area for continued improvement to provide additional guidance for PG&E. PG&E must respond to this revised area for continued improvement in its 2026-2028 Base WMP.

8.1.4.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the grid operations and procedures section of its 2023-2025 Base WMP.

8.1.4.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E reported updates to projected expenditures related to the grid operations and procedures section of its 2023-2025 Base WMP. Energy Safety finds that these reportable updates meet the requirements set forth in the 2025 WMP Update Guidelines.

Specifically, PG&E provided updates to its projected capital and operating expenditures for its Equipment Settings to Reduce Wildfire Risk initiative. PG&E's reportable updates increase its projected capital expenses by $36.2 million and reduce its projected operating expenses by $19.7 million.[178]

Energy Safety Evaluation

The increase in projected capital expenditures, which PG&E stated will be used to install more sectionalizing and protective devices,[179] will allow PG&E to reduce wildfire additional wildfire

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[176] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 143-144 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[177] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 144 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[178] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 30 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[179] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 30 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

risk. Energy Safety also finds that the reductions in operating costs are more accurate, given the reductions are related to a better understanding of historical data, actuals in costs, and operational efficiencies since implementation at the beginning of the 2023-2025 WMP filing.[180]

Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in grid operations and procedures. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[181]

8.2 Vegetation Management and Inspections

In its 2025 WMP Update, PG&E provided 19 updates related to the vegetation management and inspections section of its 2023-2025 Base WMP. The updates PG&E provided related to this section included reporting required progress on four areas for continued improvement, quarterly targets for 13 2025 vegetation management inspection programs, and updates to two projected expenditures.

8.2.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[182] PG&E reported its progress on four areas for continued improvement in the vegetation management and inspections section in its 2025 WMP Update.

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

In its 2023-2025 Base WMP, PG&E committed to three objectives related to enhancing recording keeping for vegetation management:[183]

[180] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 31-32 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[181] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[182] Energy Safety's Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[183] PG&E 2023-2025 WMP (R4, January 2024), Table SRN-PG&E-23-07-4: "Planned Enhancements to Vegetation Management Processes and Tools," pp. 647-648 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true, accessed July 17, 2024).

- VM-19: Enhance the One VM application[184] for Routine, and Second Patrol to include capability to capture factors for prescribing trees for removal. Completion date: 1/31/2024.
- VM-20: Enhance the applications for the Vegetation Management for Operational Mitigations (VMOM) and Tree Removal Inventory (TRI), VMPI2 and Field Maps respectively, to include capability to capture factors for prescribing trees for removal. Completion date: 11/15/2024
- VM-21: Enhance recordkeeping practices for the Focused Tree Inspection (FTI) program by creating records of all potential strike trees inspected using a digitized Tree Risk Assessment form. Completion date: 3/31/2024.

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to describe the enhancements it has made and will make to its vegetation management recordkeeping.[185]

In its 2025 WMP Update, PG&E provided descriptions of the enhancements that lacked specificity.[186] Energy Safety obtained additional information on the status of these enhancement objectives through a data request.[187]

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety also required PG&E to describe how it updated the Areas of Concern (AOC) for 2024 FTI, its plan for updating the AOCs for 2025 FTI, and its process for selecting AOCs for 2024 and 2025 FTI.[188]

Energy Safety Evaluation

Enhancing the One VM Application for Routine, Second Patrol, VMOM, and TRI

Through its response to a data request, PG&E informed Energy Safety that it completed objective VM-19. [189] Additionally, PG&E stated that by the time objective VM-20 is to be implemented in November 2024, VMOM and TRI would transition from VMPI2 and Field Maps, respectively, to One VM. As such, PG&E stated that Routine, Second Patrol, VMOM, and TRI

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[184] The One VM application is a digital recordkeeping tool PG&E uses for vegetation management.

[185] Energy Safety's Decision on PG&E 2023-2025 WMP, pp. 108-109 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[186] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 92 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[187] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June 25, 2024).

[188] Energy Safety Decision on PG&E 2023-2025 WMP, pp. 108-109 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[189] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1(a) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June 25,2024).

will all use the same capabilities in One VM to "capture factors for prescribing trees for removal."[190]

PG&E provided screen shots of One VM where inspectors are to "capture factors for prescribing trees for removal."[191] If a tree is prescribed for complete removal, the inspector must choose the "Reason for Removal," for which there are only three options: "Grow in Risk," "Fall in Risk," and "Other." Regardless of the inspector's choice, the application then requires the inspector to "DOCUMENT the reason for prescribing [the tree] for removal" in "Removal Comments," an open text field. A PG&E correspondence to all inspectors asks "[w]here possible, reasons should align with Appendix B of the Distribution Inspection Procedure TD-7102P-01."[192]

PG&E's decision to include an open text field as the recordkeeping mechanism for inspectors to record reasons for removal will result in reduced consistency of reporting reasons for removal as compared to alternative recordkeeping mechanisms like a drop-down list or checklist with the reasons from Appendix B of the Distribution Inspection Procedure.

PG&E's progress and maturity in its 2024 objective VM-19—to enhance the recordkeeping capabilities of One VM to "to capture factors for prescribing trees for removal"—has not advanced as expected, given the commitments made in PG&E's approved 2023-2025 WMP[193] and the information provided in PG&E's 2025 WMP Update.

Enhancing Recordkeeping for Focused Tree Inspections

PG&E informed Energy Safety that it digitized its Tree Risk Assessment form as of March 25, 2024. [194] However, PG&E also stated that "PG&E's operational approach to FTI was changed to have inspectors fill out a [digitized Tree Risk Assessment] form only on those trees… prescribed work." [195] This change is not consistent with PG&E's VM-21 objective, which states

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[190] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1(a) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June 25,2024).

[191] Data Request OEIS-P-WMP_2024-PG&E-001, Question 1, Attachment 1 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56547&shareable=true, accessed May 5, 2024).

[192] PG&E Distribution Inspection Procedure TD-7102P-01 (https://www.pge.com/assets/pge/docs/outages-and-safety/outage-preparedness-and-support/TD-7102P-01-VEGETATION-MANAGEMENT-DISTRIBUTION-INSPECTION-PROCEDURE.pdf, accessed May 8, 2023).

[193] PG&E's 2023-2025 WMP (R4) (December 2023), Table SRN-PG&E-23-07-04: "Planned Enhancements to Vegetation Management Processes and Tools," pp. 647-648 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true, accessed July 17, 2024).

[194] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1(b) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June, 25, 2024).

[195] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1(b) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June, 25, 2024).

that the digitized Tree Risk Assessment form would be used to create records of all potential strike trees inspected under FTI.

PG&E provided the One VM Reference Guide showing the fields inspectors must populate for trees not prescribed work (also known as "inventory only trees"). These fields are: tree type (i.e., species), diameter at breast height, height, inspection frequency, tree ownership, directions, comments, and a street address if one is not pre-populated.[196] These fields capture basic information, but do not capture potential issues or risks an inspector observes, issues that could be monitored by PG&E and would be captured in PG&E's digitized Tree Risk Assessment form. As a larger application, One VM does not have the capability to document potential defects or issues with "inventory only trees."[197] In contrast, for example, SCE "documents tree defects and likelihood of failure and target impact" for "trees that could potentially fall into or otherwise impact electrical facilities" through its Hazard Tree Management Program.[198] Documenting tree defects and likelihood of failure for "inventory only trees" in One VM could allow PG&E to monitor certain trees and flag those trees for inspectors in subsequent inspections.

It is Energy Safety's understanding that objective VM-21 is intended to create consistent records of all potential strike trees inspected using a standard tree risk assessment. This includes collecting data akin to those found on the International Society of Arboriculture's Basic Tree Risk Assessment Form[199] (ISA TRAQ form) including, for example, tree defects and conditions affecting the likelihood of failure, likelihood of failure, likelihood of impact, consequence of failure, overall tree risk rating, and the overall residual risk.

PG&E chose to digitize the entirety of the ISA TRAQ form as its "digitized Tree Risk Assessment form;"[200] a form it now says "require[s] excessive use of limited TRAQ-certified resources, which [does] not meet the intent of the program."[201] As such, PG&E's new operational approach to FTI requires just two steps in the One VM application for inventory only trees; populating PG&E's digitized TRAQ form for trees prescribed for work requires an additional 11

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[196] Data Request OEIS-P-WMP_2024-PG&E-003, Question 1, Attachment 2 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56643&shareable=true, accessed May 8, 2024).

[197] Data Request OEIS-P-WMP_2024-PG&E-007, Question 1 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56845&shareable=true, accessed June 14, 2024).

[198] SCE 2023-2025 WMP (R1, October 2023), p. 394 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55866&shareable=true, accessed Jun. 14, 2024).

[199] ISA Basic Tree Risk Assessment Form (https://wwv.isa-arbor.com/education/resources/BasicTreeRiskAssessmentForm_Print_2017.pdf, accessed May 8, 2024).

[200] Data Request OEIS-P-WMP_2024-PG&E-001, Question 1, Attachment 4 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56550&shareable=true, accessed May 5, 2024).

[201] Data Request OEIS-P-WMP_2024-PG&E-001Rev01, Question 1(b) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56876&shareable=true, accessed June 25, 2024).

steps. PG&E's digitized Tree Risk Assessment form includes such fields as "Practical to Move Target? (Yes/No),"[202] a field which may not be necessary as the target is always PG&E facilities, which are generally not practical to move.

The ISA's own instruction on using the TRAQ form states "[t]his form… is intended to act as a guide for collecting and recording tree risk assessment information… It is not necessary to mark every box or to fill in every line on this form. Only information relevant to the tree risk assessment should be collected. You may adapt this form to your specific needs..."[203] This statement is in alignment with Energy Safety's recommendation to PG&E that it "should consider digitally documenting all relevant factors that contributed to an inspector's designation of a tree as a hazard, or not a hazard, and any resulting abatement prescription."[204]

Having two recordkeeping processes for one inspection program – one with two steps and another with 13 or more steps – will affect the consistency and quality of data collection and may, at times, put undue burden on inspectors. As such, PG&E has not adequately enhanced its recordkeeping capabilities for FTI. Energy Safety encourages PG&E to balance the quantity of data it collects with inspection quality, efficiency, and data collection consistency by, for example, adapting the ISA TRAQ form and refining PG&E's current digitized Tree Risk Assessment form to collect only information relevant to a tree risk assessment performed to reduce the risk of utility-related ignitions attributable to contact from vegetation.

Areas of Concern for Focused Tree Inspections

PG&E has demonstrated progress in developing and selecting its AOC. To identify and select AOCs for FTI in 2024, PG&E is using the same methodology developed in 2023 that incorporates various data sets, subject matter expert (SME) feedback, and prioritization/risk ranking using WDRMv3.[205] For 2025, PG&E is considering including additional quantitative factors such as: condition of vegetation as indicated by health index and evapotranspiration data, outputs from PG&E's Outage Probability Weather model, Fire Potential Index, and updated locations of trees with strike potential. PG&E states that the selection process for AOC for FTI in

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[202] Data Request OEIS-P-WMP_2024-PG&E-001, Question 1, Attachment 4 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56550&shareable=true, accessed May 5, 2024).

[203] ISA Basic Tree Risk Assessment Form Instructions (https://wwv.isa-arbor.com/education/resources/ISABasicTreeRiskAssessmentForm_Instructions.pdf, accessed May 8, 2024).

[204] Revision Notice for PG&E 2023-2025 WMP, p. 30 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54183&shareable=true, accessed May 8, 2024).

[205] This methodology is described in 20240402_PGE_2025_WMPUpdate_R0_ACI2315_Atch01 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56406&shareable=true, accessed June 4, 2024).

2025 "will be guided by specific quantitative factors, aiding the SMEs in their decision-making and ensuring a balanced and informed selection of the AOCs."[206]

Conclusion

In its 2026-2028 Base WMP, PG&E must demonstrate that it has progressed the maturity of its vegetation management recordkeeping in alignment with the commitments PG&E made in its approved 2023-2025 Base WMP.[207]

In accordance with Energy Safety's Decision on PG&E's 2023-2025 Base WMP, PG&E must report its progress on PG&E-23B-15 in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

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

In Energy Safety's Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to attach an updated version of its Wood Management Procedure (TD-7102P-26) to its 2026-2028 Base WMP.[208]

In its 2025 WMP Update, PG&E reported that it will provide the procedure in its 2026-2028 Base WMP as required by the 2023-2025 Base WMP Decision.[209]

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

In Energy Safety's Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to present a plan to consolidate its vegetation inspection programs for distribution circuits in the HFTD in its 2026-2028 Base WMP.[210]

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[206] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 94 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[207] PG&E's 2023-2025 WMP (R4) (December 2023), Table SRN-PG&E-23-07-04: "Planned Enhancements to Vegetation Management Processes and Tools," pp. 647-648 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true, accessed July 17, 2024).

[208] Energy Safety's Decision on PG&E 2023-2025 WMP, pp. 109-110 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[209] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 95 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[210] Energy Safety's Decision on PG&E 2023-2025 WMP, pp. 110-111 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

In its 2025 WMP Update, PG&E reported that it will provide its plan in its 2026-2028 Base WMP as required by the 2023-2025 Base WMP Decision.[211]

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

In Energy Safety's Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to present a plan to improve the level of qualifications and training of its current Vegetation Management Inspectors in its 2026-2028 Base WMP.[212]

In its 2025 WMP Update, PG&E reported that it will present its plan in its 2026-2028 Base WMP as required by the 2023-2025 Base WMP Decision.[213]

8.2.1.5 PG&E-23B-19. Continued Progression of Vegetation Management Maturity

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to report on progress, outcomes, and lessons learned related to the development and implementation of six initial steps it developed in response to RN-PG&E-22-09[214] to further mature its vegetation management programs.[215]

PG&E reported that it has and is taking actions related to these six initial steps. These actions include: developing AOCs to identify highest risk areas and regions specific to vegetation-caused outages and ignition drivers; building an inventory of trees by species and considerations (growth and highest failure rates); creating a cross-functional team to develop guidelines to inform vegetation inspections; and continuing to update various vegetation management-related process and procedures.[216]

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[211] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 96 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[212] Energy Safety's Decision on PG&E 2023-2025 WMP, p. 111 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[213] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 97 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[214] PG&E 2022 WMP Update (R1) (clean version, July 2024), pp. 751-752 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52782&shareable=true, accessed July 9, 2024).

[215] Energy Safety Decision on PG&E 2023-2025 WMP, p. 111 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[216] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 98-101 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

Energy Safety Evaluation

PG&E reported on the actions it has and is taking related to the six initial steps it developed in response to RN-PG&E-22-09. As such, PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

8.2.1.6 ACI PG&E-23B-20. Reinspection of Trees in the Tree Removal Inventory

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety pointed out that PG&E's vegetation management personnel may be removing healthy trees under the Tree Removal Inventory (TRI) program due to a conservative interpretation of its TRI procedure.[217] Energy Safety required PG&E to consider updating its TRI procedure to prevent the removal of healthy trees and ensure its arborists' consistent interpretation of this procedure.

In its 2025 WMP Update, PG&E described a pilot it is executing in 2024 to re-evaluate trees listed for work under TRI. This piloted process is being performed in a limited geographical area and requires two independent evaluations by TRAQ-certified arborists for de-listing trees.[218]

To demonstrate consistent interpretation of the TRI procedure, PG&E provided a training presentation as an attachment to its 2025 WMP Update.[219]

Energy Safety Evaluation

PG&E has demonstrated progress in this area for continued improvement. Energy Safety encourages PG&E to expand its pilot process to re-evaluate trees listed for work under TRI beyond the limited geographical area if PG&E determines the process is effective in preventing the removal of healthy trees.

PG&E must continue to improve in this area and report how it has made additional progress in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

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[217] Energy Safety Decision on PG&E 2023-2025 WMP, p. 74 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[218] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 102 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[219] 2024-04-02_PGE_2025_WMP-Update_R0_ACI-23-20_Atch01 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56407&shareable=true, accessed June 4, 2024)

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

In Energy Safety's Decision on PG&E's 2023-2025 Base WMP, Energy Safety required PG&E to define criteria for determining which species warrant increased scrutiny during vegetation inspections in its 2026-2028 Base WMP.[220]

In its 2025 WMP Update, PG&E reported that it will address this area for continued improvement its 2026-2028 Base WMP as required by the 2023-2025 Base WMP Decision.[221]

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

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required that PG&E and the other large IOUs continue efforts on the Effectiveness of Enhanced Clearances Joint Study, as established by the 2021 WMP Action Statements. [222] PG&E, along with SCE and SDG&E, were required to report in their respective 2025 WMP Updates progress and outcomes of the third-party contractor's analysis and evaluation of the effectiveness of enhanced clearances.

PG&E reported on the progress of the Effectiveness of Enhanced Clearances Joint Study by providing a list of the aligned variables related to vegetation risk events, a description of the chosen database type and architecture to warehouse the data, and a description of how the third-party contractor incorporated biotic and abiotic factors into its analysis, as required.[223] Energy Safety also required the large IOUs to provide the third-party contractor's assessment of the effectiveness of enhanced clearances but were not able to provide this assessment as part of the 2025 WMP Updates. PG&E stated that the third-party contractor's data analysis would begin in March 2024 and that an assessment of the effectiveness of enhanced clearances had not been finalized.[224]

Energy Safety Evaluation

PG&E sufficiently responded to the progress required for its 2025 WMP Update for this area for continued improvement. Given that the third party's assessment is not finalized. Energy

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[220] Energy Safety's Decision on PG&E 2023-2025 WMP, p. 112 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[221] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 103 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[222] Final Action Statement on PG&E 2021 WMP Update, p. Appendix-16 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51745&shareable=true, accessed June 4, 2024).

[223] Energy Safety's Decision on PG&E 2023-2025 WMP, pp. 112-113 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed May 8, 2024).

[224] PG&E 2025 WMP Update (R1) (clean version, July 2024), p. 110 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 9, 2024)

Safety has required that SDG&E, on behalf of the large IOUs, provide the third party's assessment as soon as it is finalized.[225]

In accordance with Energy Safety's Decision on PG&E's 2023-2025 Base WMP, PG&E must report its progress on PG&E-23B-22 in its 2026-2028 Base WMP.

Section 11 provides all areas for continued improvement for PG&E, including the specific required progress that PG&E must address in its 2026-2028 Base WMP.

8.2.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the vegetation management and inspections section of its 2023-2025 Base WMP.

8.2.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E provided quarterly targets (end of Q2 and end of Q3) for its 13 2025 vegetation management inspection programs, as required by the 2025 WMP Update Guidelines.[226]

Additionally, PG&E reported updates to two projected expenditures related to the vegetation management and inspections section of its 2023-2025 Base WMP.

Energy Safety finds that these reported updates meet the reportable update criteria set forth in the 2025 WMP Update Guidelines. Evaluation of these reported updates is provided below.

8.2.3.1 Energy Safety Evaluation

PG&E's quarterly targets for its 2025 vegetation management inspections meet the requirements of the 2025 WMP Update Guidelines and are consistent with quarterly targets for 2023 and 2024, with one exception.

PG&E's end of Q2 and end of Q3 2025 targets for Routine Patrol – Distribution (VM-16) are, respectively, 28.7 and 19.5 percent lower than the end of Q2 and Q3 targets for 2023. However, PG&E's end of year target for VM-16 is 78,200 circuit miles, which covers nearly all PG&E's overhead distribution lines.[227] In response a data request, PG&E stated that

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[225] If the third-party contractor's assessment of the effectiveness of enhanced clearances is finalized before the submission of SDG&E's 2026-2028 Base WMP, SDG&E will submit the assessment to the appropriate Energy Safety docket (https://efiling.energysafety.ca.gov/Dockets.aspx?caseId=1242).

[226] Energy Safety 2025 Wildfire Mitigation Plan Update Guidelines (January 2024), See Section 3 for Quarterly Inspection Targets for 2025. (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56254&shareable=true, accessed April 9, 2023).

[227] PG&E projects having 79,130 circuit miles of overhead distribution in 2025 (PG&E's Q1 2024 Quarterly Data Report, Table 7 [https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56599&shareable=true, accessed June 4, 2024]).

approximately 50 percent of the end of Q2 target mileage for VM-16 is in the HFTD (~15,640 circuit miles), and approximately 45 percent of the end of Q3 mileage is in the HFTD (~22,873 circuit miles).[228] PG&E projects that in 2025 it will have 23,876 circuit miles of overhead distribution in the HFTD. As such, PG&E's execution of its quarterly targets for VM-16 will cover ~95 percent of the HFTD by September 30, 2025.

As the 2025 quarterly targets for 12 of 13 vegetation management inspection programs are consistent with quarterly targets for 2023 and 2024, and the quarterly targets for Routine Patrol – Distribution (VM-16) cover approximately 95 percent of the HFTD by September 30, 2025, these updates are acceptable.

PG&E appropriately reported a 166 and 105 percent increase in projected operations and maintenance expenditures (OPEX) for Vegetation Inspections –Transmission and Fall-in mitigation, respectively, in accordance with the 2025 WMP Update Guidelines. PG&E's expenditure projections for Vegetation Inspection – Transmission in its 2023-2025 Base WMP did not include the cost of mitigating the work identified during the inspection; the updated projection includes these costs. PG&E's expenditure projections for Fall-in mitigation were updated to account for the expansion of FTI beyond the 2023 pilot.

8.2.3.2 Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in vegetation management and inspections. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[229]

8.3 Situational Awareness and Forecasting

In its 2025 WMP Update, PG&E provided one total update related to the Situational Awareness and Forecasting section of its 2023-2025 Base WMP. The update PG&E provided related to this section included reporting required progress on one area for continued improvement.

[228] Data Request OEIS-P-WMP_2024-PG&E-001, Question 2 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56551&shareable=true, accessed June 4, 2024).

[229] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

8.3.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[230] PG&E reported its progress on one area for continued improvement in the situational awareness and forecasting section in its 2025 WMP Update.

8.3.1.1 PG&E-23B-23. Weather Station Maintenance and Calibration

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety required that PG&E continue to maintain and keep a log of all the annual maintenance and calibration for each weather station, including the station name, location, conducted maintenance, in compliance with PG&E's weather station calibration training document, as well as document the annual replacement of the fuel sensors listed in the above reference. Energy Safety required that the document also include the length of time from initiation of a repair ticket to completion and the corrective maintenance performed to bring the station back into functioning condition.

Specifically, Energy Safety required PG&E to submit with its 2025 WMP Update documentation indicating the number of weather stations that received their annual calibration, and the number of stations that were unable to undergo annual maintenance and/or calibration due to factors such as remote location, weather conditions, customer refusals, environmental concerns, and safety issues. This documentation was required to include: station name and location, reason for the inability to conduct maintenance and/or calibration, length of time since the last maintenance and calibration, number of attempted but incomplete maintenance or calibration.

In its 2025 WMP Update, PG&E provided Energy Safety with a listing of all the weather stations that did not receive their annual maintenance and calibration, along with the reasons for the missed maintenance and calibration. PG&E also provided a plan for the routine maintenance and calibration of all the weather stations on an annual basis.

Energy Safety Evaluation

PG&E provided the documentation required by Energy Safety and therefore sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

8.3.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the situational awareness and forecasting section of its 2023-2025 Base WMP.

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[230] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

8.3.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E did not report any updates to approved targets, objectives, or projected expenditures related to the situational awareness and forecasting section of its 2023-2025 Base WMP.

8.4 Emergency Preparedness

In its 2025 WMP Update, PG&E did not report any updates to the emergency preparedness section of its 2023-2025 Base WMP.

8.5 Community Outreach and Engagement

In its 2025 WMP Update, PG&E provided one total update related to the community outreach and engagement section of its 2023-2025 Base WMP. The update PG&E provided related to this section included reporting required progress on one area for continued improvement.

8.5.1 2023 Areas for Continued Improvement

As required by Energy Safety's Decision on PG&E's 2023-2025 Base WMP,[231] PG&E reported its progress on one area for continued improvement in the community outreach and engagement section in its 2025 WMP Update.

8.5.1.1 PG&E-23B-24. Evaluation of and Plan to Address AFN Customer Needs

In its Decision on PG&E's 2023-2025 Base WMP, Energy Safety found PG&E did not provide sufficient detail about its evaluation of the needs of its access and functional needs (AFN) customer base, including the specific challenges the customer base faces.[232] Energy Safety required PG&E, in its 2025 WMP Update, to provide details on its evaluation of the specific needs of its AFN customer base identified through stakeholder forums and focus groups, as well as any other methods of evaluation.[233] Energy Safety also required PG&E to describe the needs of AFN customers it identified as a result of this evaluation.[234]

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[231] Energy Safety Decision on PG&E 2023-2025 WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[232] Energy Safety Decision on PG&E 2023-2025 WMP, p. 90 https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[233] Energy Safety Decision on PG&E 2023-2025 WMP, p. 114 https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

[234] Energy Safety Decision on PG&E 2023-2025 WMP, p. 114 https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 11, 2024).

In its 2025 WMP Update, PG&E provided details on the various methods it uses to solicit and collect feedback from customers, stakeholders, and peer utilities. This included pre- and post-wildfire season customer surveys, community-based organization surveys, as well as stakeholder and joint utility group meetings. PG&E also provided specific examples of needs it identified of its AFN customers as well as measures it implemented as a result of the above-mentioned evaluation and feedback processes. PG&E stated that its measures aimed at responding to the needs of its AFN community include enhanced AFN communications, expanded AFN outreach and access to information, and additional self-identification and medical baseline outreach campaigns.[235]

Energy Safety Evaluation

PG&E provided the required details on its evaluation of AFN customer needs and described the needs identified as a result of this evaluation. Therefore, PG&E sufficiently responded to this area for continued improvement; no further reporting is required on this area for continued improvement in PG&E's 2026-2028 Base WMP.

8.5.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the community outreach and engagement section of its 2023-2025 Base WMP.

8.5.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E did not report any updates to approved targets, objectives, or projected expenditures related to the community outreach and engagement section of its 2023-2025 Base WMP.

[235] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 116-118 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52782&shareable=true, accessed July 9, 2024).

9. Public Safety Power Shutoff

In its 2025 WMP Update, PG&E provided two total updates related to the Public Safety Power Shutoff section of its 2023-2025 Base WMP. The updates PG&E provided related to this section included updates to two approved targets.

9.1 2023 Areas for Continued Improvement

Energy Safety's Decision on PG&E's 2023-2025 Base WMP[236] did not require PG&E to report progress on any areas for continued improvement in the Public Safety Power Shutoff section in its 2025 WMP Update. Therefore, PG&E has no reportable updates in this area.

9.2 New or Discontinued Programs

In its 2025 WMP Update, PG&E did not report any new or discontinued programs related to the Public Safety Power Shutoff section of its 2023-2025 Base WMP.

9.3 Targets, Objectives, and Projected Expenditures

In its 2025 WMP Update, PG&E reported updates to approved targets related to the Public Safety Power Shutoff section of its 2023-2025 Base WMP. Energy Safety finds that these reportable updates meet the requirements set forth in the 2025 WMP Update Guidelines.

Specifically, PG&E provided updates to the target number of PSPS customer events mitigated in 2025 from 55,000 to 38,000, and the target number of new or replacement batteries provided in 2025 from 4,000 to 3,300.

9.3.1 Energy Safety Evaluation

Energy Safety finds the PSPS event target reductions summarized above are justified as part of the suite of target changes to undergrounding and overhead system hardening targets that PG&E updated to increase program efficiency (discussed in Section 8.1.1.3 above).

Energy Safety also finds that PG&E's update to reduce 2025 targets for its back-up battery program is justified. PG&E stated that it overperformed its 2023 target by 700 units and is

[236] Energy Safety Decision on PG&E 2023-2025 Base WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 6, 2024).

updating its 2025 target accordingly.[237] The cumulative number of units PG&E projects that it will provide in the 3-year cycle remains unchanged.

9.3.2 Areas for Continued Improvement

Energy Safety has no new areas for continued improvement for PG&E in Public Safety Power Shutoff. In its 2026-2028 Base WMP, PG&E must report its progress on any existing areas for continued improvement specified in Energy Safety's Decision on PG&E's 2023-2025 Base WMP.[238]

[237] PG&E 2025 WMP Update (R1) (clean version, July 2024), pp. 24-25 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56962&shareable=true, accessed July 15, 2024).

[238] Energy Safety Decision on PG&E 2023-2025 Base WMP (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56134&shareable=true, accessed June 6, 2024)

10. PG&E Process for Continuous Improvement

PG&E did not indicate any changes to the lessons learned or corrective action program sections of its 2023-2025 Base WMP.

11. Required Areas for Continued Improvement

Energy Safety's WMP evaluations focus on each electrical corporations' strategies for reducing the risk of utility-related ignitions. The list below comprises all PG&E's areas for continued improvement and the required progress that PG&E must address in its 2026-2028 Base WMP. This includes areas for continued improvement from Energy Safety's Decision on PG&E's 2023-2025 Base WMP as well as new areas for continued improvement from Energy Safety's evaluation of PG&E's 2025 WMP Update, as discussed in Sections 5 through 9 of this Decision.

11.1 Risk Methodology and Assessment

- **PG&E-25U-01. Outage-to-Ignition Risk Analysis**
  - Description: PG&E does not include analysis of the likelihood of ignition based on various outage types when evaluating ignition risk as part of its modeling improvements.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must provide an update on how it is working to incorporate evaluation of ignition likelihood based on various outage types when modeling ignition risk and analyzing mitigation effectiveness as a result. This must include analysis of individual outage-drivers and ignition-drivers, propagation likelihood from outage-to-ignition, and inclusion of ignition sources without associated outages.
  - Discussed in Section 6, "Risk Methodology and Assessment."

- **PG&E-23B-03. Incorporation of Extreme Weather Scenarios in Planning Models**
  - Description: PG&E currently relies on wind conditions data collected over the past 30 years that does not consider rare but foreseeable and significant risks. PG&E does not directly evaluate the risk of extreme wind events in its service territory to prioritize its wildfire mitigations using the WTRM Planning model.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must report on its progress developing statistical estimates of potential wind events over at least the maximum asset life for its system. PG&E must evaluate results from incorporating these into WTRM-Planning when developing its mitigation initiative portfolio or explain why the approach would not serve as an improvement to its mitigation strategy.

11.2 Wildfire Mitigation Strategy Development

- **PG&E-25U-01. 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**
  - Description: SDG&E, PG&E, and SCE have participated in past Energy Safety-sponsored scoping meetings on these topics and have begun collaborating on other WMP-related topics. However, they have not made sufficient efforts to include the other IOUs (Bear Valley, Liberty Utilities, and PacifiCorp).
  - Required Progress: In its 2026-2028 Base WMP, PG&E must continue its collaboration efforts and demonstrate that it has made efforts to include Bear Valley, Liberty Utilities, and PacifiCorp in these efforts, where appropriate and relevant to each IOU's interests.

    PG&E must also continue to participate in all Energy Safety Safety-organized activities related to best practices for:
    - Inclusion of climate change forecasts in consequence modeling.
    - Inclusion of community vulnerability in consequence modeling.
    - Utility vegetation management for wildfire safety.
  - Discussed in Section 7, "Wildfire Mitigation Strategy Development."

11.3 Grid Design, Operations, and Maintenance

- **PG&E-25U-03. Continuation of Grid Hardening Joint Studies**
  - Description: The IOUs have jointly made progress addressing the continued Joint IOU Covered Conductor Working Group area for continued improvement (PG&E-23-06). Energy Safety expects the IOUs to continue these efforts and meet the requirements of this ongoing area for continued improvement.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must continue to collaborate with the other IOUs to evaluate various aspects of grid hardening and provide an updated Joint IOU Grid Hardening Working Group Report. This report must include continued analysis for the following:
    - The IOUs' joint evaluation of the effectiveness of undergrounding. This evaluation must account for any remaining risk from secondary or service lines, analysis of in-field observations from potential failure points of underground equipment, and ignition risk as well as PSPS risk.
    - The IOUs' joint evaluation of lessons learned on undergrounding applications. These lessons learned must include use of resources

(including labor and materials) to accommodate undergrounding programs, any new technologies being applied to undergrounding, and cost and associated cost effectiveness efforts for deployment.

- The IOUs' joint evaluation of various approaches to implementation of protective equipment and device settings. This evaluation must include an analysis of the effectiveness of various settings, lessons learned on how to minimize reliability impacts and safety impacts (including use of downed conductor detection and partial voltage detection devices), variations on settings used by IOUs including thresholds of enablement, and equipment types in which such settings are being adjusted.
- The IOUs' continued efforts to evaluate new technologies being researched, piloted, and deployed by IOUs. These efforts must include, but not be limited to: REFCL, EFD, DFA, falling conductor protection, use of smart meter data, open phase detection, remote grids, and microgrids.
- The IOUs' joint evaluation of the effectiveness of mitigations in combination with one another, including, but not limited to overhead system hardening, maintenance and replacement, and situational awareness mitigations. This must also include analysis of in-field observed effectiveness, as well as effectiveness for both wildfire and PSPS risk.
- Additionally, PG&E must report on all lessons learned SCE has applied or expects to apply to its WMP, including a list of applicable changes and a timeline for expected implementation as applicable.

  - Discussed in Section 8.1, "Grid Design, Operations and Maintenance."

- **PG&E- 25U-03. Decrease in Detailed Ground Distribution Inspections**
  - Description: In its 2025 WMP Update, PG&E provided analysis supporting its established inspection frequencies for "high" and "medium" consequence plat maps. While this analysis supports its decision-making process, it does not demonstrate that the established frequencies mitigate risk more efficiently than alternatives.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must provide a cost benefit analysis and cost benefit ratio for the following scenarios:
    - Extreme and severe consequence plat maps inspected annually, high inspected every two years, low and medium inspected every three years.
    - Extreme, severe, and high consequence plat maps inspected annually, medium and low inspected every three years.

- Extreme, severe, and high consequence plat maps inspected annually, medium inspected every two years, and low inspected every three years.
- Extreme and severe consequence plat maps inspected annually, high and medium inspected every two years, low inspected every three years.
- Changing the severe consequence percent rank from less than or equal to 99 percent and greater than 98 percent to less than or equal to 99 percent and greater than 95 percent and inspecting extreme and severe consequence plat maps annually, high every two years, medium and low every three years.

The cost benefit analysis and cost benefit ratio must only consider the risk impact of the distribution detailed inspection frequencies outlined above and must not account for reductions to other inspection or maintenance programs.

- Discussed in Section 8.1.2, "Asset Inspections."

- **PG&E-25U-04. Transformer Predictive Maintenance**
  - Description: In its 2025 WMP Update, PG&E stated it will conduct tests to evaluate the accuracy of the IONA model and operationalize the model if it can achieve beneficial risk-spend efficiency. PG&E does not commit to reporting on test results or calculated risk-spend efficiencies.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must provide:
    - All testing results and documentation, reports, and/or whitepapers relevant to the IONA project.
    - All risk-spend efficiency calculations relevant to the IONA project.
  - Discussed in Section 8.1.3, "Equipment Maintenance and Repair."

- **PG&E-25U-05. Evaluation and Reporting of Safety Impacts Relating to EPSS**
  - Description: In its 2025 WMP Update, PG&E stated that it plans to continue EPSS enablement in R2 and R1 conditions. These lower thresholds present higher outage risk without as high of an associated ignition risk, which requires additional analysis and oversight to manage moving forward.
  - Required Progress: In its 2026-2028 WMP, PG&E must provide its latest 2024 analysis pertaining to EPSS outages, which should include the following for each CPZ in which EPSS has been enabled:
    - Number of outages that have occurred.
    - Whether or not the CPZ is in the HFTD.

- Cumulative number of customers impacted by those outages.
- Cumulative customer minutes interrupted during those outages.
- Cumulative outage time in minutes.
- Number of circuit-mile-days in which EPSS criteria was met, including conditions used in order for criteria to be met.
- Percentage of time in which EPSS was enabled at each FPI threshold (R2, R3, etc.).
- Any associated conclusions or changes to threshold enablement as a result of analysis on the above.
- Any continued or additional measures PG&E is taking to minimize customer impact based on EPSS enablement.

  - Discussed in Section 8.1.4, "Grid Operations and Procedures."

11.4 Vegetation Management and Inspections

- **PG&E-25U-06. Vegetation Management Recordkeeping**
  - Description: Based on PG&E's response to PG&E-23B-15 in its 2025 WMP Update, Energy Safety is concerned that PG&E's current vegetation management recordkeeping practices and planned enhancements "to capture factors for prescribing trees for removal" and to "enhance recordkeeping practices for the Focused Tree Inspection program" do not demonstrate the progress and maturity expected from the approved 2023-2025 Base WMP.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must demonstrate that it has:
    - Revised and improved its vegetation management recordkeeping process in One VM to consistently and accurately "capture factors for prescribing trees for removal."
    - Revised and improved its vegetation management recordkeeping process for trees inspected under FTI to align with lessons learned, achieve data consistency and quality, and to collect information relevant to a tree risk assessment performed to reduce the risk of utility-related ignitions attributable to contact from vegetation. This may include adapting the ISA's Basic Tree Risk Assessment form to refine PG&E's current digitized Tree Risk Assessment.
    - Considered adding the capability to One VM to document potential defects or issues with "inventory only trees" and other trees not prescribed work by explaining and providing the decision-making process for its consideration.

- Discussed in Section 8.2, "Vegetation Management and Inspections."

- **PG&E-25U-07. Reinspection of Trees in the Tree Removal Inventory**
  - Description: In response to PG&E-23B-20, PG&E described a pilot it is executing in 2024 to re-evaluate trees listed for work and included in the scope of TRI.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must describe the results of the pilot, including any resulting actions and implementation timelines for those actions. If PG&E chooses not to expand the pilot, it must justify this choice.
  - Discussed in Section 8.2, "Vegetation Management and Inspections."

- **PG&E-23B-15. Implementation of Focused Tree Inspections and Addressing the Risk from Hazard Trees**
  - Description: PG&E has committed to further implementing Focused Trees Inspections and to addressing the risk from hazard trees, but details regarding recordkeeping, refinement of the Areas of Concerns, and long-term planning remain unclear.
  - Required Progress: [239] In its 2026-2028 Base WMP, PG&E must present its plan for consistent HFTD-wide hazard tree-related risk reduction by inspection and remediation. In its development of this plan, PG&E must continue its dialogue with its peer electrical corporations and Energy Safety and remain abreast of hazard tree inspection and remediation strategies including, but not limited to, tools for risk assessment, recordkeeping practices, and frameworks for risk-informed inspections (i.e., when, where, and how often to inspect for hazard trees based on risk).
  - Discussed in Section 8.2, "Vegetation Management and Inspections."

- **PG&E-23B-16. Updating the Wood Management Procedure**
  - Description: PG&E's Wood Management procedure only addresses large wood generated by post-fire activities and EVM, does not consider wildfire and safety risks associated with leaving wood on site, and may not sufficiently take into

[239] In Energy Safety's Decision on PG&E 2023-2025 WMP, PG&E-23-15 included requirements for progress reporting in PG&E's 2025 WMP Update; this language has been removed from this Decision as it does not apply towards the required progress for the 2026-2028 Base WMP.

consideration potential benefits to the program from improved customer relations.

- Required Progress: In its 2026-2028 Base WMP, PG&E must:
  - Benchmark the scope of its Wood Management program with, at minimum, SCE and Liberty Utilities, and justify the differences in scope.
  - Provide a response detailing whether PG&E has considered how offering wood removal and disposal services to customers may reduce refusals related to vegetation management and how that consideration has informed any updates to PG&E's Wood Management program for the 2026-2028 WMP Base WMP.
  - Attach an updated version of its Wood Management Procedure (TD-7102P-26) that:
    - Reflects its current portfolio of vegetation management programs (e.g., FTI, TRI, VMOM).
    - Considers the wildfire risk related to accumulated fuels generated by PG&E's vegetation management activities.
    - Considers the risk and safety impact of leaving large woody debris onsite including, but not limited to:
      - Blocking, hindering, or potentially blocking (e.g., roll or blow into) ingress or egress (roads, driveways, walkways, etc.).
      - Violating defensible space laws or ordinances such as Public Resources Code section 4291 and Government Code section 51182.
      - Impede watercourses and drainages.
      - Otherwise create a hazard.
- Discussed in Section 8.2 "Vegetation Management and Inspections" of Energy Safety's Decision on PG&E's 2023-2025 Base WMP.

- **PG&E-23B-17. Consolidation of Vegetation Inspection Programs**
  - Description: PG&E's vegetation management program for distribution circuits is complex, resulting in multiple touchpoints for customers and overlapping scopes of work for PG&E's personnel.
  - Required Progress: In its 2026-2028 Base WMP, PG&E must present a plan to consolidate its vegetation inspection programs for distribution circuits in the HFTD with the following objectives:

        - Reduce the number of annual touchpoints from inspectors and tree crews due to overlapping scopes of work.
        - Streamline the distribution inspection procedure, including reduction and/or consolidation of its attachments, to reduce confusion among government agencies, PG&E's customers, and vegetation personnel.
        - Address the risk from vegetation contact through vegetation inspection, trimming, and removal while complying with applicable laws and regulations.
    - Discussed in Section 8.2 "Vegetation Management and Inspections" of Energy Safety's Decision on PG&E's 2023-2025 Base WMP.

- **PG&E-23B-18. Improving Vegetation Management Inspector Qualifications**
    - Description: It is essential that PG&E ensure it has qualified personnel for vegetation inspections and has trained these personnel to adequately perform vegetation inspections.
    - Required Progress: In its 2026-2028 Base WMP, PG&E must:
        - Present a plan to improve the level of qualifications and training of its current Vegetation Management Inspectors (both contract and employee).
        - Explain and provide the decision-making process for its consideration of updates to the minimum qualification and training requirements for its Vegetation Management Inspectors.
    - Discussed in Section 8.2 "Vegetation Management and Inspections" of Energy Safety's Decision on PG&E's 2023-2025 Base WMP.

- **PG&E-23B-21. Identification of High-Risk Species for Focused Tree Inspections**
    - Description: In the procedure for PG&E's Focused Tree Inspection, the methodology for identifying species for which inspectors are to "apply increase scrutiny" relies exclusively on outage rates.
    - Required Progress: In its 2026-2028 Base WMP, PG&E must define criteria for determining which species warrant increased scrutiny during Focused Tree Inspections and other inspections. PG&E must detail its methodologies for determining these species.
    - Discussed in Section 8.2 "Vegetation Management and Inspections" of Energy Safety's Decision on PG&E's 2023-2025 Base WMP.

- **PG&E-23B-22. Continuation of Effectiveness of Enhanced Clearances Joint Study**
  - Description: The large IOUs have jointly made progress addressing the Progression of Effectiveness of Enhanced Clearances Joint Study 2022 area for continued improvement (SDGE-22-20, PGE-22-28, and SCE-22-18). Energy Safety expects the large IOUs and their contracted third party to continue their efforts and meet the requirements of this ongoing area for continued improvement.[240]
  - Required Progress:[241] With its 2026-2028 Base WMP, PG&E, along with SCE and SDG&E, must attach a white paper that discusses:
    - The large IOUs' joint evaluation of the effectiveness of enhanced clearances including, but not limited to, the effectiveness of enhanced clearances in reducing tree-caused outages and ignitions.
    - The large IOUs' joint recommendations for updates and changes to utility vegetation management operations and best management practices for wildfire safety based on this study. This may include the IOUs' recommendations for updates to regulations related to clearance distances.
  - Discussed in Section 8.2, "Vegetation Management and Inspections."

[240] The objectives for the Enhanced Clearances Joint Study were defined in PGE-21-23, Final Action Statement on the 2021 Wildfire Mitigation Plan (WMP) Update of Pacific Gas and Electric Company, p. Appendix-16 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51745&shareable=true, accessed June 4, 2024).

[241] In Energy Safety's Decision on PG&E 2023-2025 WMP, PG&E-23-22 included requirements for progress reporting in PG&E's 2025 WMP Update; this language has been removed from this Decision as it does not apply towards the required progress for the 2026-2028 Base WMP.

12. Conclusion

PG&E's 2025 WMP Update 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 utility-related ignition risk.

Energy Safety expects PG&E to effectively implement its wildfire mitigation activities to reduce the risk of utility-related ignitions and the potential catastrophic consequences if an ignition occurs, as well as to reduce the scale, scope, and frequency of PSPS events.

PG&E must meet the commitments in its WMP and fully address the areas for continued improvement identified within this Decision to ensure it meaningfully reduces utility-related ignition and PSPS risk within its service territory over the plan cycle.

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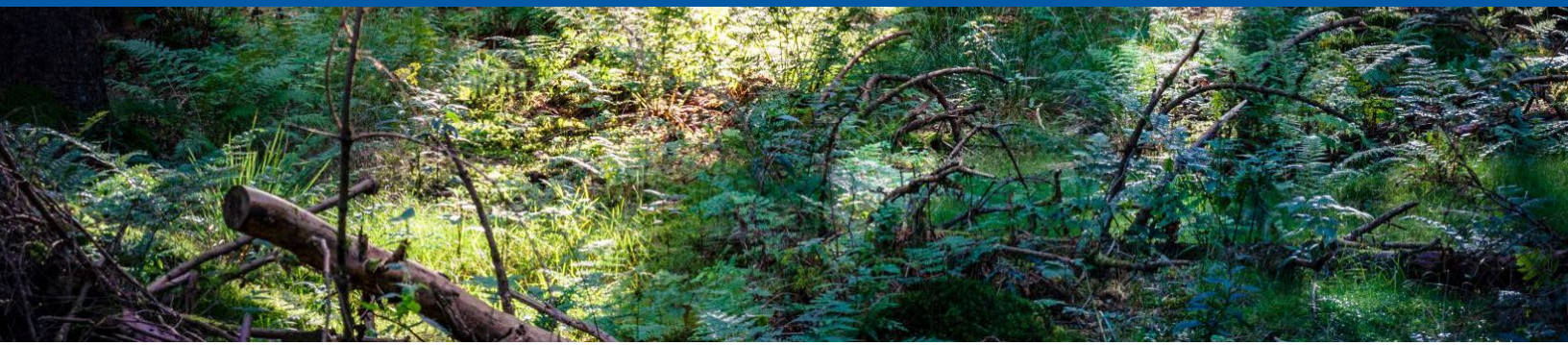
APPENDICES



APPENDICES

Appendix A. Glossary of Terms

Term	Definition
AFN	Access and functional needs
BVES	Bear Valley Electric Service
CAISO	California Independent System Operator
Cal Advocates	The Public Advocates Office at the California Public Utilities Commission
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
CAP	Corrective action program
CBO	Community-based organization
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEJA	California Environmental Justice Alliance
CNRA	California Natural Resources Agency
CPUC	California Public Utilities Commission
D.	Prefix to a proceeding number designating a CPUC decision
DR	Data request
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EFD	Early fault detection

Term	Definition
EPUC	Energy Producers and Users Coalition
EVM	Enhanced vegetation management
FERC	Federal Energy Regulatory Commission
FPI	Fire potential index
FWI	Fire weather index
GFN	Ground-fault neutralizers
GIS	Geographic information systems
GO	General order
GPI	Green Power Institute
GRC	General rate case
HD	High definition
HFRA	High Fire Risk Area
HFTD	High fire threat district
HWT or Horizon West	Horizon West Transmission
I.	Prefix to a proceeding number designating a CPUC Order Instituting Investigation (OII)
ICS	Incident command system or structure
IOU	Investor-owned utility
IR	Infrared
ISA	International Society of Arboriculture
ITO	Independent transmission operator
kV	Kilovolt

Term	Definition
Liberty	Liberty Utilities
LiDAR	Light detection and ranging
Maturity Model	Electrical Corporation Wildfire Mitigation Maturity Model
Maturity Survey	Electrical Corporation Wildfire Mitigation Maturity Survey
MAVF	Multi-attribute value function
MBL	Medical Baseline
MGRA	Mussey Grade Road Alliance
ML	Machine learning
NDVI	Normalized difference vegetation index
NERC	North American Electric Reliability Corporation
NFDRS	National Fire Danger Rating System
NOD	Notice of defect
NOV	Notice of violation
OCM	Overhead circuit miles
OEIS or Energy Safety	Office of Energy Infrastructure Safety
PG&E	Pacific Gas and Electric Company
PoF	Probability of failure
PoI	Probability of ignition
PRC	Public Resources Code
PSPS	Public Safety Power Shutoff

Term	Definition
Pub. Util. Code or PU Code	Public Utilities Code
QA	Quality assurance
QC	Quality control
QDR	Quarterly Data Report
R.	Prefix to a proceeding number designating a CPUC rulemaking
RAMP	Risk Assessment and Mitigation Phase
RCRC	Rural County Representatives of California
REFCL	Rapid earth fault current limiter
RFW	Red Flag Warning
RSE	Risk-spend efficiency
SAWTI	Santa Ana Wildfire Threat Index
SCADA	Supervisory control and data acquisition
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
S-MAP	Safety Model Assessment Proceeding, now the Risk-Based Decision-Making Framework Proceeding
SMJU	Small and multijurisdictional utilities
TAT	Tree Assessment Tool
TBC	Trans Bay Cable
TURN	The Utility Reform Network
USFS	United States Forest Service
VM	Vegetation management

Term	Definition
VRI	Vegetation risk index
WMP	Wildfire Mitigation Plan
WRRM	Wildfire Risk Reduction Model
WSAB	Wildfire Safety Advisory Board
WUI	Wildland-urban interface

Appendix B. Status of 2023 Areas for Continued Improvement

Energy Safety's 2023 Decision[1] for PG&E identified areas for continued improvement and associated required progress. Areas for continued improvement are where PG&E must continue to improve its wildfire mitigation capabilities. As part of the 2025 WMP Update evaluation process, Energy Safety reviewed the progress reported by PG&E on areas for continued improvement that Energy Safety required progress on by the 2025 WMP Update-. Energy Safety is satisfied that PG&E has made sufficient progress in all the identified areas for continued improvement.

PG&E's 2023 areas for continued improvement that Energy Safety required progress on by the 2025 WMP Update are listed in Table A-1. The status column indicates whether each has been fully addressed. If not, the column notes where to find more information in this Decision.

[1] [Insert link to last year's Energy Safety Decision]

Table A-1. PG&E 2023 Areas for Continued Improvement

ID	Title	Status
PG&E-23B-01 (PG&E-23-01)	Cross-Utility Collaboration on Risk Model Development	PG&E sufficiently addressed the required progress.
PG&E-23B-02 (PG&E-23-02)	PSPS and Wildfire Risk Trade-Off Transparency	PG&E sufficiently addressed the required progress.
PG&E-23B-04 (PG&E-23-04)	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 sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued improvement, see Sections 7.1.1.1 and 11 of this Decision.
PG&E-23B-05 (PG&E-23-05)	Updating Grid Hardening Decision Making	PG&E sufficiently addressed the required progress.
PG&E-23B-06 (PG&E-23-06)	Continuation of Grid Hardening Joint Studies	PG&E did not sufficiently address the required progress. For related areas for continued improvement, see Sections 8.1.1.1 and 11 of this Decision.
PG&E-23B-07 (PG&E-23-07)	Deployment of New Technologies	PG&E sufficiently addressed the required progress.

ID	Title	Status
PG&E-23B-08 (PG&E-23-08)	Covered Conductor Inspection and Maintenance	PG&E sufficiently addressed the required progress.
PG&E-23B-09 (PG&E-23-09)	Decrease in Detailed distribution Inspections	PG&E did not sufficiently address the required progress. For related areas for continued improvement, see Sections 8.1.2.1 and 11 of this Decision.
PG&E-23B-10 (PG&E-23-10)	Current Limiting Fuse Replacement	PG&E sufficiently addressed the required progress.
PG&E-23B-11 (PG&E-23-11)	Transformer Predictive Maintenance	PG&E sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued improvement, see Sections 8.1.3.1 and 11 of this Decision.
PG&E-23B-12 (PG&E-23-12)	Distribution Backlog Open Tag Reductions	PG&E sufficiently addressed the required progress.
PG&E-23B-13 (PG&E-23-13)	Workforce Planning and Resource Allocation to Respond to EPSS Events	PG&E sufficiently addressed the required progress.

ID	Title	Status
PG&E-23B-14 (PG&E-23-14)	Effectiveness Analysis for EPSS Including Implementation of DCD	PG&E sufficiently addressed the required progress.
PG&E-23B-15 (PG&E-23-15)	Implementation of Focused Tree Inspections and Addressing the Risk from Hazard Trees	PG&E sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued improvement, see Sections 8.2.1.1 and 11 of this Decision.
PG&E-23B-19 (PG&E-23-19)	Continued Progression of Vegetation Management Maturity	PG&E sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued improvement, see Sections 8.2.1.5 and 11 of this Decision.
PG&E-23B-20 (PG&E-23-20)	Reinspection of Trees in the Tree Removal Inventory	PG&E sufficiently addressed the required progress. For related areas for continued improvement, see Sections 8.2.1.6 and 11 of this Decision.
PG&E-23B-22 (PG&E-23-22)	Continuation of Effectiveness of Enhanced Clearances Joint Study	PG&E sufficiently addressed the required progress.
PG&E-23B-23 (PG&E-23-23)	Weather Station Maintenance and Calibration	PG&E sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued

ID	Title	Status
		improvement, see Sections 8.3.1.1 and 11 of this Decision.
PG&E-23B-24 (PG&E-23-24)	Evaluation of and Plan to Address AFN Customer Needs	PG&E sufficiently addressed the required progress.
PG&E-23B-25 (PG&E-23-25)	Fire Potential Index (FPI) and Ignition Probability Weather (IPW) Enhancements	PG&E sufficiently addressed the required progress.
PG&E-23B-26 (PG&E-23-26)	Evaluation and Reporting of Safety Impacts Relating to EPSS	PG&E sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress. For related areas for continued improvement, see 8.1.4.1 and 11 of this Decision.

Appendix C. Stakeholder Data Request Responses Used in WMP Evaluation

No stakeholder data request responses were cited in this Decision.

Appendix D. Stakeholder Comments on the 2025 WMP Updates

Energy Safety invited stakeholders, including members of the public, to provide comments on the electrical corporations' 2025 WMP Updates. Opening comments on Group 1] WMPs were due on May 7, 2024, and reply comments were due on May 21, 2024[2]. The following individuals and organizations submitted comments that Energy Safety considered in this Decision:

- California Department of Fish and Wildlife (CDFW)
- Mussey Grade Road Alliance (MGRA)
- Rural County Representatives of California (RCRC)
- The Green Power Institute (GPI)
- The Public Advocates Office at the California Public Utilities Commission (Cal Advocates)

Comments received on the 2023-2025 WMPs can be viewed in the 2023-2025 Wildfire Mitigation Plan (2023-2025-WMPs) docket log.

Energy Safety concurred with and incorporated the following stakeholder comments into Energy Safety's findings on PG&E's 2025 WMP Update:

- Cal Advocates commented that PG&E should be required to analyze the benefits and costs of expanding the scope of its detailed asset inspections. Energy Safety will require PG&E to provide risk spend efficiency calculations for various detailed inspection scenarios.

[2] The reply comment period for Group 1 electrical corporations' 2025 WMP Updates was extended from May 17, 2024, to May 21, 2024. See Energy Safety's Deadline Extension for 2025 Wildfire Mitigation Plan Update Reply Comments (May 2024) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56689&shareable=true, accessed June 11, 2024).

Appendix E. Stakeholder Comments on the Draft Decision

This appendix will contain Energy Safety's summary of stakeholder comments on Energy Safety's draft Decision on PG&E's 2025 WMP Update.

Appendix F. Maturity Survey Results

Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model[3] (Maturity Model) and Electrical Corporation Wildfire Mitigation Maturity Survey[4] (Maturity Survey) together provided a quantitative method to assess the maturity of each electrical corporation's wildfire risk mitigation program.

The Maturity Model consists of 37 individual capabilities describing the ability of electrical corporations to mitigate wildfire risk within their service territory. The 37 capabilities are aggregated into seven categories. The seven mitigation categories are:

A. Risk Assessment and Mitigation Selection
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

Maturity levels range from 0 (below minimum requirements) to 4 (beyond best practice). Electrical corporations' responses to the Maturity Survey, listed by mitigation category, are depicted in the figures and tables below.

Figure A-1 displays PG&E's 2024 response to the Maturity Survey across mitigation categories showing minimum and average values. Figure A-2 compares PG&E's 2024 response to the Maturity Survey to its 2023 response to the Maturity Survey, depicting values that increased, decreased, or had no change (indicated by "NC").

[3] Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (revised and adopted Jan. 2024, published Feb. 2024) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56256&shareable=true, accessed May 6, 2024).

[4] Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Survey (adopted Jan. 2024, revised and published Feb. 2024) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56306&shareable=true, accessed May 6, 2024).

Figure A-1. PG&E 2024 Response to the 2023-2025 Maturity Survey

		1. Capability				2. Capability				3. Capability				4. Capability				5. Capability				6. Capability			
		2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026
A. Risk Assessment and Mitigation Strategy		1. Statistical weather, climate, and wildfire modeling				2. Calculation of wildfire and PSPS risk exposure for societal values				3. Calculation of community vulnerability to wildfire and Public Safety Power Shutoffs (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	0.0	0.0	1.0	2.0	2.0	2.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0
	Average of Sub-Cap.	2.5	2.6	2.6	2.6	3.3	3.6	3.6	3.6	0.5	3.3	3.3	3.3	2.4	2.8	2.8	2.8	2.7	2.7	2.7	2.7	1.8	1.8	2.4	2.6
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	0.0	0.0	0.0	0.0	1.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	4.0	4.0	4.0	4.0	1.0	4.0	4.0	4.0
	Average of Sub-Cap.	1.9	2.0	2.5	2.6	1.9	2.2	2.2	2.2	3.1	3.3	3.3	3.3	2.1	2.6	2.6	2.6	4.0	4.0	4.0	4.0	3.4	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.	0.0	1.0	2.0	3.0	1.0	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	0.0	0.0				
	Average of Sub-Cap.	2.3	3.3	3.5	3.8	2.3	3.3	3.3	3.3	1.8	2.5	2.5	2.5	3.2	3.2	3.2	3.2	2.0	2.0	3.0	3.0				
D. Vegetation Management and Inspections		18. Vegetation inventory and condition database				19. Vegetation inspections				20. Vegetation treatment				21. Vegetation personnel training and quality											
	Minimum of Sub-Cap.	1.0	3.0	4.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	2.0	2.0	2.0								
	Average of Sub-Cap.	3.0	3.8	4.0	4.0	2.5	3.3	3.3	3.3	2.5	2.8	2.8	2.8	2.5	3.5	3.5	3.5								
E. Grid Operations and Protocols		22. Protective equipment and device settings				23. Incorporation of ignition risk factors in grid control				24. PSPS operating model				25. Protocols for PSPS re-energization				26. Ignition prevention and suppression							
	Minimum of Sub-Cap.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	3.0	1.0	1.0	1.0	1.0	4.0	4.0	4.0	4.0				
	Average of Sub-Cap.	2.8	2.8	2.8	2.8	1.0	1.8	1.8	2.4	3.7	3.8	3.8	3.8	3.2	3.2	3.2	3.2	4.0	4.0	4.0	4.0				
F. Emergency Preparedness		27. Wildfire and PSPS emergency and disaster preparedness plan				28. Collaboration and coordination with public safety				29. Public emergency communication strategy				30. Preparedness and planning for service restoration				31. Customer support in wildfire and PSPS emergencies				32. Learning after wildfires and PSPS incidents			
	Minimum of Sub-Cap.	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	4.0	4.0	1.0	1.0	1.0	1.0
	Average of Sub-Cap.	3.8	3.8	3.8	3.8	4.0	4.0	4.0	4.0	2.8	2.8	2.8	2.8	2.7	2.7	3.3	3.3	4.0	4.0	4.0	4.0	1.5	1.5	1.5	1.5
G. Community Outreach and Engagement		33. Public outreach and education awareness				34. Public engagement in electrical corporation wildfire mitigation planning				35. Engagement with AFN and socially vulnerable populations				36. Collaboration on local wildfire mitigation planning				37. Cooperation and best practice sharing with other electrical corporations							
	Minimum of Sub-Cap.	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
	Average of Sub-Cap.	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0				

Figure A-2. PG&E Maturity Survey Changes from 2023 to 2024

		1. Capability				2. Capability				3. Capability				4. Capability				5. Capability				6. Capability			
		2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026
A. Risk Assessment and Mitigation Strategy		1. Statistical weather, climate, and wildfire modeling				2. Calculation of wildfire and PSPS risk exposure for societal values				3. Calculation of community vulnerability to wildfire and Public Safety Power Shutoffs (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.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
	Average of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	+0.25
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.	NC	NC	NC	NC	NC	NC	NC	NC	NC	+1	+1	+1	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
	Average of Sub-Cap.	NC	NC	+0.1	+0.2	NC	+0.27	+0.27	NC	NC	+0.22	+0.11	+0.11	NC	+0.43	+0.43	+0.43	NC	NC	NC	NC	NC	NC	NC	NC
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.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC				
	Average of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	+0.25	+0.25	+0.25	NC	NC	NC	NC	NC	NC	NC	NC				
D. Vegetation Management and Inspections		18. Vegetation inventory and condition database				19. Vegetation inspections				20. Vegetation treatment				21. Vegetation personnel training and quality											
	Minimum of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC								
	Average of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC								
E. Grid Operations and Protocols		22. Protective equipment and device settings				23. Incorporation of ignition risk factors in grid control				24. PSPS operating model				25. Protocols for PSPS re-energization				26. Ignition prevention and suppression							
	Minimum of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	+1	+1	+1	NC	NC	NC	NC	NC	NC	NC	NC				
	Average of Sub-Cap.	NC	NC	NC	NC	NC	+0.8	NC	NC	NC	+0.17	+0.17	+0.17	NC	NC	NC	NC	NC	NC	NC	NC				
F. Emergency Preparedness		27. Wildfire and PSPS emergency and disaster preparedness plan				28. Collaboration and coordination with public safety partners				29. Public emergency communication strategy				30. Preparedness and planning for service restoration				31. Customer support in wildfire and PSPS emergencies				32. Learning after wildfires and PSPS incidents			
	Minimum of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
	Average of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	-0.7	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
G. Community Outreach and Engagement		33. Public outreach and education awareness				34. Public engagement in electrical corporation wildfire mitigation planning				35. Engagement with AFN and socially vulnerable populations				36. Collaboration on local wildfire mitigation planning				37. Cooperation and best practice sharing with other electrical corporations							
	Minimum of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	+1	+1	+1	NC	NC	NC	NC				
	Average of Sub-Cap.	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	+0.5	+0.5	+0.5	NC	NC	NC	NC				