



June 22, 2023

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Subject: Office of Energy Infrastructure Safety Issuance of Revision Notice for Pacific Gas and Electric Company's 2023-2025 Wildfire Mitigation Plan.

Enclosed is a Revision Notice the Office of Energy Infrastructure Safety (Energy Safety) is issuing in conjunction with its review of Pacific Gas and Electric Company's (PG&E) 2023-2025 WMP (Base WMP). This Revision Notice confirms that Energy Safety has identified critical issues associated with PG&E's Base WMP. Critical issues are defined as areas of significant concern that may lead to denial of a WMP if associated remedies are not satisfactorily addressed by the utility. For each identified critical issue, Energy Safety sets forth the remedy that PG&E must address along with a timetable for PG&E's responses.

Revision Notice Responses must be submitted by PG&E within 45 days of issuance of this Revision Notice. The timing is as follows:

- 45 days after issuance of this Revision Notice (no later than August 7, 2023) PG&E must provide:
 - A response to critical issues RN-PG&E-22-01, RN-PG&E-22-02, RN-PG&E-22-03, RN-PG&E-22-04, RN-PG&E-22-05, RN-PG&E-22-06, RN-PG&E-22-07, and RN-PG&E-22-08.
 - A revised version of its Base Plan to the 2023-2025 Wildfire Mitigation Plan docket (#2023-2025-WMPs) that includes any changes to the Base Plan resulting from Revision Notice Responses, in both a redlined and a clean version of the document; and
 - A single updated WMP and auxiliary Excel file updating tables required in the WMP submissions that incorporates all required changes across all critical issues.

Public comments

Stakeholders may submit comments on PG&E's Revision Notice Responses within 15 calendar days after PG&E's 45-day Revision Notice Response submittal. Reply comments are due 10 calendar days thereafter and shall be limited to issues raised and representations made in opening comments of other stakeholders. As such, opening comments must be

submitted no later than August 22, 2023. Reply comments must be submitted no later than September 1, 2023.¹

Revision Notice Responses and public comments must be submitted to Energy Safety's e-filing system in the 2023 Wildfire Mitigation Plans docket (#2023-2025-WMPs).² Submission files must use the naming conventions provided in the 2023 Guidelines.³ For example, "2023-08-07_PGE_23_RNR_R1," refers to the Pacific Gas and Electric Revision Notice Response submitted on August 7, 2023, revision 1. The redlined version must be named "2023-08-07_PGE_23_R1_redlined" and the auxiliary excel file "2023-08-07_PGE_23_RNR_R1_Tables x-x."

Schedule

The dates for this Revision Notice are:

Revision Notice issued by Energy Safety:	June 22 nd
PG&E's 45-day Revision Notice Response due:	August 7 th
Public Comments due:	August 22 nd
Reply Comments due:	September 1 st
Draft Decision issued by Energy Safety:	September 29 th

Energy Safety will consider the PG&E's Revision Notice Response, its revised Base Plan, stakeholder comments, responses to data requests and the totality of the information before it to date in issuing a determination on PG&E's Base Plan pursuant to Public Utilities Code Sections 8386(b) and 8386.3(a).

Sincerely,

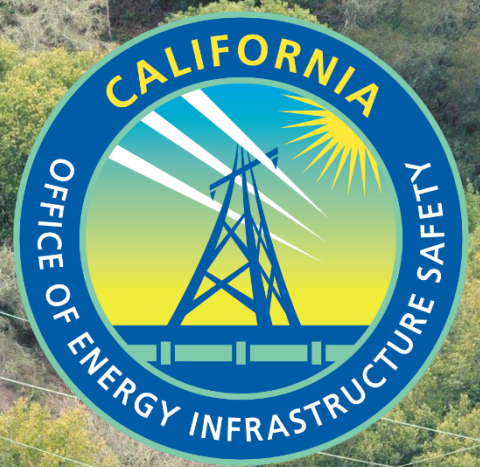


Melissa Semcer
Deputy Director | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

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 to the 2023-2025 WMPs docket via the Energy Safety e-filing system here: ([Docket #2023-2025-WMPs \(ca.gov\)](https://efiling.energysafety.ca.gov/)); accessed June 14, 2023)

³ [Energy Safety's 2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines \(Dec. 2022\)](https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true), Section 10.6, page 19 (<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed June 14, 2023).



OFFICE OF ENERGY INFRASTRUCTURE SAFETY
REVISION NOTICE FOR PACIFIC GAS
AND ELECTRIC COMPANY'S
2023-2025 WILDFIRE MITIGATION PLAN

June 22, 2023

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1. Introduction

Before approval of an electrical corporation's (hereafter "utility"⁴) Wildfire Mitigation Plan (WMP), the Office of Energy Infrastructure Safety (Energy Safety) may require modification of the WMP.⁵ Energy Safety effectuates this by issuing a Revision Notice.

This Revision Notice identifies critical issues in Pacific Gas and Electric Company's (PG&E) 2023-2025 Wildfire Mitigation Plan (Base Plan or WMP). Critical issues are areas of significant concern that may lead to denial of a WMP if associated remedies are not satisfactorily addressed by the utility. PG&E must address the critical issues set forth in this Revision Notice according to the parameters set forth herein. Section 4 provides submission instructions and deadlines.

⁴ In this document, "utility" should be understood to mean "electrical corporation."

⁵ [Public Utilities Code section 8386](#)

(https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=8386.&lawCode=PUC, accessed May 30, 2023).

2. Summary of Critical Issues

Where a utility fails to sufficiently address a required element of the WMP as prescribed by Public Utilities Code Section 8386, a requirement detailed in the 2023-2025 WMP Technical Guidelines (Technical Guidelines)⁶ or the Data Guidelines,⁷ or a specific area for continued improvement outlined in a previous plan approval, it can constitute a critical issue.⁸ This section outlines the eight critical issues associated with PG&E's Base Plan. The issues are listed below by mitigation initiative.

Section 3 provides a more detailed explanation of each critical issue and sets out specific remedies. PG&E must demonstrate that it has fully addressed and responded to each remedy in its Revision Notice Response within the specified 45-day timeframe. Failure to respond to and fully address Revision Notice remedies within the specified timeframe may result in denial of PG&E's Base Plan.

For purposes of PG&E's responses and Energy Safety's continued evaluation, each critical issue is assigned a tracking code. The eight critical issues are summarized below by topic.

General

- **RN-PG&E-23-01:** Many of PG&E's 3- and 10-year initiative objectives do not meet Energy Safety requirements as outlined in the Technical Guidelines.
- **RN-PG&E-23-02:** PG&E does not provide sample sizes and target pass rates for certain asset and vegetation management quality assurance and control programs as required by the Technical Guidelines.
- **RN-PG&E-23-03:** PG&E has not adequately demonstrated workforce planning and resource allocation to address both EPSS risk and wildfire risk.

Grid Design, Operations, and Maintenance

- **RN-PG&E-23-04:** PG&E does not demonstrate how it will address its growing backlog of asset repairs.
- **RN-PG&E-23-05:** PG&E's undergrounding plan may leave wildfire risk unaddressed in highest risk areas.

⁶ [Technical Guidelines](#)

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true>, accessed May 2, 2023).

⁷ [Energy Safety's Data Guidelines, Version 3.1 \(Feb. 2023\)](#)

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53475&shareable=true>, accessed May 2, 2023).

⁸ [Energy Safety's 2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines \(Dec. 2022\)](#) (hereafter Process Guidelines), Section 4.4, page 6

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

Vegetation Management and Inspections

- **RN-PG&E-23-06:** PG&E does not provide targets for seven of its vegetation management inspection programs.
- **RN-PG&E-23-07:** PG&E does not adequately address its risk from hazard trees.

Public Safety Power Shutoff (PSPS)

- **RN-PG&E-23-08:** PG&E's PSPS decision-making process does not accurately account for EPSS enabled circuits, which could potentially lead to more PSPS events than needed.

3. Critical Issues and Required Remedies

3.1 General

3.1.1 RN-PG&E-23-01: Many of PG&E's 3- and 10-year initiative objectives do not meet Energy Safety requirements as outlined in the Technical Guidelines.

PG&E's 3- and 10-year initiative objectives (objectives) do not adequately demonstrate “a clear action plan to continue reducing utility-related ignitions and the scale, scope, and frequency of Public Safety Power Shutoff (PSPS) events” nor do they “[focus] sufficiently on long-term strategies.”⁹

Throughout Sections 8 and 9 of its WMP, PG&E describes how it will implement and improve various wildfire mitigations but does not commit to these improvements through its summarization of objectives. Per the Technical Guidelines, objectives must be: “Specific, measurable, achievable, realistic, and timely outcomes....”¹⁰ Although PG&E provides 3- and 10-year objectives for each subsection in Section 8 and Section 9, PG&E's 3- and 10-year objectives do not meet the stated requirements.

Energy Safety finds critical issues associated with PG&E's objectives in the following sections:

Situational Awareness and Forecasting¹¹

- Of PG&E's four 3-year objectives, three are targeted for completion by the end of 2023 and, as such, do not sufficiently demonstrate a long-term plan for situational awareness and forecasting. The one remaining 3-year objective, with the application initiative tracking ID “SA-05,” is the only objective in this section with a completion date beyond 2023.

Emergency Preparedness¹²

- PG&E lists three 3-year objectives and two 10-year objectives in this section. The 10-year objectives are the same as two of the 3-year objectives and do not sufficiently demonstrate a long-term plan for emergency preparedness.

⁹ [Process Guidelines](#), Section 5.1, Page 09

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

¹⁰ [Technical Guidelines](#), Appendix A. Page A-12.

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true>, accessed May 30, 2023)

¹¹ PG&E's 2023-2025 WMP, page 565.

¹² PG&E's 2023-2025 WMP, page 623.

Community Outreach and Engagement¹³

- PG&E provides one 3-year objective and one 10-year objective in this section. The objectives for both are the same and do not sufficiently demonstrate a long-term plan for community outreach and engagement. PG&E's one objective for this section is to "hold community engagement meetings"; however, there are no specific number of meetings or frequency of meetings listed within the objectives, and PG&E included no other measurable objectives within the section.

Public Safety Power Shutoff (PSPS)¹⁴

- PG&E provides two 3-year objectives and three 10-year objectives in this section. Two of the 10-year objectives are the same as the 3-year objectives and do not sufficiently demonstrate a long-term plan for reducing PSPS.
- PG&E's PSPS objectives fail to demonstrate its commitment to reducing PSPS scale, scope, and frequency.

3.1.1.1 Required Remedies

PG&E must revise its 3- and 10-year objectives to address the specific issues that Energy Safety identifies above. PG&E may add, modify, and/or remove objectives, as needed, with the overall goal of strengthening its 3- and 10-year objectives so they are "specific, measurable, achievable, realistic, and timely."¹⁵ PG&E may also add new or amend existing targets for any new or modified objectives.

3.1.2 RN-PG&E-23-02: PG&E does not provide sample sizes and target pass rates for certain asset and vegetation management quality assurance and control programs as required by the Technical Guidelines.

PG&E has not provided sample sizes and yearly target pass rates for the 2023-2025 WMP cycle for some of its quality assurance (QA) and quality control (QC) activities, as required by the 2023-2025 WMP Technical Guidelines.¹⁶ Additionally, PG&E has not met Energy Safety's

¹³ PG&E's 2023-2025 WMP, page 718.

¹⁴ PG&E's 2023-2025 WMP, page 756.

¹⁵ [Technical Guidelines](#), Appendix A. Page A-12.

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true>, accessed May 30, 2023).

¹⁶ [Technical Guidelines](#), Sections 8.1.6 "Quality Assurance and Quality Control", page 86 and Section 8.2.5 "Quality Assurance and Quality Control", page 110-111

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true>, accessed May 30, 2023).

requirements relating to a continued area for improvement (PG&E-22-21). In PG&E's 2022 Update, Energy Safety found that PG&E was falling behind on its asset inspection QA/QC goals and did not have goals for 2023. As such, Energy Safety required PG&E, in its 2023-2025 WMP, to “[p]rovide quantitative targets, including Acceptable Quality Levels (AQL), for asset inspection QA/QC for 2023 and 2024. The AQL target(s) for performance must be no less than 95 percent.”¹⁷

In Section 8.1.6.1 of its WMP, Table 8-7-1: Grid Design and Maintenance System Inspection QA Program, PG&E does not provide target pass rates beyond 2023, stating “N/A. Target pass rates will be evaluated for 2024 based on the results of our work in 2023.”¹⁸ In accordance with PG&E-22-21, the pass rate target for this QA program must be no less than 95 percent for 2023 and 2024. Additionally, PG&E qualifies the target pass rate column with “Critical Pass Rate,” which PG&E defines as “the number of assets reviewed by QC that did not have a Critical Attribute (as defined by Asset Strategy) failure or miss divided by the number of assets reviewed by QC.”¹⁹ PG&E cannot qualify the required “yearly target pass rate for the 2023-2025 WMP cycle” by re-defining pass rate as “critical pass rate.”

In Section 8.1.6.2 of its WMP, Table 8-7-2: Grid Design and Maintenance System Inspection QC Program, PG&E does not provide target pass rates, stating “To be determined. Pass rates will be determined each year based on improving performance year over year.”²⁰ In accordance with PG&E-22-21, the pass rate target for this QC program must be at minimum 95 percent. Again, PG&E inappropriately qualifies target pass rate column with “Critical Pass Rate.”

In Section 8.2.5.1 of its WMP, Table 8-18-1: Vegetation Management QV Program,²¹ PG&E does not provide a sample size for the quality verification (QV) audits it intends to perform during the current WMP cycle; PG&E instead provides a sample size for the 2022 QV audits it performed.

In Section 8.2.5.2, Table 8-18-2: Vegetation Management QC Metrics Report, PG&E does not provide a sample size for the QC audits it intends to perform during the current plan cycle; PG&E instead provides a sample size for the 2022 QC audits it performed. Additionally, PG&E does not provide pass rate targets for these QC audits.²²

¹⁷ [Final Decision on PG&E's 2022 Wildfire Mitigation Plan Update](#), page 179

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53226&shareable=true>, accessed May 31, 2023).

¹⁸ PG&E's 2023-2025 WMP, page 442.

¹⁹ Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 7)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

²⁰ PG&E's 2023-2025 WMP, page 445.

²¹ PG&E's 2023-2025 WMP, page 552.

²² In PG&E's original 2023-2025 WMP submission, dated March 27, 2023, it did not include yearly pass rate targets in Table 8-18-3: VM Field QC Metrics Report. However, in PG&E's errata, dated April 6, 2023, PG&E added yearly pass rate targets to this table; each inspection program has a target pass rate of 88%.

3.1.2.1 Required Remedies

PG&E must define yearly target pass rates for 2023 through 2025 for its asset management and inspections QA and QC programs in Tables 8-7-1 and 8-7-2, without adding in any qualifiers such as “Critical Pass Rates.” In accordance with PG&E-22-21, the target pass rate for asset QA and QC programs must be no less than 95 percent for 2023 and 2024; however, if PG&E believes this target is infeasible for any of its programs, it must provide a plan to achieve a 95 percent pass rate for 2025, including progressively increasing pass rate targets for 2023 and 2024.²³

PG&E must provide sample sizes for the 2023-2025 WMP cycle for its vegetation management QV and QC programs in Tables 8-18-1 and 8-18-2.²⁴

PG&E must provide yearly target pass rates for 2023 through 2025 for its vegetation management QC programs in Table 8-18-2.

3.1.3 RN-PG&E-23-03: PG&E has not adequately demonstrated workforce planning and resource allocation to address both EPSS risk and wildfire risk.

Throughout the WMP, PG&E does not “[focus] sufficiently on long-term strategies to build the overall maturity of its wildfire mitigation capabilities while reducing reliance on shorter-term strategies.”²⁵ Instead PG&E focuses on EPSS as an interim mitigation for many Circuit Protection Zones (CPZs),²⁶ without providing a long-term mitigation plan, and PG&E has shifted some of its mitigation priorities to address EPSS risk potential at the expense of reducing wildfire risk. Additionally, PG&E has not demonstrated that this shift towards reducing EPSS risk is an “efficient use of [its] resources” and fails to “[focus] on achieving the greatest risk reduction with the most efficient use of funds and workforce resources.”²⁷

As part of its analysis of EPSS impacts, PG&E provides its 2022 EPSS Reliability Impact Study, which includes additional safety impacts, such as the number of customers belonging to vulnerable populations and impact on community values.²⁸ While PG&E provides an updated

²³ For example, PG&E may have a pass rate target of 80% in 2023, 90% in 2024, and ultimately 95% in 2025.

²⁴ These sample sizes may either represent physical assets PG&E will QA/QC per year (e.g., PG&E will QA/QC 3,000 circuit miles in each year of the WMP cycle), or how PG&E determines the samples size for each program (e.g., PG&E samples miles for this program using confidence levels/confidence intervals of 99/5%).

²⁵ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

²⁶ “Circuit Protection Zones” is PG&E’s self-identified term for circuit segments.

²⁷ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 5, 2023).

²⁸ PG&E’s 2023-2025 WMP, p. 962.

study, PG&E does not include these additional safety impacts when determining the areas of highest EPSS risk, and only uses the number of outages to determine EPSS risk (i.e. PG&E defines areas of highest EPSS risk as those where customers experienced 10 or more outages).²⁹ PG&E has not performed an analysis to fully understand the associated safety impacts associated with EPSS, despite the very limited notice customers receive prior to an outage.

PG&E defines CPZs with a high risk of EPSS as those which have experienced a high number of outages. These high EPSS risk CPZs do not correlate with high risk CPZs for wildfire based on risk model output. As such, the CPZs identified as a high EPSS risk do not necessarily correlate with areas of high wildfire risk. (Table 1 in Appendix A). Only three out of the 21 high EPSS risk CPZs identified by PG&E fall within the top 20 percent highest wildfire risk CPZs based on risk model output, and three other CPZs out of the 21 are not even within the high fire threat district and high fire risk area (HFTD and HFRA).³⁰ Instead of directly addressing highest known wildfire risk, PG&E is allocating resources for a new vegetation management program focused on areas of high EPSS risk, and to repair equipment prioritized based on EPSS risk instead of wildfire risk.

About 11 percent of PG&E's 2022 EPSS outages were caused by vegetation (Table 2 in Appendix A). In 2023, PG&E is debuting "VM for Operation Mitigations," which "is intended to help reduce outages and potential ignitions using a risk-informed, targeted plan to mitigate potential vegetation contacts based on historic vegetation outages on EPSS-enabled circuits."³¹ Although PG&E states that the scope of work for this program will, in part, be developed using PG&E's risk model, or Wildfire Distribution Risk Model Version 3 (WDRMv3),³² Energy Safety is concerned that this program focuses too heavily on mitigating risk to reliability from EPSS at the expense of reducing wildfire ignitions and consequence risk related to contact from vegetation.

About 12 percent of PG&E's 2022 EPSS outages were caused by equipment failures (Table 2). In its 2022 WMP, PG&E included targeted equipment repairs as part of its package for reducing EPSS risk.³³ While not listed as an EPSS-specific mitigation within its 2023-2025 WMP,³⁴ PG&E states that it is still using targeted equipment repairs as a mitigation for EPSS.³⁵ PG&E states that it is following the same protocol for its backlog for EPSS targeted circuits

²⁹ PG&E's 2023-2025 WMP, p. 964.

³⁰ Top 20% defined as risk ranking of 720 or above, per Data Request CalAdvocates 22, Question 11. GREEN VALLEY 210136820, PANORAMA 11021342, and PANORAMA 11021526 not in HFTD/HFRA, Data Request OEIS-P-WMP 2023-PG&E-008 (Question 4)

³¹ PG&E's 2023-2025 WMP, page 528.

³² PG&E's 2023-2025 WMP, page 528.

³³ PG&E's Response to 2022 WMP Revision Notice, Table RN-PG&E-22-12-05.

³⁴ PG&E's 2023-2025 WMP, pp. 963-964.

³⁵ Data Request [OEIS-P-WMP 2023-PG&E-002](https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs) (Question 9)

(<https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

but does not describe to what extent it is implementing asset management mitigations to reduce EPSS impacts.³⁶

PG&E lists the cause of nearly 46 percent of its EPSS outages in 2022 as “unknown” (Table 2). Each of these outages requires personnel response to investigate the cause, with no discernable cause present. While Energy Safety does not want to discourage PG&E from reducing reliability impacts and any associated safety impacts from EPSS implementation, PG&E has not adequately shown that it has properly obtained and planned resources to also balance and prioritize wildfire risk reduction.

3.1.3.1 Required Remedies

PG&E must provide:

- a. Analysis demonstrating PG&E's understanding of safety impacts due to EPSS, including how PG&E considers safety impacts in its analysis and prioritization of mitigations around reducing EPSS risk.
- b. PG&E's workplan for resourcing EPSS-directed mitigation measures, including ratios and work hours shifted from wildfire risk mitigations. Ratios should be provided in the form of estimated percentage of personnel and work hours that would otherwise have been dedicated directly to the same mitigation used to address wildfire risk opposed to EPSS risk. This should be broken down by each mitigation type, including, but not limited to:
 - i. Vegetation management
 - ii. Asset repair and replacement
 - iii. Additional asset inspections
- c. Details on how PG&E uses EPSS risk to inform the prioritization of its mitigations in comparison to wildfire risk for all subparts listed in (b). For example, PG&E must provide details on how EPSS risk informs its asset repair and replacement program and may impact prioritization of work as a result.
- d. Justification for reallocating resources towards EPSS risk, as opposed to high wildfire risk. This should include using the analysis performed in parts (a) and (b) in conjunction with detailed mitigation effectiveness calculations.

³⁶ Data Request [OEIS-P-WMP 2023-PG&E-005](https://efiling.energy.ca.gov/efiling/oeis-p-wmp-2023-pg&e-005) (<https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

3.2 Grid Design, Operations, and Maintenance

3.2.1 RN-PG&E-23-04: PG&E does not demonstrate how it will address its growing backlog of asset repairs.

PG&E continues to have a significant backlog of repairs, which has grown throughout 2022; with the backlog increasing by 41,869 distribution tags within the HFTD and HFRA in 2022.³⁷ While PG&E has provided its plans for prioritizing tags based on ignition risk via an “ignition-risk” classification,³⁸ PG&E has not been able to show that it has adequate resources or proper planning to address its backlog given the continual increase. PG&E has not demonstrated that its asset repair program satisfies section 5.1 of the Technical Guidelines, which requires PG&E to show that its plan is programmatically feasible and aims to achieve the highest level of safety, reliability, and resilience.³⁹ Specifically, PG&E has postponed the completion of high ignition risk tags, it has fallen behind on its 2022 closure of tags in 2022 and 2023, continues to use Field Safety Reassessments (FSRs) to extend tag completion deadlines, and does not account for future increases of tags from higher findings rates and additional inspections.

Ignition-Risk Targets

PG&E has significantly postponed the completion of ignition-risk tags in its 2023-2025 WMP and regressed compared to those commitments detailed within its 2022 WMP (Table 3 in Appendix A). Instead of addressing the majority of its non-pole ignition-risk tags in 2023 as set out in PG&E's 2022 WMP, PG&E has now postponed this work, with the majority now targeted for 2025. This has resulted in an increase in work scheduled for 2025, with PG&E's 2025 target for non-pole ignition-risk tags now 449 percent higher than the same target included within PG&E's approved 2022 WMP. Similarly, PG&E has delayed many of its pole ignition-risk tags. This postponement of work has resulted in a significant increase in PG&E's 2029 targets for pole ignition-risk tags increasing by 275 percent compared to those included within PG&E's 2022 WMP. PG&E states that it is delaying this work described above to prioritize addressing distribution tags with a known high ignition risk; however, the delay results in a higher level of risk remaining on PG&E's system for a longer period of time as compared to the commitments made in PG&E's approved 2022 WMP.

In addition, PG&E did not provide sufficient detail to explain how ignition and consequence risk are taken into account in the prioritization process for addressing its repair backlog nor did it explain how it will accomplish closing out its highest ignition-risk tags first. PG&E

³⁷ PG&E's 2023-2025 WMP, Table PG&E-8.1.7-6, p. 459.

³⁸ Data Request [OEIS-P-WMP 2023-PG&E-002](https://efiling.energy.ca.gov/efiling/Getfile.aspx?fileid=53287&shareable=true)

(<https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

³⁹ [Process Guidelines](#), Section 5, Page 10

(<https://efiling.energy.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 5, 2023).

divides open tags into isolation zones in 2024, and calculates Risk Spend Efficiency (RSE) scores to determine prioritization of repairs.⁴⁰ However, it is not clear if PG&E is including interim risk left on the system when determining RSE scores, nor does PG&E state how it will mitigate the risk on the system resulting from the backlog given repair delays.

Finally, PG&E is required to “set quantitative targets to set commitments for specific initiatives in its WMP.”⁴¹ In Table 8-3 of PG&E's 2023 WMP, PG&E provides target values for its distribution backlog in units of reduction of wildfire risk for 2023, 2024, and 2025 respectively. PG&E does not provide a concrete numeric value associated with this backlog within Table 8-3. However, as shown in Table 3 in Appendix A, PG&E does have estimates broken down by year and notification type in Section 8.1.7.2.

Closure of 2022 Tags and Status of 2023 Tags

Of the tags PG&E closed in 2022, about 53 percent were overdue at the time of closure, not accounting for any changed due dates from re-inspections.⁴² Of those overdue tags that PG&E closed in 2022, 63 percent were designated as “ignition-risk” meaning PG&E has determined that the tags present a higher risk of ignition.⁴³

As of May 9, 2023, within the HFTD, PG&E had three open overdue Priority A tags and 1,247 open overdue Priority B tags.⁴⁴ The 2022 WMP Decision required PG&E to “come into compliance with and eliminate its maintenance backlog pursuant to the relevant, overdue General Order (GO) 95⁴⁵ work order backlog requirements by the end of 2023.”⁴⁶ Energy Safety is concerned that PG&E's 2023-2025 WMP continues to lack planning for and a commitment to addressing these overdue backlog requirements. PG&E's plan even fails to address its self-identified ignition-risk tags of highest priority.

Field Safety Reassessments (FSRs)

PG&E states that FSRs are used primarily to elevate tag priority to an A-tag or a B-tag if the condition has degraded,⁴⁷ and that an FSR is performed annually on time-dependent tags to

⁴⁰ PG&E's 2023-2025 WMP, p. 453.

⁴¹ [Process Guidelines](#), Section 5, Page 10

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 5, 2023).

⁴² Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 10, Attachment 1)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁴³ Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 10, Attachment 1)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁴⁴ 2022 PG&E WMP Decision, p. 179.

⁴⁵ [General Order 95](#) – Rules for Overhead Electric Line Construction

(<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M338/K730/338730245.pdf>, accessed June 15, 2023).

⁴⁶ 2022 PG&E WMP Decision, p. 179.

⁴⁷ [Revision Notice responses](#) from PG&E (dated June 27, July 11, and July 26, 2022) can be found on the 2022 Wildfire Mitigation Plan Updates (2022-WMPs) docket log:

<https://efiling.energysafety.ca.gov/Lists/DocketLog.aspx?docketnumber=2022-WMPs> (accessed June 6, 2023).

confirm that Priority E tags have not escalated to Priority A or B.”⁴⁸ In PG&E’s response to the 2022 Revision Notice, PG&E states that “[going] forward, FSRs will be used primarily to elevate tag priority to an A-tag or a B-tag if the condition has degraded.”⁴⁹ However, PG&E continues to use FSR as a means to extend the deadline for completing work orders.⁵⁰

Energy Safety recognizes the importance of reassessing priority as a result of reinspection due to changing risks and supports the use of FSRs in order to do so. However, Energy Safety is concerned that PG&E is using re-inspections to extend or reset due dates in perpetuity.

Increased Find Rates

PG&E’s find rates (i.e., PG&E finds an issue and opens a new work order for a given structure) from inspections has continued to increase, with a 17 percent increase in find rates from 2021 to 2022.⁵¹ PG&E states that the increase is in part due to improvements made to the inspection process, such as training, skill assessment, and its inspection checklist.⁵² However, given the age and current outstanding number of work tags, it is likely that some of the increased number of findings are due to continued degradation of its aging distribution system. PG&E currently has not shown any analysis on the contribution aging infrastructure has had on the increase in findings.

As part of improvements made to inspections, PG&E states that it plans to “see more A and B tags during this WMP cycle because [it] will be conducting more advanced inspections including Aerial Inspections, LiDAR, Pole Loading, and Intrusive Pole Inspections.”⁵³ PG&E states that “redirecting resources to work on A and B tags could require an offset to the number of backlog notifications closed,” although PG&E provides no details on the expected scale of this offset.⁵⁴

In particular, PG&E reports its new pilot drone inspection program had a find rate of 47 percent, which is a 16 percent increase from ground inspections.⁵⁵ Additionally, PG&E observed that findings from drone and ground inspections had little overlap, meaning new

⁴⁸ PG&E’s 2023-2025 WMP, Table PG&E 8.1.7-1, p. 451.

⁴⁹ [2022 PG&E WMP Revision Notice](https://efiling.energy.ca.gov/eFiling/Getfile.aspx?fileid=52478&shareable=true)

(<https://efiling.energy.ca.gov/eFiling/Getfile.aspx?fileid=52478&shareable=true>, accessed June 15, 2023)

⁵⁰ For work orders that had a reinspection completed after Q2, meaning that a new due date was created after a reinspection that exceeded the original due date, 3,728 were extended from a Field Safety Reassessment (FSR). While some of these extensions were due to reinspecting past a due date, out of the 29,826 total FSR re-inspections performed after Q2, only two were reprioritized from Priority E to Priority A, and 206 were reprioritized from Priority E to Priority B. This means that out of all FSRs performed, 11.8% led to an increased due date without a change to higher priority.

⁵¹ PG&E’s 2023-2025 WMP, p.457.

⁵² PG&E’s 2023-2025 WMP, p.457.

⁵³ PG&E’s 2023-2025 WMP, p. 457.

⁵⁴ PG&E’s 2023-2025 WMP, pp. 457-458.

⁵⁵ PG&E’s 2023-2025 WMP, p. 922.

tags from drone inspections will likely be in addition to traditional ground inspection findings.⁵⁶ Given the success of the pilot program, PG&E is planning on expanding its use of drones for inspections, increasing its drone inspections to cover from around 3,000 to 38,000 structures.⁵⁷ If PG&E's find rate of 47 percent is accurate, this would lead to an estimated additional 17,860 tags over 2023, assuming no structures have more than one tag. PG&E has not demonstrated that this tag increase is factored into its strategy for addressing the current backlog and stopping it from increasing.

3.2.1.1 Required Remedies

PG&E must provide:

- a. In relation to ignition-risk targets:
 - i. A workplan for monitoring and mitigating existing highest risk ignition-tags until PG&E is able to address such tags, particularly for any ignition-tags that PG&E has delayed since the 2022 WMP.
 - ii. A revised and complete Table 8-3 with concrete numeric targets for addressing the backlog of work orders, in addition to the risk-reduction percentage targets already provided.
- b. In relation to the closure of 2022 tags and status of 2023 tags:
 - i. Its procedures and documentation for determination of ignition-risk tags. This should include, but not be limited to:
 1. Any criteria used by PG&E for determining ignition risk, such as modeling output (including both ignition and consequence risk), equipment type, and equipment age.
 2. The process for prioritizing the closure of tags based on the calculated ignition risk.
 - ii. A status update on the number of backlog work orders since the start of 2023. This should include the same information as provided in Table 13 of the Quarterly Data Report (QDR) for both open and closed tags, along with the following additional columns:
 1. GO 95 Rule 18 Priority Level
 2. PG&E Priority Level (if such differs from GO 95 Rule 18)
 3. Whether or not the finding qualifies as an "Ignition-Risk HFTD/HFRA" tag
 4. Whether the infraction is Non-Pole or Pole
- c. In relation to Field Safety Reassessments (FSRs):
 - i. PG&E must show that its existing procedures adequately address open work orders within the initially set repair time frame and that PG&E is not using FSR to delay the closure of work order tags. This could be

⁵⁶ PG&E's 2023-2025 WMP, p. 924.

⁵⁷ PG&E's 2023-2025 WMP, p. 406.

through updating its procedures to clarify and require inspectors performing FSRs to change due dates only if the tag priority increases. As part of its response, as applicable, PG&E must provide any updated procedures demonstrating changes made, including redlines from previous procedures and any necessary screenshots of applications used by inspectors.

- d. In relation to increased find rates:
 - i. PG&E's analysis on the specific causes of increased find rates. This should include the estimated percentages, clarifying any overlap, from increases due to, but not limited to:
 - 1. Improved checklist
 - 2. Improved training
 - 3. Continued degradation of infrastructure due to aging
 - 4. Continued degradation of infrastructure due to weather
 - ii. An estimated expected find rate per quarter broken down by priority level for the remainder of 2023 through 2025.
 - iii. PG&E's plan to timely address the potential increase in work order tags resulting from additional inspections⁵⁸ as part of its plan to address its backlog. This must include:
 - 1. Estimates on the number of new work orders broken down by additional inspection type.
 - 2. A revised Table PG&E-8.1.7-2 with any updated estimates based on additional work orders for each inspection type, if applicable.
 - 3. How PG&E will integrate additional inspection findings into its prioritization.
 - 4. Resource allocation plans in order to timely close tags.

3.2.2 RN-PG&E-23-05: PG&E's undergrounding plan may leave wildfire risk unaddressed in highest risk areas.

PG&E has not demonstrated that its undergrounding program satisfies section 5.1 of the Technical Guidelines, which requires PG&E to achieve the highest level of safety, reliability, and resilience because PG&E's undergrounding plan does not adequately address its highest risk areas.⁵⁹ Further, PG&E's scaled back undergrounding targets leave some high risk areas without any planned mitigation initiatives. PG&E does not fully explain its process for identifying and prioritizing undergrounding sites within its mitigation selection decision-

⁵⁸ "Additional inspections" in this instance are any inspections in addition to routine patrol or detailed inspections as outlined in GO 165. This includes drone, LiDAR, pole loading, and intrusive pole inspections.

⁵⁹ [Process Guidelines](#)

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 5, 2023).

making process. PG&E does not clearly factor in the wildfire risk reduction effectiveness of undergrounding when comparing this mitigation against other mitigations in its decision-making process, therefore potentially skewing the priority of undergrounding over other more efficient mitigations.

Inadequate Targets

From 2022 to 2023, PG&E reduced its undergrounding targets, with a 19 percent decrease of planned undergrounding miles in 2023 and a 30 percent decrease of circuit mileage in 2024 through 2026 (Table 4 in Appendix A). PG&E states that this is due to PG&E's reevaluation of the initial undergrounding proposal through the 2023 General Rate Case (GRC) process. PG&E decided to reduce costs and associated undergrounding targets based on "intervenor's concerns, as well as considering the execution challenges of ramping up the program and the potential benefits to ramping up more slowly."⁶⁰ PG&E also increased the number of miles categorized as fire rebuild projects within the scope of undergrounding from 2024 through 2026 from 16 to 107 miles (Table 4). PG&E states that it still has a long-term plan for undergrounding 10,000 miles despite these delays in its undergrounding targets. However, PG&E has not adequately demonstrated how it will mitigate the risk associated with the delayed or removed undergrounding projects. It is not clear if PG&E will implement interim mitigation measures to manage these risks until projects can be undergrounded or what other mitigations PG&E may use in place of undergrounding.

In PG&E's current undergrounding scope, the top 5 percent highest risk is comprised of 41 CPZs. Of these 41 CPZs, PG&E has only scoped ten for undergrounding from 2023 through 2025, with an additional eleven planned for 2026.⁶¹ There remains 20 CPZs in the top 5 percent of risk that PG&E does not plan to underground during its 2023-2026 workplan. Of these 20, nine were not included within undergrounding scope due to a lower Wildfire Feasibility Efficiency (WFE) score, which takes into account the feasibility for undergrounding project.⁶² PG&E's use of feasibility within the WFE accounts for the difficulty of execution and associated costs for undergrounding. It does not mean that a project would be infeasible but instead deemed unfavorable by PG&E.

It is not clear if these 20 CPZs are planned for future undergrounding or other system hardening beyond 2026. Based on PG&E's 2023-25 WMP, none of these CPZs are planned to

⁶⁰ Data Request [OEIS-P-WMP 2023-PG&E-008](#) (Question 2)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed June 8, 2023)

⁶¹ PG&E has scoped only five for undergrounding in 2023, with an additional three in 2024 and two in 2025. Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 5, Attachment 1). PG&E lists "Undergrounding in 2026" in its 2023-2025 WMP Table 7-4 for eleven CPZs.

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁶² This includes CPZs Oakhurst 110310140, Monticello 1101654, Balch No 1 1101105414, Curtis 170356972, Monticello 1101630, Electra 1102CB, French Gulch 1101CB, Monticello 1101CB, and Balch No 1 1101CB; TURN Data Request 7 Question 3.

undergo other methods of hardening, such as traditional hardening or covered conductor.⁶³ Some interim mitigations are in place for these CPZs, including EPSS, asset inspections, and vegetation management. There are also some more permanent non-hardening mitigations in place, such as addressing the work order backlog and expulsion fuse replacements.

Inadequate Decision-Making Process for Mitigation and Undergrounding Location Selection

PG&E describes how it considers feasibility constraints when selecting mitigation measures for CPZs, including a description of how it calculates its Simplified Wildfire Risk Spend Efficiency (SWRSE) and Wildfire Feasibility Efficiency (WFE) scores. While these both take feasibility into consideration,⁶⁴ PG&E does not provide adequate details on how these constraints impact PG&E's decisions on its portfolio of measures.

PG&E states that its risk ranking, and thus decision-making regarding prioritization and mitigation selection, is based on WFE scores rather than risk model output.⁶⁵ Energy Safety finds that this WFE-based risk ranking does not properly prioritize undergrounding based on highest wildfire risk. For example, a WFE-based ranking may prioritize areas easier or more feasible to underground, while a risk model-based approach would prioritize highest risk areas or circuits. PG&E's 2023 through 2026 undergrounding workplan includes only 70 percent of undergrounding sites in the top 20 percent risk ranked circuits based on model output, as opposed to 87 percent in the top 20 percent WFE scores (Table 5 in Appendix A).

PG&E calculates undergrounding effectiveness to be 99 percent; however, this does not account for remaining risk associated with secondary and service lines. PG&E's undergrounding procedures are to "overhead harden remaining secondary and service lines by replacing open-wire secondary, gray services, and tree-connects with the current standard covered aerial conductor" as opposed to undergrounding as well.⁶⁶ Approximately 12 percent of PG&E's CPUC-reportable ignitions from 2019 to 2022 were caused by secondary or service lines in the HFTD.⁶⁷ According to PG&E, "[most], if not all, of PG&E's undergrounding projects have associated secondary and service lines."⁶⁸ This means that PG&E's current calculation of 99 percent effectiveness does not reflect the remaining risk associated with secondary and service lines, despite observed ignitions from those sources.

⁶³ PG&E's 2023-2025 WMP, Table 7-4. "Wildfire Feasibility Efficiency" score calculated by taking the line weighted risk per mile divided by the feasibility cost multiplier, PG&E's 2023-2025 WMP, p. 969.

⁶⁴ PG&E's 2023-2025 WMP, p.969

⁶⁵ PG&E's 2023-2025 WMP, p. 339.

⁶⁶ SPD Data Request 3 Question 4.

⁶⁷ TURN Data Request 8 Question 4, Attachment 1.

⁶⁸ Data Request [OEIS-P-WMP 2023-PG&E-009](https://efiling.energy.ca.gov/efiling/energy/safety/2023-2025-WMP-DRs/009) (Question 1)

(<https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed June 8, 2023)

PG&E does not consider mitigation effectiveness, including effectiveness of combined mitigations, in its decision-making when selecting and prioritizing mitigations to deploy.⁶⁹ Specific to undergrounding decision-making, PG&E's Simplified Wildfire Risk Spend Efficiency (SWRSE) calculation, which it uses for selecting undergrounding for projects,⁷⁰ also does not consider mitigation effectiveness.

PG&E does include accurate effectiveness calculations (such as a cost/benefit analysis) to determine the most suitable mitigation selection, potentially including a combination of various mitigations, for a given area.

3.2.2.1 Required Remedies

PG&E must provide:

- a. Regarding scaled back targets:
 - i. Analysis on the remaining miles originally scoped for undergrounding in 2022 but now no longer scoped for undergrounding within PG&E's 2023-2025 plan. This should include risk-ranking of those miles, interim mitigations if these miles are scoped for undergrounding in the future, or alternative mitigations, particularly grid hardening, if the miles are no longer scoped for undergrounding.
 - ii. A list of CPZs that PG&E is not scoping for undergrounding in its 2023-2025 plan due to feasibility constraints but that are included within the top 20 percent highest risk CPZs. For each of these CPZs PG&E's must provide its alternative mitigation or hardening plans.
- b. Regarding the mitigation selection decision-making process:
 - i. Justification for the use of WFE as opposed to standard cost-benefit analysis when comparing mitigations, particularly in regard to feasibility.
 - ii. An updated estimation of risk reduction effectiveness for undergrounding accounting for the remaining risk associated with secondary and service lines.
 - iii. An updated analysis on any cost/benefit impacts for mitigation selection based on such updated undergrounding effectiveness calculation. This must include discussion of any changes in potential mitigation selection or project prioritization.

⁶⁹ CalAdvocates Data Request 19 Question 15.

⁷⁰ PG&E's 2023-2025 WMP, p. 969.

3.3 Vegetation Management and Inspections

3.3.1 RN-PG&E-23-06: PG&E does not provide targets for seven of its vegetation management inspection programs.

For Vegetation Management and Inspection, PG&E does not adequately “list all targets it will use to track progress on its vegetation management and inspections for the three years of the Base WMP”⁷¹ and as such does not adequately “set commitments for specific [vegetation management] initiatives in its WMP.”⁷²

In its 2023-2025 WMP, PG&E describes 11 vegetation inspection programs: Routine Transmission – LiDAR, Routine Transmission – Ground, Transmission Second Patrol, Integrated Vegetation Management, Distribution Routine Patrol, Distribution Second Patrol, VM for Operational Mitigations, Tree Removal Inventory, Focused Tree Inspections, Substation Defensible Space Inspections, and Pole Clearing.⁷³ PG&E did not provide targets for seven of the 11 programs: Routine Transmission – Ground, Transmission Second Patrol, Integrated Vegetation Management, Distribution Routine Patrol, Distribution Second Patrol, VM for Operational Mitigations, and Focused Tree Inspections.

In its 2021 WMP Update PG&E set targets for only six of 20 vegetation management initiatives.⁷⁴ After providing sufficient targets in its 2022 WMP Update,⁷⁵ PG&E has now regressed, again providing incomplete vegetation management-related targets.

Within its 2023-2025 WMP and data request responses, PG&E provides some internal targets but does not commit to them as WMP targets. For example, PG&E states its “VM distribution program inspects approximately 80,000 miles of overhead distribution electric facilities on a recurring annual cycle”⁷⁶ and that its Focused Tree Inspection pilot consists of 300 miles with “plan[s] to inspect up to 3000 miles... by the end of 2024.”⁷⁷

PG&E's lack of vegetation-management targets and presentation of internal rather than WMP targets reveals incomplete planning for the next three years.

⁷¹ [Technical Guidelines](#), Section 8.2.1.2 ‘Targets’, page 97

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true>, accessed May 30, 2023).

⁷² [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

⁷³ PG&E's 2023-2025 WMP, Table 8-17, pages 511- 513 and, for Pole Clearing, Table 8-14, page 501 and page 535.

⁷⁴ Final Action Statement on PG&E's 2021 WMP, page 84.

⁷⁵ Final Decision on PG&E's 2022 WMP Update, Appendix A.

⁷⁶ PG&E's 2023-2025 WMP, page 524.

⁷⁷ Data Request [OEIS-P-WMP 2023-PG&E-001](#) (Question 3)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

3.3.1.1 Required Remedies

PG&E must provide projected targets for each year of the 2023-2025 WMP, quarterly, rolling targets for 2023 and 2024, and relevant units, in the format prescribed in the 2023-2025 WMP Technical Guidelines Table 8-15: Example of Vegetation Inspection Targets by Year, for each of the following vegetation management inspection programs:

- Routine Transmission – LiDAR
- Routine Transmission – Ground
- Transmission Second Patrol
- Integrated Vegetation Management
- Distribution Routine Patrol
- Distribution Second Patrol
- VM for Operational Mitigations
- Tree Removal Inventory
- Focused Tree Inspections
- Substation Defensible Space Inspections
- Pole Clearing

PG&E must retain existing targets reported in its 2023-2025 WMP, dated March 27, 2023. For inspection programs with existing end-of-year targets but not the quarterly, rolling targets (i.e., Tree Removal Inventory), PG&E must provide quarterly, rolling targets for 2023 and 2024 without modifying its end-of-year targets.

3.3.2 RN-PG&E-23-07: PG&E does not adequately address its risk from hazard trees.

PG&E's plan to address risk from hazard trees⁷⁸ does not “achieve the highest level of safety, reliability, and resilience,”⁷⁹ effectively address the risk that exists in PG&E's service territory,⁸⁰ nor demonstrate a clear action plan to continue reducing utility-related ignitions⁸¹ attributable to contact from vegetation.

⁷⁸ Any tree located on or adjacent to a utility right-of-way or facility that could damage utility facilities should it fall where (1) the tree leans toward the right-of-way, or (2) the tree is defective because of any cause, such as: heart or root rot, shallow roots, excavation, bad crotch, dead or with dead top, deformity, cracks or splits, or any other reason that could result in the tree or main lateral of the tree falling. (California Code of Regulation Title 14 § 895.1)

⁷⁹ [Public Utilities Code section 8386\(c\)\(14\)](#)

(https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=8386.&lawCode=PUC, accessed May 30, 2023).

⁸⁰ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

⁸¹ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

Background – Enhanced Vegetation Management

Of the 14 utility-related catastrophic wildfires listed in WMP Table 5-4, nine were caused by vegetation or vegetation-related work: Butte, Railroad, Cherokee, Nuns, La Porte, Atlas, Pocket, Zogg, and Dixie Fires.⁸²

A rigorous hazard tree mitigation program is essential to preventing contact with vegetation and any resulting outages and ignitions. From 2015-2022, “Tree – fell into line” and “Tree – branch fell on line” caused 50% and 32%, of vegetation-caused outages, respectively, in PG&E’s service territory (Table 7 in Appendix A). Inspections, even the most detailed, may not catch every tree failure before it happens. Nonetheless, a rigorous hazard tree mitigation program is essential to preventing these outages, and the possible, subsequent ignitions.⁸³

PG&E’s Enhanced Vegetation Management (EVM) program, which ran from 2019 through 2022, included an evaluation of all overstrike trees (i.e., potential hazard trees).⁸⁴ PG&E performed this assessment using PG&E’s Tree Assessment Tool (TAT)⁸⁵ which was “designed to evaluate a tree’s risk of striking the electrical equipment” and was “developed by a team of ISA Certified Utility Arborists.”⁸⁶ In practice, the TAT required an inspector to examine a subject tree from all angles, performing a 360-degree inspection known in the industry as a Level 2 inspection.⁸⁷ As of 2023, PG&E’s is no longer executing its EVM program, and its new and updated vegetation management programs do not include the same detailed evaluation of all overstrike trees.

PG&E once expected to perform at least 2,450 miles of EVM per year, with the goal of finishing EVM on all HFTD circuits by the end of 2026.⁸⁸ But after 2019, PG&E’s annual targets decreased to 1,800 miles. PG&E fulfilled that initial 2,450 mile-commitment in 2019 and the following 1,800 mile-commitments in each year 2020, 2021, and 2022, for a program total of

⁸² PG&E’s 2023-2025 WMP, Table PG&E-22-08-1, pages 870-885.

⁸³ This relationship between a rigorous hazard tree mitigation program and preventing outages and ignitions is echoed by the Federal Monitor: “VM work is complex given the volume and dynamic nature of trees that threaten PG&E’s electric lines. Tree growth and tree failure cannot be precisely predicted. But the reality of that challenge underscores the importance of devoting sufficient resources to ensure that vegetation risks are mitigated effectively, including by adopting more conservative trimming measures that remove guesswork and subjectivity as much as possible, while also maintaining vegetation in accordance with applicable regulations and PG&E policy.” PG&E Independent Monitor Report of November 19, 2021, Kirkland & Ellis LLP., page 20.

⁸⁴ “All trees tall enough to strike electrical lines or equipment and, based on that assessment, trimming or removing trees that pose a potential safety risk, including dead and dying trees.” - PG&E’s 2020 WMP, page 5-177.

⁸⁵ Enhanced Vegetation Management Pre-Inspection Procedure, TD-7106P-01, published 5/12/2020.

⁸⁶ PG&E’s 2020 WMP, page 5-195.

⁸⁷ “During a Level 2 Basic assessment, Arborists walk completely around a tree and look for defects in all visible areas of a tree, including the surrounding area” - [Bartlett Tree Experts: Tree Risk Assessments](#).

⁸⁸ PG&E Independent Monitor Report of November 19, 2021, Kirkland & Ellis LLP., page 25.

8,279 miles.⁸⁹ With PG&E's decision to conclude its EVM program, overstrike trees located along ~66% of PG&E's HFTD distribution circuit miles⁹⁰ have not received detailed 360-degree (Level 2) inspections nor been assessed by the TAT.

Concerns with New and Updated Programs with Hazard Tree Mitigation Elements

With the end of EVM, PG&E has split hazard tree mitigation into several programs:

- Routine and Second Patrol, which will address risk from obviously dead, dying, and declining trees.
- The Tree Removal Inventory program, which will remove or re-inspect trees identified under the EVM program.
- The Focused Tree Inspection pilot, which will use ISA TRAQ⁹¹ certified arborists to inspect vegetation in high-risk areas known as "Areas of Concern" but does not yet have an established inspection procedure.⁹²

None of these programs, alone or in combination, maintain or replace the detailed approach to hazard tree mitigation conducted under EVM. Specifically, Energy Safety is concerned that:

- The scope of Focused Tree Inspections is limited compared to EVM and will not inspect for hazard trees at the same scale or pace as EVM.
- PG&E's Areas of Concern, in which Focused Tree Inspections will be performed, do not accurately represent the scale of PG&E's hazard tree risk profile.
- Focused Tree Inspections, nor any other program, uses the TAT or the TAT's key elements.
- Focused Tree Inspections, Routine, and Second Patrol do not adequately instruct inspectors when to perform 360-degree, Level 2 inspections of overstrike trees.
- The pace of work for Tree Removal Inventory leaves known hazards on the landscape for extended durations.

Further details on each of these concerns is outlined below.

Scope, Scale, and Pace of Focused Tree Inspections Compared to EVM

As mentioned above, EVM's evaluation of potential hazard trees occurred along 1,800 to 2,450 overhead circuit miles per year with the original intention of treating all overhead distribution circuit miles in the HFTD. In contrast, the potential scope of Focused Tree Inspections is

⁸⁹ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 6)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁹⁰ According to PG&E's 2023-2025 WMP, it has 24,911 circuit miles of overhead distribution in the HFTD.

⁹¹ International Society of Arboriculture's Tree Risk Assessment Qualification: <https://www.isa-arbor.com/Credentials/ISA-Tree-Risk-Assessment-Qualification>.

⁹² Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 5)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

limited to the Areas of Concern, which contains 4,816 overhead distribution circuit miles,^{93,94} about 19% of PG&E's HFTD.

The Focused Tree Inspections pilot will consist of 300 miles with additional plans to inspect up to 3,000 miles by the end of 2024, assuming the pilot is a success.⁹⁵ Under the Focused Tree Inspections, PG&E will not inspect the other 1,816 miles in the Areas of Concern and without commitments to WMP targets related to Focused Tree Inspections, the scale (how many miles will be inspected) and pace of Focused Tree Inspections execution (miles per year) remains unknown.

Energy Safety is concerned the scope, scale, and pace of execution for Focused Tree Inspections inadequately addresses the risk from hazard trees. The Federal Monitor documented similar concerns regarding the pace of EVM: "Given the threat of wildfires in California... the Monitor team respectfully believes that PG&E should not limit its EVM targets to 1,800 miles per year...."

PG&E provided that Focused Tree Inspections is a transitional⁹⁶ and pilot program, PG&E's 2023-2025 WMP is intended to cover the next three years and provide a vision for wildfire mitigation up to 10 years in the future. As such, Energy Safety is concerned that PG&E does not have a short- or long-term plan to mature its hazard tree mitigation program.

Development of Areas of Concern for Focused Tree Inspections

PG&E's Areas of Concern may not accurately capture PG&E's overstrike and hazard tree risk profile.

As mentioned above, PG&E's Focused Tree Inspections will be conducted in Areas of Concern. PG&E developed the Areas of Concern using various inputs including weather/meteorology, PSPS data, vegetation-caused outages, and vegetation-caused ignitions.⁹⁷ PG&E then analyzed the polygons created with these inputs against the WDRMv3⁹⁸ model, which informed the prioritization of Areas of Concern-polygons and selection for the pilot.⁹⁹ Energy Safety asked PG&E whether it had used any data related to the density/presence of overstrike

⁹³ Data Request [OEIS-P-WMP 2023-PG&E-001](#) (Question 3; Attachment 2)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁹⁴ Of those 4,816 OH CM, 815 miles were already treated by EVM, Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 5)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁹⁵ Data Request [OEIS-P-WMP 2023-PG&E-001](#) (Question 3)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁹⁶ PG&E's 2023-2025 WMP, page 529.

⁹⁷ Data Request [OEIS-P-WMP 2023-PG&E-001](#) (Question 3)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

⁹⁸ Wildfire Distribution Risk Model, version 3.

⁹⁹ Data Request [OEIS-P-WMP 2023-PG&E-001](#) (Question 3)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

trees to create the Areas of Concern and determine prioritization of inspection. PG&E responded that base layer satellite imagery and 2019-2020 LiDAR data was used to “help” and “aid development of [Areas of Concern] polygons.”¹⁰⁰

Base layer satellite imagery is a visual tool used to present context, like land use (e.g., urban vs forest), to geospatial features (e.g., the Areas of Concern-polygons); it does not accurately depict or give the user the ability to analyze the presence and density of overstrike trees at a granularity that would reliably and accurately inform a risk-based inspection program like Focused Tree Inspections. PG&E's LiDAR data collected in 2019-2020, while very granular, is out of date, particularly considering that between the time PG&E collected that LiDAR data and the operationalization of the Areas of Concern, PG&E had completed ~5,785 miles of EVM and worked ~899,741 trees under EVM.¹⁰¹ The derivation of individual tree height and stand density from remote sensing data is an evolving science, but PG&E's use of proxies for calculating overstrike risk, namely vegetation-caused outages and ignitions, likely does not capture the true scale of PG&E's overstrike risk profile.

Energy Safety similarly asked if PG&E used data related to tree mortality for Areas of Concern creation. PG&E responded that it has used Second Patrol VM review of tree mortality populations and “local knowledge of regional tree mortality trends.”¹⁰² In contrast to individual tree height and stand density, forest health measures derived from remote sensing are more well established and PG&E could have incorporated relevant, public, forest health data sets.¹⁰³ PG&E, however, has not done so. As such Energy Safety is concerned that PG&E is relying too heavily on subjective local knowledge, rather than comprehensive, objective data sets to assess risk factors such as forest density, height, and health.

PG&E's Areas of Concern development, like its risk model,¹⁰⁴ also relies heavily on historical vegetation-caused outages and ignitions to determine risk from overstrike trees. SCE and SDG&E also use outage and ignition data sets in determining vegetation-related risk, but additionally include their respective tree inventories to further refine models.¹⁰⁵ PG&E lacks such a comprehensive inventory.

¹⁰⁰ Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 6) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹⁰¹ Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 6) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹⁰² Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 6; Revision 1) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹⁰³ For example, United States Forest Service's annual Aerial Detection Survey and the United States Geological Survey's Normalized Difference Vegetation Index (NDVI).

¹⁰⁴ PG&E's 2023-2025 WMP, page 173.

¹⁰⁵ SCE's 2023-2025 WMP, page 154 & SDG&E's 2023-2025 WMP, page 69.

Energy Safety is concerned that PG&E's approach to identifying and prioritizing Areas of Concern is not sufficiently robust and does not take into account the full range of data and information available.

Non-Use of PG&E's Tree Assessment Tool or its Key Elements

PG&E is no longer using its TAT for any vegetation management program and will instead rely on other standards.

In its 2020 WMP, PG&E stated that in its EVM program "Pre-inspectors are identifying these [hazard] trees using PG&E's tree assessment tool which is designed to evaluate a tree's risk of striking the electrical equipment. The tool was developed by a team of ISA Certified Utility Arborists and uses PG&E data regarding regional vegetation-caused outages and ignitions during fire season, tree species height and distance to the electrical equipment, lean, health, and the terrain, and among other factors."¹⁰⁶ The TAT weighed and scored a standard set of risk factors, providing inspectors with a calculated abatement determination for each tree.

PG&E used its TAT for overstrike tree risk assessments throughout the life of the EVM program and regularly made updates to TAT. Most recently, Formation Environmental completed the Targeted Tree Species Study in March 2022 and recommended several improvements to PG&E's TAT.¹⁰⁷ PG&E took action on all of the recommendations and made the following improvements to the TAT based on those recommendations: revised the weighting of observation defects, aggregated the Regional Species Fire Risk Rating scores at EPA Level III Ecoregions, replaced the wind scoring method, and added Height: Diameter at breast height (HT:DBH) as a scored parameter.

After four years of development, use, and refinement, PG&E does not mention the TAT in its 2023-2025 WMP. When asked how PG&E is planning on using the TAT, PG&E responded, "The TAT was developed for the EVM program. The TAT will no longer be utilized as the EVM program concluded at the end of 2022. There are no current plans to utilize TAT to support other VM programs."¹⁰⁸ Instead, for FTI, PG&E will utilize the ANSI A-300 tree risk assessment standard¹⁰⁹ and the International Society of Arboriculture (ISA) Basic Tree Risk Assessment

¹⁰⁶ PG&E's 202 WMP, page 5-195.

¹⁰⁷ The Targeted Tree Species Study was submitted with PG&E's 2023-2025 WMP as "2023-03-27_PGE_2023_WMP_RO_Section 8.2.3_Atch01_Redacted.pdf."

¹⁰⁸ Data Request [OEIS-P-WMP 2023-PG&E-001](https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs) (Question 1) (https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs, accessed May 30, 2023).

¹⁰⁹ Data Request [OEIS-P-WMP 2023-PG&E-001](https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs) (Question 1) (https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs, accessed May 30, 2023).

Form (TRAQ Form),^{110,111} the latter of which “will be used as a guide.”¹¹² For those inspectors performing FTI using ANSI A-300 and the ISA Form, minimum qualifications include a Tree Risk Assessment Qualification (TRAQ) through the ISA.^{113, 114}

Further, unlike the TAT, “the TRAQ Form will not be digitized.”¹¹⁵ Although some unknown information regarding the inspection will be recorded in OneVM,¹¹⁶ PG&E has no clear plan to document tree risk assessments, either by paper or digitally. The discarding of digitally recorded tree risk assessments inclusive of the considered tree risk attributes is a regressive recording-keeping practice that will hinder PG&E’s own quality assurance/quality control programs and regulatory efforts to hold PG&E accountable for performing high-quality tree risk assessments.

The TAT provided an objective calculation of a tree’s risk that incorporated PG&E specific data such as outage rates by species (i.e., Regional Species Fire Risk Rating scores) and wind modeling. While the TRAQ Form includes space for an inspector to consider local weather patterns,¹¹⁷ and PG&E claims that the “inspection will also be informed by historical vegetation caused outage trends,”¹¹⁸ these parameters are no longer calculated but instead will be subjectively observed during the tree risk assessment and similarly, subjectively factored into the tree risk assessment.

¹¹⁰ Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 2)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹¹¹ [ISA TRAQ form](#) ([https://www.isa-](https://www.isa-arbor.com/education/resources/BasicTreeRiskAssessmentForm_Print_2017.pdf)

[arbor.com/education/resources/BasicTreeRiskAssessmentForm_Print_2017.pdf](https://www.isa-arbor.com/education/resources/BasicTreeRiskAssessmentForm_Print_2017.pdf), accessed June 19, 2023).

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹¹² Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 7)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹¹³ Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 2)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹¹⁴ ANSI A-300, the ISA’s TRAQ form, and the ISA’s TRAQ qualification are standards for general tree risk assessment and training developed by the Tree Care Industry Association and ISA, respectively. [TCIA | A300 Standards](#) (https://www.tcia.org/TCIA/TCIA/Build_Your_Business/A300_Standards/A300_Standards.aspx, accessed May 30, 2023).

¹¹⁵ Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 7)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023)

¹¹⁶ P-WMP_2023-PG&E-004, Question 5: Energy Safety asked PG&E “During [Focused Tree Inspections], what information is inputted into OneVM?” PG&E responded “At this time, PG&E does not have a finalized inspection procedure for [Focused Tree Inspections]. Once that is available, we can provide the fields that will be entered into OneVM.”

¹¹⁷ The ISA’s TRAQ Form asks the inspector to note: prevailing wind direction; “common weather” which includes check boxes for strong winds, ice, snow, and heavy rain with an additional opportunity for the inspector to describe the common weather; and wind exposure with checkboxes for protected, partial, full, and wind funneling.

¹¹⁸ Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 7)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

PG&E states that it “considered enhancing the TAT by incorporating additional elements of the ISA [TRAQ] Form in 2022,” “informally compare[d] the outcomes of the TAT and ISA [TRAQ] form,” and “as part of the TAT improvement efforts in 2022 ... met on a recurring basis with counterparts from SCE and SDG&E.”¹¹⁹ From these statements, it seems that PG&E did not readily end the use of its TAT and the years of development and improvements but ultimately decided to discontinue its use, thereby changing its approach to tree risk assessment without adequate documentation or justification.

PG&E may have gained tree risk assessment thoroughness and professionalism with the ANSI A-300, the TRAQ Form, and TRAQ qualified arborists, but lost digital record keeping maturity and an objective scoring tool with the abandonment of its TAT. PG&E made a binary choice, choosing one tree-risk assessment standard for another, without providing adequate justification nor demonstrating that the newly adopted standard would equally or more effectively address risk in its service territory.

Level of Inspection for Focused Tree Inspections, Routine Patrol, and Second Patrol

PG&E does not have objective standards as to when to elevate a Level 1 inspection to Level 2 and instead relies on inspector discretion.

In a November 2021 report from the Federal Monitor, the Monitor states “PG&E recently informed the monitor team that it soon will require 360-degree tree assessment in all HFTD areas by augmenting its Routine pre-inspection program...”¹²⁰ Despite this prior plan to perform 360-degree inspections in all HFTD areas, the 2023 WMP contains only vague commitments to execute 360-degree/Level 2 tree assessments during Focused Tree Inspections, Routine, and Second Patrol only on trees that the inspector believes warrant a Level 2.

Given the lack of clarity in the WMP regarding level of inspection during Focused Tree Inspections, Energy Safety asked PG&E “what overstrike trees are inspected and how is the level of inspection determined?” PG&E responded: “Level 1 inspections are performed on all trees within the Areas of Concern. If a Level 1 assessment cannot sufficiently determine the severity of conditions or defects, a Level 2 inspection is performed.”¹²¹ The way PG&E describes this decision regarding level of inspection is equivocal; this uncertainty is compounded by the fact that PG&E does not have a finalized inspection procedure for

¹¹⁹ Data Request [OEIS-P-WMP 2023-PG&E-003](#) (Question 7) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹²⁰ PG&E Independent Monitor Report of November 19, 2021, Kirkland & Ellis LLP., page 26.

¹²¹ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 5) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

Focused Tree Inspections.¹²² As such PG&E is relying heavily on inspector discretion to choose whether or not to perform a Level 2 inspection during Focused Tree Inspections.

Routine and Second Patrol primarily focus on clearance and the identification of dead and dying trees.¹²³ According to PG&E's Distribution Routine Patrol Procedure,¹²⁴ which governs both Routine and Second Patrol,¹²⁵ PG&E directs personnel to perform Level 1 assessments to look "for trees that may fall into or may contact the line" and then perform a Level 2 only "If (while performing the level 1 inspection) the VMI [(vegetation management inspector)] identifies a tree or trees with conditions found in Hazard Trees/Vegetation clearance section of the 'California Power Line Fire Prevention Field Guide'... OR, if the VMI suspects a tree may have one or more of those conditions."¹²⁶ The underlying assumption is that dead and dying trees do not require a 360-degree/Level 2 assessment because they can be identified as obviously dead or dying through a Level 1 assessment.

Energy Safety is concerned that if PG&E does not have objective standards as to when to perform a Level 2 inspection, its inspectors will miss defects on the opposite side of a tree from the angle of the Level 1 inspection (e.g., from a road or the center of the right-of-way) that could lead to tree failure before the next inspection.

Pace of Tree Removal Inventory

The pace of work for Tree Removal Inventory leaves known hazard trees on the landscape for extended durations.

The tree work left over from the EVM program was moved into PG&E's Tree Removal Inventory), which contains 385,000 trees.¹²⁷ PG&E says it will "address all trees in the inventory in a multi-year program"¹²⁸ which will take nine years to complete.¹²⁹ PG&E targets removing 15,000 trees associated with this inventory in 2023; 20,000 in 2024; and 25,000 in 2025, but until the work is complete in nine years, these trees will continue to stand on the landscape representing known-risk for ignitions.

¹²² Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 5) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹²³ PG&E's 2023-2025 WMP pages 524 and 526

¹²⁴ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 5) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹²⁵ PG&E's 202-2025 WMP, Figure PG&E-8.2.2-4 on page 525 and Figure PG&E-8.2.2-5 on page 527.

¹²⁶ TD-7102P-01, pages 5-6.

¹²⁷ WMP-Discovery2023_DR_CalAdvocates_008, Question 2.

¹²⁸ PG&E 2023-2025 WMP, page 528.

¹²⁹ WMP-Discovery2023_DR_CalAdvocates_008, Question 2.

PG&E states that its nine-year plan is based on a “realistically achievable average pace.”¹³⁰ However, in the past two years, PG&E worked over 700,000 trees through its EVM program¹³¹ and it is therefore unclear why PG&E requires nine years to address its remaining EVM inventory.¹³²

Energy Safety is concerned that at the proposed pace of inspection and remediation these trees, which are known hazards to PG&E, will fail before they are remediated and cause an ignition.

Conclusion

PG&E informed Energy Safety and the CPUC in early 2022 that it would likely discontinue its EVM program at the end of 2022.¹³³ As such, PG&E had at least a year with the knowledge of lessons learned from EVM to design a hazard tree mitigation program that would achieve the highest level of safety, reliability, and resilience, effectively address risk from hazard trees, and demonstrate a clear action plan to continue reducing hazard tree-related risk events and ignitions. Instead, PG&E's hazard tree mitigation program is regressing and inadequate, with no plan for consistent HFTD-wide hazard tree-related risk reduction by inspection and remediation.

3.3.2.1 Required Remedies

PG&E must revise its 2023-2025 WMP to detail how it will manage risk from hazard trees during the current WMP cycle to “achieve the highest level of safety, reliability, and resilience,”¹³⁴ effectively address the vegetation-caused ignition risk that exists in PG&E's service territory,¹³⁵ and demonstrate a clear action plan to continue reducing utility-related ignitions¹³⁶ attributable to contact from vegetation.

This must include:

- a. A clear description in the WMP and evidence of direction to inspectors under the Distribution Routine Patrol, Distribution Second Patrol, Tree Removal Inventory, and Focused Tree Inspections programs as to what factors and circumstances

¹³⁰ WMP-Discovery2023_DR_CalAdvocates_018, Question 4.

¹³¹ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 6)

(<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023)

¹³² Comments of the Public Advocates Office on the 2023 to 2025 Wildfire Mitigation Plans of the Large Investor-Owned Utilities, May 26, 2023, pages 44-45.

¹³³ PGE 2022 EVM CAP_90-day report(02 07 22)_final.pptx.

¹³⁴ [Public Utilities Code section 8386\(c\)\(14\)](#)

(https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=8386.&lawCode=PUC, accessed May 30, 2023).

¹³⁵ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

¹³⁶ [Process Guidelines](#), Section 5, Page 9

(<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true>, accessed May 30, 2023).

- trigger a Level 2 (360-degree) inspection of an overstrike tree. PG&E may prescribe different factors and circumstances for each program. While PG&E should not rely solely on inspector judgement, PG&E should consider, in addition to these factors and circumstances, allowing an inspector to perform a Level 2 inspection whenever they deem it prudent and/or necessary.
- b. A plan to fully implement (beyond the pilot) and mature Focused Tree Inspections during the WMP cycle, including defined milestones and a timeline for achieving those milestones. As part of this plan PG&E must include how and when it will update the Areas of Concern (e.g., recalculating inclusion criteria across the HFTD) and mature their development (e.g., adding soil type and stand density as risk factors).
 - c. Commitment to quantitative targets for Focused Tree Inspections during the WMP cycle (see RN-PG&E-23-06, above). If PG&E commits to performing Focused Tree Inspections on fewer circuit miles than are currently encompassed by the Areas of Concern (4,812 circuit miles) by the end of 2024, it must justify why it has chosen to do so and how it will prioritize certain Areas of Concern for inspection over others.
 - d. An inspection procedure for Focused Tree Inspections.
 - e. Justification as to why PG&E does not plan to perform regularly scheduled detailed inspections (as opposed to patrols), inclusive of Level 2, of overstrike trees adjacent to overhead circuit miles in the HFTD outside of Areas of Concern using TRAQ qualified ISA arborists.
 - f. Benchmarking with SCE and SDG&E with respect to hazard tree mitigation practices. PG&E then must report in its Revision Notice Response on the similarities and differences between the three electrical corporations' hazard tree mitigation practices. Where these practices differ, PG&E must explain why its practices differ from those of its peers. PG&E must also describe any changes it plans to make because of this exercise and a timeline to implement those changes.
 - g. Justification of why PG&E ended the use of its TAT in favor of the ISA's TRAQ Form, and demonstration of the effectiveness of the ISA's TRAQ Form versus PG&E's most recent version of its TAT.
 - h. A description of how PG&E will incorporate the following tree risk factors into Focused Tree Inspections, and any Level 2 inspection performed during Distribution Routine Patrol, Distribution Second Patrol, and Tree Removal Inventory as guidance to inspectors or otherwise. If PG&E will not incorporate one or more of these factors, it must explain why for each factor it will not incorporate.
 - i. Regional Species Fire Risk Rating aggregated at EPA Level III Ecoregions.
 - ii. Height: Diameter at breast height (HT:DBH) for selected species.
 - iii. Wind, from the "Comprehensive Wind" model created with PG&E's meteorology data as proposed in the Targeted Tree Species Study.
 - iv. Fire-related damage.
 - v. Insect presence and damage.

- vi. Defects (e.g., conks, co-dominant tops, cracks, shallow roots, open wounds, cat-face, etc.)
- vii. Lean towards facilities.
- viii. Fall path to facilities (e.g., clear, partially blocked, fully blocked).
- i. A list of the information that will be digitally recorded (into OneVM or another system) during Focused Tree Inspections and any Level 2 inspection performed during Distribution Routine Patrol, Distribution Second Patrol, and Tree Removal Inventory. PG&E must also report when this information will start being digitally recorded by inspectors in the field. PG&E 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.
- j. An assessment of the residual risk posed by the Tree Removal Inventory trees and, while considering this residual risk assessment, demonstration that the proposed reinspection pace adequately address risk from these trees.
- k. A quantitative analysis of the expected risk reduction over the 2023-2025 WMP period due to its new vegetation programs (i.e., Focused Tree Inspections, Tree Removal Inventory, and VM for Operational Mitigations) compared to its legacy EVM program.
- l. A quantitative analysis of the expected risk reduction over the 2023-2025 WMP period due to its updated Routine Patrol and Second Patrol procedure compared to its former Routine and Second Patrol procedure.¹³⁷

As a result of the above, PG&E may add, delete, or revise its 3- and 10-year vegetation management and inspection objectives in accordance with Section 8.2.1.1 of the 2023-2025 WMP Technical Guidelines.

3.4 Public Safety Power Shutoff (PSPS)

3.4.1 RN-PG&E-23-08: PG&E's PSPS decision-making process does not accurately account for EPSS enabled circuits, which could potentially lead to more PSPS events than needed.

PG&E uses its Probability Weather (IPW) model to inform its PSPS decision-making. The IPW model uses data to determine the likelihood of an outage and analyzes the potential for that outage to be the source of an ignition.¹³⁸ The IPW model does not differentiate between

¹³⁷ The procedure PG&E used for Routine and Second Patrol during EVM's execution: Utility Procedure TD-7102P-01, published 10/27/2015.

¹³⁸ PG&E 2023-2025 WMP p. 769.

circuits that had or have EPSS enabled and those that do not.¹³⁹ Outages may be an appropriate proxy for ignitions in analysis of most wildfire mitigations, but EPSS reduces ignition risk while not necessarily reducing outage risk.

PG&E also states that EPSS is “not expected to create additional outages” and “faults that cause an EPSS enabled device to operate typically would have caused either a sustained or momentary outage without EPSS enabled.”¹⁴⁰ However, in PSPS decision-making, the concern is not whether EPSS causes more outages, but that EPSS enabled circuits are not accurately captured in PG&E’s methodology for determining whether a PSPS event is necessary, potentially leading to more or larger PSPS events than needed.

To minimize PSPS and set appropriate risk thresholds, PG&E’s PSPS decision-making must account for EPSS-enabled circuits.

3.4.1.1 Required Remedies

PG&E must revise its WMP with a detailed plan and timeline on how it will accurately account for EPSS enabled circuits in its PSPS decision-making process.

4. Conclusion and Next Steps

PG&E must submit its Revision Notice Response via email to the Energy Safety Deputy Director and to the 2023-2025 Wildfire Mitigation Plan docket (#2023-2025-WMPs).¹⁴¹ PG&E must concurrently serve its Revision Notice Response on the California Department of Forestry and Fire Protection at CALFIREUtilityFireMitigationUnit@fire.ca.gov (CAL FIRE).

PG&E’s Revision Notice Response is due within 45 days of this Revision Notice issuance.

For each of the 9 critical issues identified, Energy Safety sets forth specific remedies that PG&E must fully address and respond to within its Revision Notice Response. Failure to fully address and respond to each remedy within the Revision Notice Response by the designated date may result in denial of PG&E’s Base Plan. Energy Safety will not accept any updates or errata to Revision Notice Responses after the due date.

Stakeholders may submit comments on PG&E’s Revision Notice Responses within 15 calendar days of PG&E’s Revision Notice Response. Reply comments are due 10 calendar days

¹³⁹ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 2) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹⁴⁰ Data Request [OEIS-P-WMP 2023-PG&E-004](#) (Question 2) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

¹⁴¹ [2023-2025 Wildfire Mitigation Plan docket log](#) (<https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMPs>, accessed May 30, 2023).

thereafter and shall be limited to issues raised and representations made in opening comments of other stakeholders. Opening and reply comments must be submitted to the 2023-2025 Wildfire Mitigation Plan docket (#2023-2025-WMPs).^{142, 143}

The dates for this Revision Notice are:

Revision Notice issued by Energy Safety:	June 22 nd
PG&E's 45-day Revision Notice Response due:	August 7 th
Public Comments due:	August 22 nd
Reply Comments due:	September 1 st
Draft Decision issued by Energy Safety:	September 29 th

Energy Safety will consider the PG&E's Revision Notice Response, its revised Base Plan, stakeholder comments, responses to data requests and the totality of the information before it to date in issuing a determination on PG&E's Base Plan pursuant to Public Utilities Code Sections 8386(b) and 8386.3(a).



Melissa Semcer
Deputy Director | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

¹⁴² [2023-2025 Wildfire Mitigation Plan docket log](https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMPs)

(<https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMPs>, accessed May 30, 2023).

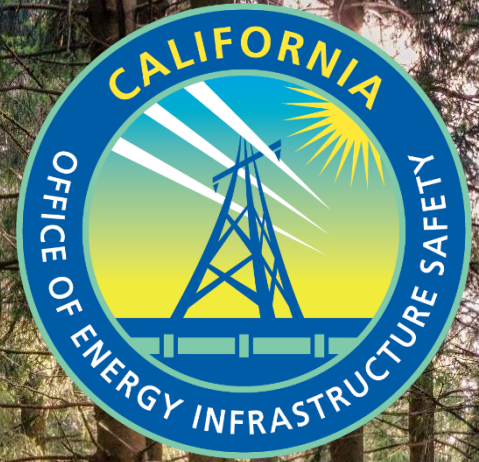
¹⁴³ If any deadline falls on a weekend or holiday, the deadline will be moved to the following business day. Dates falling on a Saturday or holiday as defined in Government Code Section 6700 have been adjusted to the next business day in accordance with Government Code Section 6707.

DATA DRIVEN FORWARD-THINKING INNOVATIVE SAFETY FOCUSED

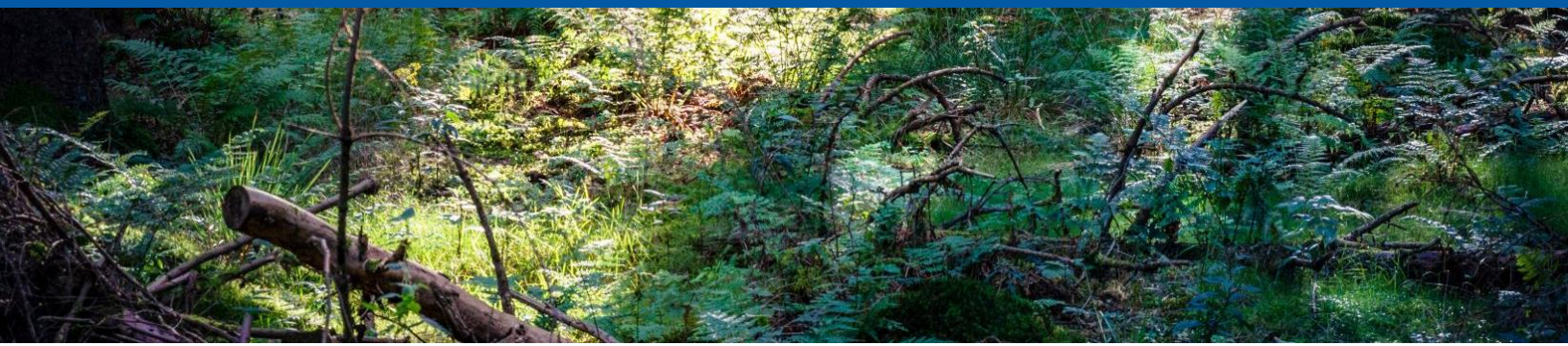


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APPENDICES



Appendix A

Table 1: Top EPSS Affected CPZs and Associated Wildfire Risk Rank¹⁴¹

CPZ – Top EPSS Impact	Risk Rank (WDRMv3)
BRUNSWICK 111063100	1,802
GREEN VALLEY 210111054	1,415
GREEN VALLEY 210112106	7,706
GREEN VALLEY 210136820	8,688
JAMESON 1105466348	728
LAURELES 11112020	972
MADISON 21011606	3,543
MC ARTHUR 11011544	2,991
MORGAN HILL 2111XR398	641
NARROWS 21022220	719
NARROWS 21052216	1,027
NARROWS 21052426	2,286
NARROWS 21052748	744
PANORAMA 11021342	9,354

¹⁴¹ Data Request [OEIS-P-WMP 2023-PG&E-002](#) (Question 9, Attachment 2) and Data Request OEIS-P-WMP 2023-PG&E-008 (Question 4, Attachment 1) (<https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

PANORAMA 11021526	10,213
POSO MOUNTAIN 21012181	2,552
SHINGLE SPRINGS 210913322	721
SHINGLE SPRINGS 21099372	225
SILVERADO 210258626	1,278
TEMPLETON 2110901690	1,231
WISE 11022230	2,389

Table 2: PG&E 2022 EPSS Outage Cause Data¹⁴²

Outage Cause	# of Outages	% of Total Outages	CMI	% of Total CMI
Vegetation	263	11.31%	65,539,932	18.50%
Equipment	287	12.33%	117,123,633	33.06%
Unknown	1,060	45.57%	230,994,112	65.21%
Total	2,326	-	354,256,021	-

¹⁴² Data Request [OEIS-P-WMP 2023-PG&E-002](https://efiling.energy.ca.gov/efiling/oeis-p-wmp-2023-pg&-e-002) (Question 9, Attachment 1) (<https://efiling.energy.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs>, accessed May 30, 2023).

Table 3: PG&E Ignition-Risk HFTD/HFRA Notification Tag Targets, 2022 WMP vs. 2023 WMP¹⁴³

Year	Number of Tags, Non-Pole (2022 WMP)	Number of Tags, Non-Pole (2023 WMP)	Change in Tag Number, 2022-2023	Change in %, 2022-2023	Number of Tags, Pole (2022 WMP)	Number of Tags, Pole (2023 WMP)	Change in Tag Number, 2022-2023	Change in %, 2022-2023
Backlog	103,000	114,000	11,000	11%	92,500	96,000	3,500	4%
2023	64,906	24,000	-40,906	-63%	21,722	5,000	-16,722	-77%
2024	28,989	41,000	12,011	41%	5,478	5,000	-478	-9%
2025	8,919	49,000	40,081	449%	9,774	6,000	-3,774	-39%
2026	0	0	0	0%	14,935	18,000	3,065	21%
2027	0	0	0	0%	15,641	18,000	2,359	15%
2028	0	0	0	0%	19,092	22,000	2,908	15%
2029	0	0	0	0%	5,867	22,000	16,133	275%

Table 4: PG&E's 2022 WMP (22) vs. 2023-2025 WMP (23) Underground (UG) Workplan, in miles¹⁴⁴

UG Type	2023 (22)	2023 (23)	2024-26 (22)	2024-26 (23)
UG Workplan Total	662	534	3,054	2,153
Fire Rebuild	156	123	16	107
"Top 20% Risk"	419	361	2,978	1,985

¹⁴³ 2022 data from PG&E Response to Revision Notice, Figure RN-PG&E-22-05-07, p. 52, and Figure RN-PG&E-22-05-08, p. 53. 2023 data from PG&E's 2023 WMP, Table PG&E-8.1.7-2.

¹⁴⁴ PG&E's 2023-2025 WMP, Table-8.1.2-3.

Table 5: PG&E's Undergrounding Workplan for Top 20%, WFE vs. Risk Model Output¹⁴⁵

Year	Mileage in Top 20% WFE	% of Portfolio in Top 20% WFE	Mileage in Top 20% Risk Model – V3	% of Portfolio in Top 20% Risk Model – V3	Mileage in Top 20% Risk Model – V2	% of Portfolio in Top 20% Risk Model – V2
2023	361	68%	40	7%	321	60%
2024	458	78%	362	62%	97	16%
2025	647	95%	614	90%	33	5%
2026	879	100%	860	98%	19	2.1%
Total	2,346	87%	1,876	70%	470	17%

¹⁴⁵ WFE numbers from PG&E's 2023-2025 WMP, Table PG&E-8.1.2-3; V3 and V2 numbers from Data Request OEIS-P-WMP 2023-PG&E-008 (Question 2, Attachment 1, Redacted).

Table 6: Vegetation-Caused Outages by Year and Mode of Failure in PG&E's Service Territory¹⁴⁶

Vegetation-Caused Outage Mode of Failure	2015	2016	2017	2018	2019	2020	2021	2022	Grand Total	% of Total
Tree - bark fell into line	140	154	224	131	229	122	159	128	1287	3%
Tree - branch fell on line	1366	1277	2277	1112	2235	1316	1960	1100	12643	32%
Tree - cutting, 3rd party	126	112	111	113	106	91	74	107	840	2%
Tree - cutting, PGE contractor	19	30	43	38	50	56	72	57	365	1%
Tree - fell into line	1782	2252	4551	1403	3829	1642	3165	1469	20093	50%
Tree - grew into line	187	260	420	239	467	311	369	302	2555	6%
Tree - palm frond fell into line	115	194	217	128	210	65	164	112	1205	3%
Other	66	65	277	144	85	61	170	203	1071	3%
Grand Total	3801	4344	8120	3308	7211	3664	6133	3478	40059	100%

¹⁴⁶ Data Request [OEIS-P-WMP 2023-PG&E-004](https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs) (Question 7) (https://efiling.energysafety.ca.gov/Search.aspx?docket=2023-2025-WMP-DRs, accessed May 30, 2023).