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

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Caroline Thomas Jacobs, Director

July 25, 2025

Dear Stakeholders,

Enclosed is the Office of Energy Infrastructure Safety's (Energy Safety's) Annual Report on Compliance regarding Pacific Gas and Electric Company's execution of its 2023 Wildfire Mitigation Plan.

This Annual Report on Compliance is published as of the date of this letter. Pacific Gas and Electric Company may, if it wishes to do so, file a public response to this Annual Report on Compliance within 14 calendar days of the date of publication. Comments must be submitted to the Energy Safety E-Filing system in the 2023 Annual Report on Compliance docket.[1]

Sincerely,

Patrick Doherty
Program Manager | Compliance Assurance Division
Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

[1] Submit responses to the 2023-ARC docket via the Office of Energy Infrastructure Safety's E-Filing system here: https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-ARC.

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

2023 ANNUAL REPORT ON COMPLIANCE

PACIFIC GAS AND ELECTRIC COMPANY

July 2025

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Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) is tasked with evaluating and either approving or denying Wildfire Mitigation Plans (WMPs) annually filed by electrical corporations pursuant to Public Utilities Code section 8386 *et seq*. The law also directs Energy Safety to ensure that the electrical corporations have complied with their WMPs.

Energy Safety's evaluation found that PG&E completed 58 of 60 (97%) of its 2023 targets for initiative activities and objectives in its 2023-2025 Base WMP (2023 WMP), including all 10 initiatives with the largest planned expenditure. PG&E failed to meet targets for two of its 2023 WMP initiative activities.

In general, PG&E spent below the planned amounts on its 2023 WMP initiatives by nearly $39 million in capital expenditure and approximately $34 million in operating expenditure for a total of $73 million (3%) in the aggregate.[1] PG&E attributed spending less than planned to increased efficiencies as a result of technological updates, reducing reliance on contractors, lower unit costs, and execution efficiencies achieved by bundling work with other programs.

With respect to the overall performance of PG&E's system in 2023, raw ignition counts throughout PG&E's territory decreased by approximately 24% between 2020 and 2023. Raw ignitions in 2023 were at the lowest level since 2016. Conversely, outage events in 2023 reached a maximum for the 2016-2023 period, with the large majority of outages occurring in non-High Fire Threat District areas. Equipment and facility failures, together with incidents classified as "Other," were the leading drivers of outage events over the period. In 2023, four Public Safety Power Shutoff events were executed on PG&E's system.

Pursuant to Government Code section 15475.1, Energy Safety's primary objective is to ensure that electrical corporations reduce wildfire risk and comply with energy infrastructure safety measures. Energy Safety's annual compliance assessment of PG&E's execution of its 2023 WMP is a comprehensive look at whether PG&E's completion of its 2023 WMP initiatives reduced the risk of its equipment igniting a catastrophic wildfire.

Energy Safety conducted its compliance review process through a variety of means including audits, field inspections, and analysis of data submitted by Pacific Gas and Electric Company (PG&E) to Energy Safety. Energy Safety also evaluated several performance metrics, including metrics that reveal the risk on PG&E's system. Energy Safety additionally reviewed PG&E's self-assessment in its Electrical Corporation Annual Report on Compliance and the findings of its independent evaluator.

In this report, Energy Safety identifies areas for improvement for PG&E regarding the accurate documentation of its WMP implementation, including recordkeeping of WMP activities and

[1] These figures are reflected in PG&E second revision to its Electrical Corporation Annual Report on Compliance, as discussed in detail later in this report.

expenditures. Energy Safety expects PG&E to improve the accuracy of its documentation going forward.

Energy Safety acknowledges that in 2023 PG&E undertook efforts to reduce its wildfire risk, and in many instances achieved its WMP initiative activity targets.

On balance, PG&E was successful in executing its plan for wildfire risk mitigation. However, there are still areas for improvement and continued learning.

1. Introduction

This Annual Report on Compliance presents the Office of Energy Infrastructure Safety's (Energy Safety's) statutorily mandated assessment of Pacific Gas and Electric Company's (PG&E's) compliance with its 2023 targets for initiatives and objectives in its 2023-2025 Base Wildfire Mitigation Plan (2023 WMP). While the 2023-2025 Base WMP considers activities over a three- and ten-year horizon, this report only addresses targets established for initiatives and objectives for the 2023 compliance year. Therefore, this report uses the term "2023 WMP" to refer to portions of the 2023-2025 Base WMP addressed by this report.

In the sections that follow, Energy Safety describes the statutory and regulatory basis for its reporting, the information supplied by the electrical corporation, and the independent evaluation conducted by Energy Safety to examine PG&E's execution of its 2023 WMP and how its infrastructure performed in 2023 relative to wildfire risk. Finally, Energy Safety provides its conclusions, observations, and recommendations for further actions by PG&E.

1.1 Compliance Process

The statutory objective of electrical corporation wildfire mitigation planning efforts is to ensure that electrical corporations are constructing, maintaining, and operating their infrastructure in a manner that will minimize the risk of catastrophic wildfire.[2]

Energy Safety's 2024 Compliance Process, as approved by the California Public Utilities Commission, establishes the parameters for this Annual Report on Compliance. Consistent with the 2024 Compliance Process, this report considers the totality of all compliance assessments completed with respect to PG&E's 2023 WMP. This includes all inspection, audit, investigation, and data analysis work performed by Energy Safety, as well as separate electrical corporation and independent third-party evaluations of compliance.[3]

[2] Pub. Util. Code § 8386(a).
[3] Compliance Process, page 8.

Energy Safety evaluated whether the electrical corporation met the 2023 WMP targets for initiatives and objectives, looking specifically at whether the electrical corporation funded and performed the work stated for each initiative.[4]

2. PG&E's 2023 Wildfire Mitigation Plan

PG&E submitted a comprehensive WMP in 2023 covering a three-year period from 2023 through the end of 2025.

Energy Safety approved PG&E's 2023 WMP on December 29, 2023.[5] PG&E's 2023 WMP highlighted ongoing efforts to mitigate wildfire risk related to its electrical infrastructure, while simultaneously minimizing impacts to customers from Enhanced Powerline Safety Settings (EPSS) and Public Safety Power Shutoff (PSPS) events.[6] Mitigation efforts included:

- Comprehensive Monitoring and Data Collection: PG&E planned to continue technological advancements for real-time situational awareness, including the integration of Artificial Intelligence into wildfire cameras to provide automated wildfire notifications. Additionally, PG&E planned to complete detailed inspections of its overhead transmission and distribution assets in High Fire Threat District (HFTD) and High Fire Risk Areas (HFRA) to proactively identify potential equipment failures that could lead to ignitions.[7]
- Operational Mitigations: PG&E planned to restructure its Vegetation Management (VM) Program because data showed the Enhanced Vegetation Management (EVM) Program provided less risk reduction than EPSS and other mitigations. As a result, PG&E transitioned EVM into three programs: Focused Tree Inspections, targeting high-risk areas in the HFRA with frequent vegetation-related outages or ignitions; VM for Operational Mitigations, reducing outages and ignition risk by managing vegetation in circuit protection zones using EPSS data and historical outage records; and Tree Removal Inventory, a long-term programs prioritizing high-risk trees identified through EVM inspections with ongoing monitoring.[8]
- System Resilience: PG&E planned to continue its covered conductor and undergrounding efforts, including evaluating covered conductor effectiveness and incorporating findings from the joint utility covered conductor effectiveness study into maintenance and inspection standards. PG&E also planned to implement equipment

[4] Compliance Process, page 8.
[5] WMP Decision.
[6] 2023 WMP, pages 1-12.
[7] 2023 WMP, pages 11, 271.
[8] 2023 WMP, pages 4-5, 11.

upgrades such as replacing non-exempt surge arresters and explosion fuses with exempt equipment, removing idle facilities (i.e., line removals), and continuing the effort to reduce backlog open work orders.[9]

- Community Impacts: PG&E planned to enhance its emergency preparedness and community engagement while reducing customer impacts related to wildfire emergencies and PSPS and EPSS outages through training, and coordination with its public safety partners, the Federal Emergency Management Agency (FEMA), and the California Governor's Office of Emergency Services (CalOES). PG&E also planned to host regional town halls, webinars, and targeted community events to address wildfire safety, mitigation efforts, and public concerns. Additionally, PG&E planned to continue to evaluate and improve mitigation programs designed to reduce wildfire and outage-related customer impacts.[10]

The 2023 WMP also contains three- and ten-year objectives.

Selected three-year objectives include:

- Developing a retention plan to maintain a skilled inspection workforce that builds on existing experience and mentor new employees for asset inspection (AI-01).[11]
- Continuing to share PSPS lessons learned and best practices with California investor-owned utilities (IOUs) through monthly meetings focused on PSPS (PS-10).[12]

Selected ten-year objectives include:

- Evaluating emerging technologies for transmission and distribution that may further reduce the scale, scope, or frequency of PSPS events (PS-08).[13]
- Performing outreach to critical infrastructure customers in the HFRA via e-mail and/or phone through Business Energy Solutions to discuss the Community Wildfire Safety Program (CWSP), including potential PSPS and EPSS impacts, and update critical account contact information (CO-04).[14]
- Evaluating the transition of the portable battery program to permanent battery solutions for PG&E customers at risk of PSPS and EPSS, focusing on, but not limited to, Access and Functional Needs (AFN), Medical Baseline (MBL), and self-identified vulnerable populations (PS-05).[15]

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[9] 2023 WMP, pages 11, 280-282, 451-452.
[10] 2023 WMP, pages 11, 774-776, 872-873.
[11] 2023 WMP, page 372.
[12] 2023 WMP, page 913.
[13] 2023 WMP, page 914.
[14] 2023 WMP, page 296.
[15] 2023 WMP, page 914.

Of particular importance are the following objectives which have targets or goals for the 2023 compliance year:

- Enable artificial intelligence processing of wildfire camera data to provide automated wildfire notifications in the internal PG&E monitoring tool (SA-01).[16]
- Annually hold a total of 22 community engagement meetings within the five regions of service that will include, but are not limited to, a mix of webinars, open houses, town halls, and/or answer centers (CO-01).[17]
- Execute a Threats and Hazards Identifications and Risk Assessment (THIRA) update every three years to address changes in the hazard landscape and use its findings to update the Company Emergency Response Plan (CERP) and hazard annexes (EP-08).[18]

Descriptions of the activities and objectives of the programs and initiatives contained in PG&E's 2023 WMP are listed in the table in Appendix A.

3. PG&E's Annual Report on Compliance

Public Utilities Code section 8386.3(c)(1) directs electrical corporations to file a report addressing the electrical corporation's compliance with their WMP during a compliance year. This document is known as the Electrical Corporation Annual Report on Compliance (EC ARC).

Energy Safety's 2023 Compliance Guidelines outlined the requirements for an EC ARC prepared to address the 2023 compliance year and filed by the electrical corporation in early 2024. The EC ARC was required to detail the electrical corporation's self-assessment of its compliance with the 2023 WMP during the 2023 compliance period.[19]

PG&E submitted its initial EC ARC to Energy Safety on April 2, 2024.[20] This initial submission was followed by two more revisions. The timeline of these submissions is described below.

- PG&E submitted its initial EC ARC on April 2, 2024, along with Table 3 (with initiative targets) and Table 4 (with financial variances) as separate attachments.[21]
- PG&E submitted a revised EC ARC (EC ARC R1) on April 25, 2024, along with a revised Table 3 of initiative targets and actuals, including the following:[22]

[16] 2023 WMP, page 717.
[17] 2023 WMP, page 875.
[18] 2023 WMP, page 781.
[19] Compliance Guidelines, pages 6-10.
[20] EC ARC Cover Letter and Report.
[21] EC ARC Cover Letter and Report; EC ARC Appendix A Target Table; EC ARC Appendix B Financial Table.
[22] EC ARC R1 Cover Letter and Report; EC ARC R1 Appendix A Target Table.

  - For initiative PS-07 to reduce PSPS impacts on customers, the original total of 15,672 customer events mitigated in 2023 was revised to 15,629 customer events mitigated.
  - For initiative VM-01 concerning transmission data collection, the original total of 17,808.3 miles completed in 2023 was revised to 17,816.6 miles completed.
- PG&E submitted another revised EC ARC (EC ARC R2) on April 1, 2025, along with a revised Table 4 of financial information.[23]
  - PG&E revised Table 4 to show updated expense and capital summaries for 2023 in different tabs. This revision was a result of PG&E's sixth supplemental response to a California Public Utilities Commission – Safety Policy Division Data Request (SPD Data Request), dated January 10, 2025.[24] Due to the conflict between the information provided in response to the SPD Data Request with the information provided in EC ARC R1, PG&E provided this second revision to its 2023 EC ARC, specifically concerning 2023 WMP expenditures.[25]

In general, the submission of an initial EC ARC followed by substantive revisions over the course of a year suggests that PG&E's record-keeping and reporting practices could be improved.

The following is a narrative summary of the contents of the EC ARC.

In general, PG&E asserted that it met or exceeded the risk reduction goals outlined in its 2023 WMP. According to PG&E's 2023 EC ARC R1, PG&E implemented and tracked the progress of 51 different mitigations outlined in its 2023 WMP, and progress on these mitigations was reported through 42 quantitative and nine qualitative program metrics.[26]

PG&E reported the status of its objectives as summarized below:

- Comprehensive Monitoring and Data Collection: PG&E stated that it filled gaps in asset inventory data, completed field and record review proofs of concept, and developed a method for estimating installation dates. PG&E also said it evaluated the implementation of a best practice Quality Assurance/Quality Control (QA/QC) process, providing insights into the electrical system to proactively identify and address issues that could reduce ignition risk.

- Operational Mitigations: PG&E stated that it updated the EPSS reliability study and initiated a pilot program called Focused Tree Inspection (FTI) in Areas of Concern (AOC), primarily focused on HFRAs. PG&E said it conducted targeted vegetation

[23] EC ARC R2 Cover Letter; EC ARC R2 Appendix B Financial Table.
[24] The Data Request is entitled SPD_WSPS_PG&E_2024_011.
[25] Response to Data Request SPD_021.
[26] EC ARC R1 Cover Letter and Report; EC ARC R1 Appendix A Target Table.

management work, adjusted EPSS device settings, and utilized fault indicators and line sensors.

- System Resilience Mitigation: PG&E stated that its mitigation efforts included undergrounding and system hardening programs. PG&E said it exceeded its target of 350 undergrounding miles by 3.7% and evaluated the effectiveness of covered conductors, and as a result, updated maintenance and inspection standards.
- Community Impacts: PG&E stated that it focused on reducing impacts from EPSS and PSPS events. PG&E said it improved the EPSS program, including the deployment of 720 protective device controllers/relays with Down Conductor Detection (DCD) settings. PG&E also stated that it integrated approved Ignition Probability Weather (IPW) model enhancements into its PSPS distribution guidance and delivered 4,700 portable batteries to customers who experienced multiple outages.[27]

PG&E's 2023 EC ARC R1 also reported on risk reduction in addition to its initiative activities. It reported the following statistics for 2023 compared to the historical averages from 2020 to 2022:

- 50% reduction in California Public Utilities Commission (CPUC)-reportable ignitions in HFRAs;
- 44% reduction in CPUC-reportable ignitions caused by PG&E equipment in HFTD Tier 2 and Tier 3 areas; and
- 54% reduction in CPUC-reportable ignitions caused by vegetation contact in HFTD Tier 2 and Tier 3 areas.[28]

3.1 EC ARC Information on Initiative Completion

PG&E maintained that it met or exceeded the risk reduction intent, as described in the 2023 WMP, for 51 program initiatives, including 42 of 51 quantitative programs and all nine qualitative programs. PG&E highlighted the following as key accomplishments in 2023:

- Constructed and energized more than 350 miles of underground powerlines;
- Completed more than 287,000 inspections on distribution, transmission, and substation assets;
- Closed more than 68,000 transmission and distribution tags;
- Provided more than 4,000 batteries to customers at risk of outages associated with PSPS and EPSS; and

[27] EC ARC R1 Cover Letter and Report, pages 8-10.
[28] EC ARC R1 Cover Letter and Report, page 5.

- Enabled artificial intelligence to all 600-plus cameras in its service territory for early ignition detection.[29]

For the following four initiatives, PG&E self-reported incomplete attainment of initiative goals and targets set by the 2023 WMP:

- System Hardening Distribution (GH-01): PG&E set a 2023 target to harden 420 miles through overhead system hardening, undergrounding, and the removal of overhead lines. Additionally, PG&E set a target to reduce 2% of estimated system-wide risk through this initiative. PG&E exceeded the mileage target but only achieved a risk impact of 1.3%. PG&E attributed this to delays on high-risk value projects while lower-risk value projects moved forward. [30]
- 10K Undergrounding (GH-04): PG&E set a target of 350 circuit miles and a reduction of 2% of system-wide risk for this initiative. PG&E exceeded the mileage target but only achieved a risk impact of 1.1%. PG&E attributed this to delays on high-risk value projects while lower-risk value projects moved forward. [31]
- Surge Arrestor Removals (GH-08): PG&E planned to complete the surge arrestor removal program in 2023. However, PG&E identified discrepancies during validation of the total population of surge arrestors. Approximately 612 surge arrestors previously reported as completed prior to 2023 were incorrectly recorded, and an additional 145 required field verification but were inaccessible due to customer refusals and site access issues. Therefore, 757 surge arrestors were still remaining to be removed after 2023.[32]
- HFTD/HFRA Open Tag Reduction – Transmission (GM-02): PG&E reported that external factors that caused delays in implementing this work. Delays referenced included customer refusals, permit delays, work clearance requirements, and operational constraints. Of the 16,831 open work orders targeted for completion by this initiative, PG&E did not perform the work for 762 tags (4.5%) in 2023.

[29] EC ARC R1 Cover Letter and Report, page 5.
[30] EC ARC R1 Appendix A Target Table.
[31] EC ARC R1 Appendix A Target Table.
[32] EC ARC R1 Cover Letter and Report, pages 29-30.

3.2 EC ARC Information on Initiative Funding

According to the EC ARC R2, PG&E spent below the planned amounts on its 2023 WMP initiatives by approximately $73 million in aggregate.[33] PG&E met targets for all of the 10 initiatives with the largest planned expenditures.

PG&E provided its 2023 planned budget and actual expenditure, by utility initiative tracking ID, in its 2023 EC ARC R1 and EC ARC R2. However, some expenditures related to broader corporate services, which PG&E calls Provider Cost Centers (PCC), could not be directly linked to specific WMP initiatives. This made it challenging to determine if approved WMP initiative activities were sufficiently funded.[34]

Based on the EC ARC R2,[35] PG&E spent below the planned $2.69 billion for its initiative activity work by $73 million (3%) for the 2023 WMP.[36] However, this expenditure reported in EC ARC R2 varies significantly from Table 11 of the Quarterly Data Report (QDR) resubmission filed by PG&E on March 13, 2025, that also reports 2023 WMP planned and actual expenditures. Table 11 of the 2023 Q4 QDR resubmission identifies a planned 2023 WMP expenditure of $5 billion, with an actual expenditure of $5.1 billion, for an over-expenditure of 1%.[37]

Energy Safety analyzed multiple data sources in order to understand the nature of this discrepancy and requested further explanation from PG&E on the nature of this variance in expenditure figures between the EC ARC R2 and the 2023 Q4 QDR resubmission. In a data request response, PG&E conveyed its position that Table 11 of the 2023 Q4 QDR resubmission provides “a more complete view of our wildfire prevention and management investments.”[38] However, the expenditures are not tracked, internally within PG&E’s operations, to the WMP initiative activity ID level. This is why the EC ARC R2, which requires reporting at the initiative

[33] EC ARC R2 Appendix B Financial Table.
[34] EC ARC R1 Cover Letter and Report, page 32.
[35] EC ARC R2 Appendix B Financial Table.
[36] This total reflects work pursued on initiatives with completion dates during the 2023 compliance year. Including work on 2023 WMP initiatives with completion dates beyond 2023 would raise this total to $2.74 billion.
[37] 2023 Q4 QDR Resubmission, Table 11.
[38] Response to Data Request 036, page 2.

tracking ID level,[39] apparently does not account for billions of dollars in wildfire mitigation expenditure.

As a result of Energy Safety's independent analysis, this report determines that PG&E's record keeping for WMP-related expenditures in 2023 is inconsistent and should be improved in future years. In particular, it appears that a large amount of WMP-related work is funded in such a way that PG&E does not believe it requires reporting in the EC ARC. For example, PG&E's 2023 Q4 QDR resubmission identifies nearly $1 billion in expenditure on activities that appear to be related to EPSS operations, while there is no mention of this expenditure in the various EC ARCs submitted by PG&E for the 2023 compliance year.

Given the significant amount of funds have been approved for PG&E's WMP work, PG&E should improve its expenditure reporting in the EC ARC to eliminate the kinds of discrepancies identified above. This will ensure that Energy Safety, the independent evaluator of PG&E's WMP work, and other stakeholders fully understand the cost of PG&E's WMP-related work and the specific costs associated with discrete areas of that work.

In order to maintain consistency with other ARCs prepared by Energy Safety for the 2023 compliance year, this ARC utilizes the financial information reported in the EC ARC R2.

4. Independent Evaluator ARC for PG&E

Energy Safety, in consultation with the Office of the State Fire Marshal, annually publishes a list of entities qualified to serve as independent evaluators of WMP compliance.[40] Each electrical corporation is then required to hire an independent evaluator (IE) from the list to perform an independent WMP compliance assessment.[41]

The IE reviews and assesses the electrical corporation's compliance with its approved WMP. As part of its evaluation, the IE must determine whether the electrical corporation failed to fund any activities included in its plan.

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[39] 2023 Compliance Guidelines Section 4.3 states the EC ARCs must provide, "A list that includes the following information for each WMP initiative identified in the WMP: a. Utility Initiative Tracking ID, per WMP Guidelines. b. Initiative name. c. Planned budget (as reported in the WMP or approved Change Order) for the compliance period. d. Actual expenditure for the most recently completed compliance period. e. If the difference between the actual expenditure and the planned budget is more than 10%, provide a detailed explanation of the reason or reasons for the discrepancy."

[40] Pub. Util. Code § 8386.3(c)(2)(A).

[41] Pub. Util. Code § 8386.3(c)(2)(B)(i).

On July 1st of each year, the IE issues its Independent Evaluator Annual Report on Compliance (IE ARC) for a given electrical corporation.[42]

The 2023 IE ARC for PG&E was prepared by Bureau Veritas North America Inc. (BVNA), and C2 Group. The IE ARC included a review of 63 wildfire mitigation initiatives and activities implemented in 2023, and an accounting of whether PG&E met its performance targets, underfunded any of the initiatives, and followed its quality assurance and quality control (QA/QC) processes.

The IE determined that PG&E met its 63 initiative activities and objectives outlined in the approved PG&E 2023 WMP.[43] The IE also evaluated PG&E's funding of initiatives.

The IE's funding analysis was based on available data (reports and data requests) up to July 1, 2024, and therefore did not include revised financial data for 2023 made available by PG&E in 2025 and discussed in Section 3.2 above. Additionally, the IE considered expenditures and initiatives for the 2023 to 2025 WMP cycle, rather than for 2023 alone.

Given the data that was available at the time, the IE determined that PG&E spent less than planned on 54 initiatives across multiple categories, notably in both operational expenses and capital costs. For operational expenses, the IE concluded that Vegetation Management and Inspection initiatives spent less than planned by approximately $104 million and Grid Design, Operations, and Maintenance initiatives by approximately $84 million. For capital costs, the IE concluded that Grid Design, Operations, and Maintenance initiatives spent less than planned by approximately $86 million and PSPS-related initiatives by approximately $57 million. The IE also concluded that this underspending did not hinder PG&E's ability to meet the majority of its targets and objectives for 2023.

Regarding PG&E's QA/QC processes, the IE concluded that PG&E applied and followed its QA/QC processes for the initiatives and objectives assessed.[44]

The IE made these determinations by utilizing statistical sampling methodologies and standards to verify PG&E's program targets and ensure compliance with work completion. For initiatives with field-verifiable, large-volume quantifiable goals or targets (i.e., greater than 100 units), the IE conducted field inspections and reviewed QA/QC documentation, using actual completed work quantities when PG&E exceeded targets. Similarly, for initiatives with non-field verifiable, large-volume quantifiable goals or targets, the IE followed the same approach, relying on data requests and records to assess completion. Lastly, for initiatives

[42] Pub. Util. Code § 8386.3(c)(2)(B)(i).
[43] IE ARC, page 130. The total of 63 targets reviewed by the IE differs from the 60 targets reviewed by Energy Safety in this report because the IE included targets with completion dates outside the 2023 calendar year, whereas Energy Safety focused on targets within the 2023 calendar year.
[44] IE ARC, pages 112-129.

with small-volume quantifiable goals or targets (i.e., fewer than 100 units), the same sampling principles were applied.[45]

5. Energy Safety Evaluation of WMP Initiative Completion

Energy Safety's evaluation of PG&E's performance in 2023 indicates that PG&E attained 58 of its 60 targets (97%) for its 2023 WMP initiative activities and did not attain two (3%). The subsections below describe Energy Safety's evaluation of PG&E's execution of its 2023 WMP.

5.1 PG&E 2023 WMP Initiative Activities Assessed by Energy Safety

Energy Safety assessed 60 targets related to wildfire mitigation initiative activities and objectives from the 2023 WMP. The initiatives and objectives are grouped into six main categories with their associated funding budgets. Notably, PG&E identified three of 60 initiatives as funded by Provider Cost Centers (PCC), meaning expenses are allocated to departments or groups providing company-wide services. Because these costs were distributed across multiple workstreams and not directly tied to specific WMP initiatives, those funding allocations are not listed here.

1. Grid Design, Operations, and Maintenance with 23 initiatives assessed and a funding budget of $1.5 billion for the assessed initiatives.[46]
2. Vegetation Management and Inspections with 24 initiatives assessed and a funding budget of $1.1 billion for the assessed initiatives.[47]
3. Situational Awareness and Forecasting with six initiatives assessed and a funding budget of $9 million for the assessed initiatives.

[45] IE ARC, pages 11-18.
[46] In PG&E's EC ARC, one of the 23 initiatives was listed as PCC cost. Therefore, the budget allocation is not listed here.
[47] Vegetation management initiatives were organized into 13 programmatic areas in Energy Safety's SVM Audit. However, for the purposes of this ARC, Energy Safety has further itemized the 13 programmatic areas into 24 specific activities.

4. Emergency Preparedness with three initiatives assessed and a funding budget of $0 for the assessed initiatives.[48]
5. Community Outreach and Engagement with two initiatives assessed and a funding budget of $0 for the assessed initiatives.[49]
6. Public Safety Power Shutoff with two initiatives assessed and a funding budget of $15 million for the assessed initiatives.

A complete list of initiatives appears in Appendix A, Table 3.

The initiative assessment process included comparing the actual initiative completion figures reported by PG&E in the QDR, the EC ARC R1, and as reported by the IE in the IE ARC. In some cases, Energy Safety issued data requests to answer specific questions. If data request information is used in the assessment, a citation for the particular instance is provided. Finally, Energy Safety's Substantial Vegetation Management (SVM) Audit and SVM Audit Report also contributed to Energy Safety's ARC assessment.[50]

5.2 Energy Safety's Substantial Vegetation Management Audit

Public Utilities Code section 8386.3(c)(5) requires Energy Safety to perform an audit of the work performed by, or on behalf of, an EC with respect to the vegetation management requirements in its WMP.[51] Energy Safety refers to this audit as the SVM Audit. Pursuant to section 8386.3(c)(5), Energy Safety conducted an audit of PG&E's work with respect to its vegetation management requirements for the 2023 compliance year.

On February 18, 2025, Energy Safety issued its SVM Audit for PG&E.[52] The purpose of the SVM Audit is to assess whether PG&E met its quantitative commitments and verifiable statements in its 2023 WMP related to vegetation management activities. In the SVM Audit, Energy Safety reviewed 13 vegetation management initiatives[53] detailed in PG&E's 2023 WMP and found that PG&E did not perform all the work specified for six of 13 vegetation management

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[48] In PG&E's EC ARC, three initiatives were listed under the Emergency Preparedness category. However, PG&E did not report any financial data related to these initiatives. Accordingly, the Emergency Preparedness category reflects zero dollars for the budgeted total.
[49] In PG&E's EC ARC, two initiatives were listed under the Community Outreach and Engagement category. Both initiatives were reported as PCC costs, therefore, the budget allocation is not listed here.
[50] SVM Audit; SVM Audit Report.
[51] Pub. Util. Code § 8386.3(c)(5).
[52] SVM Audit.
[53] Vegetation management initiatives were organized into 13 programmatic areas in Energy Safety's SVM Audit. However, for the purposes of this ARC, Energy Safety has further itemized the 13 programmatic areas into 24 specific activities.

initiatives and required PG&E to provide a Corrective Action Plan response within 30 days from the issuance of the SVM Audit.[54] On March 20, 2025, PG&E submitted its Corrective Action Plan to Energy Safety.[55] Subsequently, Energy Safety issued a SVM Audit Report on June 25, 2025, which found that, based on the information provided in the Corrective Action Plan, PG&E substantially complied with all but two vegetation management initiatives (Wood and Slash Management and Fall-In Mitigation).[56] The SVM Audit Report found that PG&E substantially complied with a substantial portion of the vegetation management requirements in its 2023 WMP.[57]

For the two vegetation management initiatives where the SVM Audit Report found that PG&E did not substantially comply, the primary issues observed were a lack of data regarding activities, and changes to the data provided over time.[58]

The specific findings from Energy Safety's SVM Audit Report are detailed in Appendix B.

5.3 PG&E WMP Objective and Initiative Activity Attainment in 2023

Energy Safety assessed 51 wildfire mitigation initiative activity targets from the 2023 WMP and found that two initiative activity targets (4%) were not completed. Energy Safety also assessed 2023 WMP objectives that had targets associated with work performed in 2023. Energy Safety found that targets for all nine assessed 2023 WMP objectives (100%) were met.

A complete list of the attained initiative targets not attained, along with their risk impact goal attainment is shown in Table 1.

[54] SVM Audit, page 1.
[55] 2023 SVM Audit CAP.
[56] SVM Audit Report, page 5.
[57] SVM Audit Report, page 1.
[58] SVM Audit Report, pages 15-21.

Table 1. PG&E Non-attainment of WMP Initiatives[59]

2023 WMP Initiative Name and Associated Initiative Number	2023 Initiative Activity	Details of Non-attainment and Rationale	Risk Goal Achieved
Wood and Slash Management 8.2.3.2	Debris less than four inches in diameter that is generated during pruning activities are chipped or lopped and scattered on the property in accordance with applicable regulations. Chips are left on site or removed off site based on owner preferences.	PG&E was unable to demonstrate that debris less than four inches in diameter generated by PG&E's vegetation management activities was managed in accordance with applicable regulations and owner preferences.[60]	No
Fall-in Mitigation 8.2.3.4	Identify and remove or otherwise remediate trees that pose a high risk of failure or fracture that could potentially strike electrical equipment.	Approximately 20% of Second Patrol dead or dying tree mitigation work was not completed within the timelines stated in PG&E's 2023 WMP. Additionally, PG&E's Corrective Action Plan indicated that as of March 20, 2025, 1,665 dead or dying trees with potential to strike PG&E's facilities first identified in 2023 have not been mitigated.[61]	No

[59] SVM Audit Report, page 5.
[60] SVM Audit Report, page 17.
[61] SVM Audit Report, page 20.

Separate from the initiatives in Table 1, PG&E self-reported in its EC ARC R1 that it met the targets for the following initiative activities, but missed the risk reduction goals for the activities:[62] [63]

- System Hardening Distribution (GH-01): PG&E planned to complete 420 circuit miles of system hardening, which includes overhead covered conductor, undergrounding, and line removal, to achieve a 2% reduction of system-wide risk. PG&E reported exceeding its target by completing 446.5 circuit miles, but the actual risk reduction achieved was 1.3%, falling short of the 2% goal. PG&E attributed the shortfall to delays in high-risk reduction projects, while lower-risk reduction projects moved forward.
- 10K Undergrounding (GH-04): PG&E planned to complete 350 circuit miles of undergrounding to achieve a 2% reduction of system-wide risk. PG&E reported exceeding its target by completing 364 circuit miles, but the actual risk reduction achieved was 1.1%, falling short of the 2% goal. PG&E noted that GH-01 and GH-04 are closely related, as they count the same undergrounding miles toward their targets, and therefore both initiatives experienced the same delays in high-risk reduction projects while lower-risk reduction projects progressed.

These initiatives with missed risk goals represented approximately $1.3 billion, or 48%, of PG&E's total 2023 WMP budget as tracked by EC ARC R2. This includes a planned budget of approximately $68 million for the System Hardening Distribution initiative and $1.2 billion for the 10K Underground initiative. In EC ARC R2, PG&E notes that the System Hardening Distribution initiative target includes both overhead and underground miles. To prevent double counting costs, the budget related to underground work is described by the EC ARC R2 as part of the 10K Underground initiative.

6. Ignition Risk, Outcome Metrics, and Inspections

Energy Safety assessed the performance of PG&E's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

Energy Safety requires electrical corporations to report data, such as ignitions, that help Energy Safety assess whether an electrical corporation reduced its wildfire risk while also reducing its reliance on PSPS events. For 2023, Energy Safety assessed each electrical

[62] PG&E calculates the risk impact of mitigation activities based on the risk reduction of the mitigation initiative, divided by the total overall utility risk, to provide a percent of impact. *See* 2023 WMP, page 605.
[63] EC ARC R1 Appendix A Target Table.

corporation's infrastructure performance for the calendar years 2016 through 2023 with particular attention on the 2023 outcomes.

The collection of metrics evaluated are grouped into two categories: Ignition Risk Metrics, and Outcome Metrics. A list of all the metrics in each category is described fully in their respective following sections. For these sections, Energy Safety relied on data reported in the third quarter 2022 QDR for the years 2016 through 2021 values, and fourth quarter 2022 QDR for the 2022 values, and fourth quarter QDR for 2023 values.[64]

Normalizing Metrics

For applicable performance metrics, the normalizing metrics Energy Safety uses are: "Overhead Circuit Miles" (OCM), "High Wind Warning Overhead Circuit Mile Days" (High Wind Warning Days or HWWOCMD), and "Red Flag Warning Overhead Circuit Mile Days" (Red Flag Warning Days or RFWOCMD). To see the values for each year used, see Appendix C, Figure 18 through Figure 26.

Energy Safety uses these normalizing metrics to ensure a more nuanced interpretation of wildfire risk outcomes. For example, the outcome metric of "acres burned" may be impacted by the presence of hot, dry winds and, thus, this metric is presented in both raw counts and normalized by RFWOCMD. In this way, the acres burned are presented "accounting for" year by year variances in weather conditions that may influence the outcome.

Findings

Ignition risk and outcomes metrics findings include:

- Raw ignition counts have decreased by approximately 24% since 2020, reaching their lowest level within the eight-year period under review.
- Equipment or facility failures, vegetation contacts, and object contacts were the primary drivers of ignition events from 2016 to 2023, accounting for approximately 92% of all risk driver events.
- There is no evidence of either upward or downward trends in PG&E wire down and outage events from 2016-2023, though there is variance from year to year.
- In the 2022 period, no PSPS events were recorded; however PSPS activity resumed in 2023, with four events documented.
- The primary drivers of outage events were equipment or facility failures and incidents categorized as "Other." The "Other" category was largely comprised of events classified as "Unknown." Energy Safety recommends that PG&E determine how it can better define and record the driver of unknown outage causes .

[64] 2023 Q4 QDR, 2022 Q3 QDR; Response to Data Request 282.

6.1 Ignition Risk Metrics

Energy Safety reviewed the following metrics associated with ignition risk:

1. *Ignitions* – Incidents in which electrical corporation infrastructure was involved in an ignition,
2. *Wire Down Events* – Incidents in which overhead electrical lines fall to the ground, land on objects, or become disconnected from their moors,
3. *Unplanned Outages* – All unplanned outages experienced,
4. *PSPS Events* – Planned outages called PSPS events.

6.1.1 Ignition Data Analysis

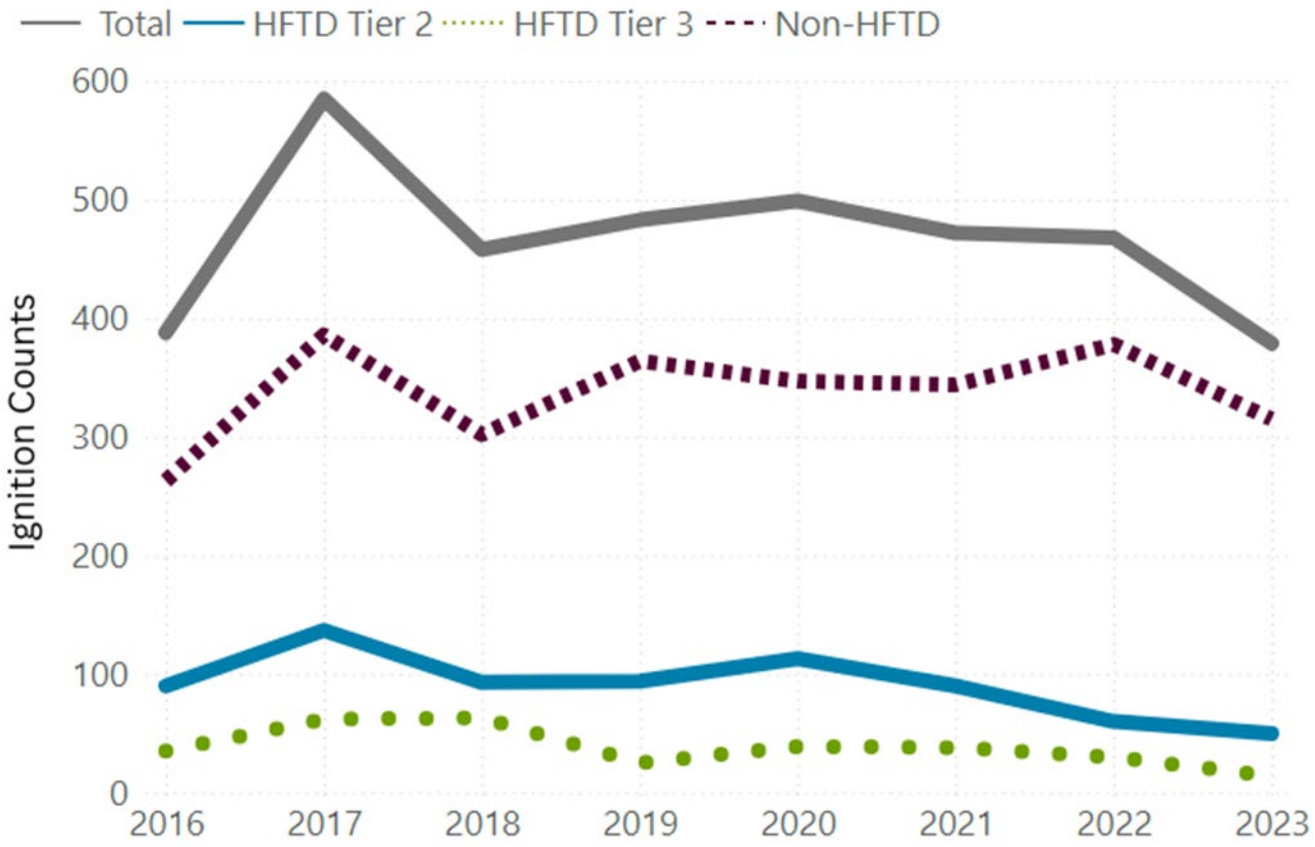
The ignition data analysis section examines ignitions stemming from distribution and transmission lines with particular attention paid to HFTD Tier 2 and HFTD Tier 3 areas.[65] In addition to showing raw ignition counts, ignitions are normalized by OCM, HWWOCMD, and RFWOCMD. PG&E's service territory is divided into three primary area designations: Non-HFTD, HFTD Tier 2, and HFTD Tier 3. For a sense of scale, the percent of OCM for each territory type is as follows: Non-HFTD = 69%, HFTD Tier 2 = 23%, and HFTD Tier 3 = 8%.[66]

[65] 2022 Q3 QDR, Table 7.2; 2023 Q4 QDR, Table 6.
[66] 2023 Q4 QDR, Table 7, DR 234.

Raw Ignition Counts

Raw ignitions in 2023 decreased to the lowest count within the eight-year span, representing a 24% decrease from 2020 levels and a 19% decrease from 2022 (Figure 1).

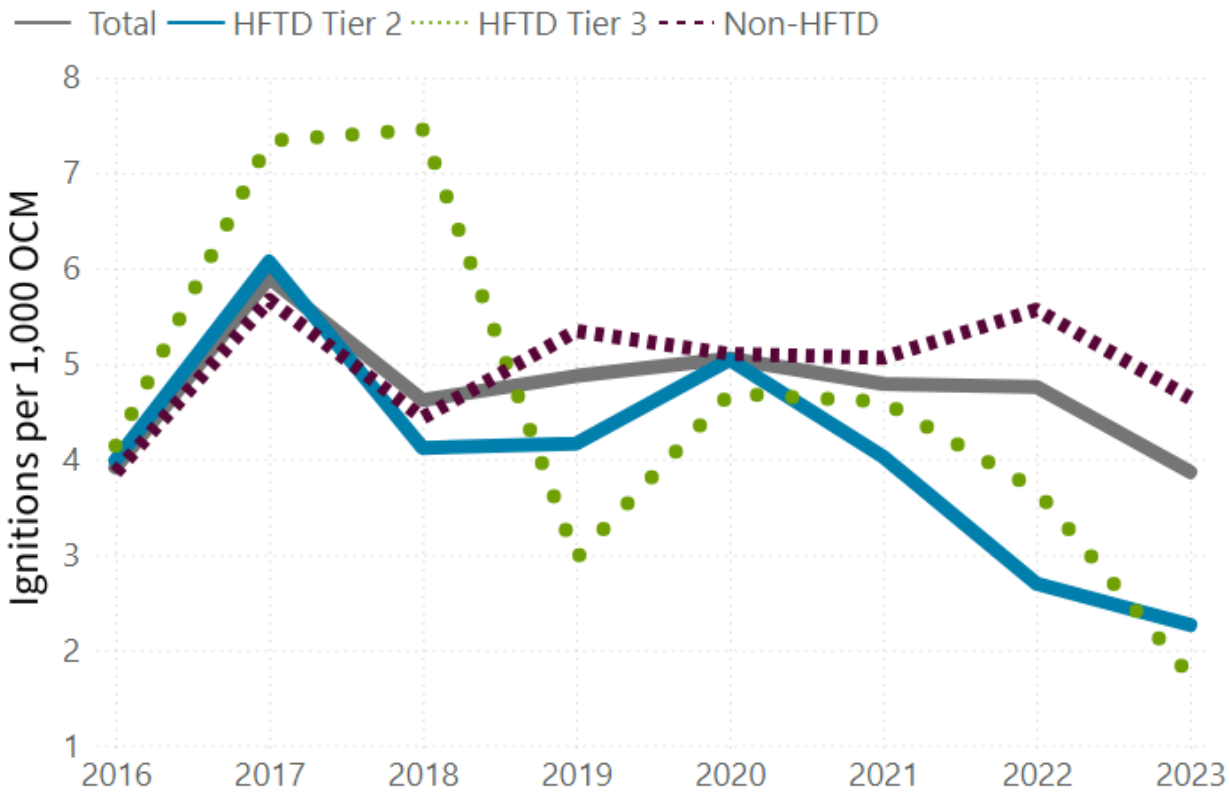
Figure 1. PG&E Ignition Counts (2016-2023) by HFTD Tier



Ignitions Normalized by Overhead Circuit Miles

The normalized ignition totals show variance between 2016 to 2023 (Figure 2). Between 2020 and 2023, the normalized ignition counts fluctuated but showed a slight decrease overall, particularly in HFTD Tier 3 areas. Non-HFTD normalized ignitions decreased by 17% from 2022 to 2023, while HFTD Tier 2 normalized ignitions decreased by 55% from 2020 to 2023, and HFTD Tier 3 ignitions decreased by 63% over the same period.

Figure 2. PG&E Ignitions Normalized by OCM (2016-2023) by HFTD Tier

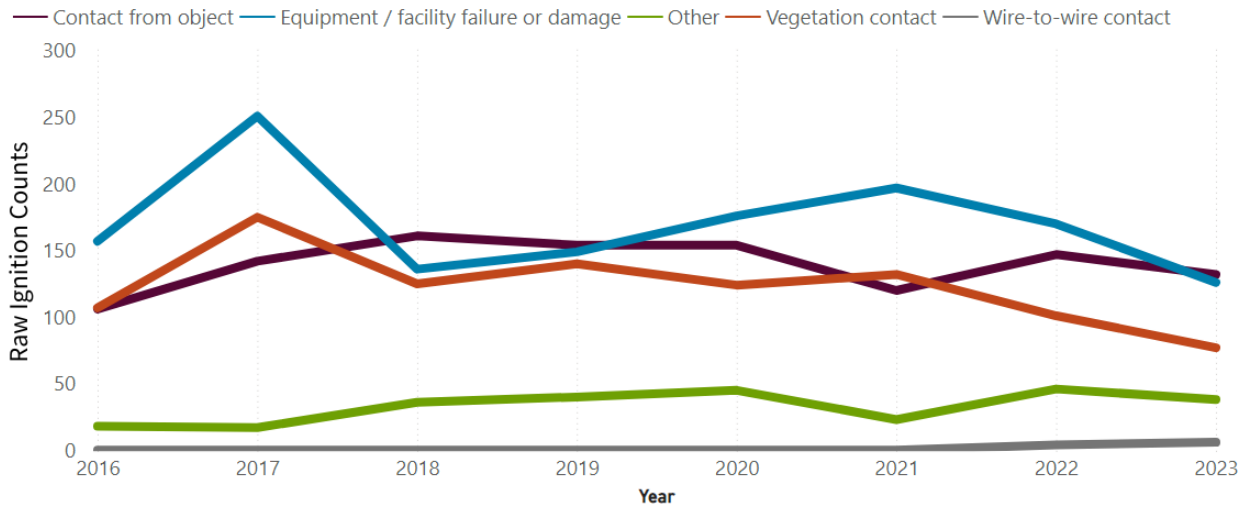


Ignition Counts Delineated by Risk Driver

For insights into the causes of ignitions, ignitions are categorized by risk driver (Figure 3). From 2016 to 2023, ignitions were primarily attributed to equipment or facility failures, vegetation contact, and contact from objects, each contributing in approximately equal amounts.

In 2023, the two leading causes of ignitions were contact from objects and equipment or facility failure, whereas in previous years, equipment or facility failure was the most frequently reported cause.

Figure 3. PG&E Ignition Counts (2016-2023) by Risk Drivers



Ignitions by HFTD Tier Normalized by High Wind Warning Overhead Circuit Mile Days and Red Flag Warning Overhead Circuit Mile Days

To see more detail on ignitions by HFTD tier normalized by HWWOCMD and RFWOCMD, see Appendix C (Figure 21 and Figure 22).

6.1.2 Wire Down Events Data Analysis

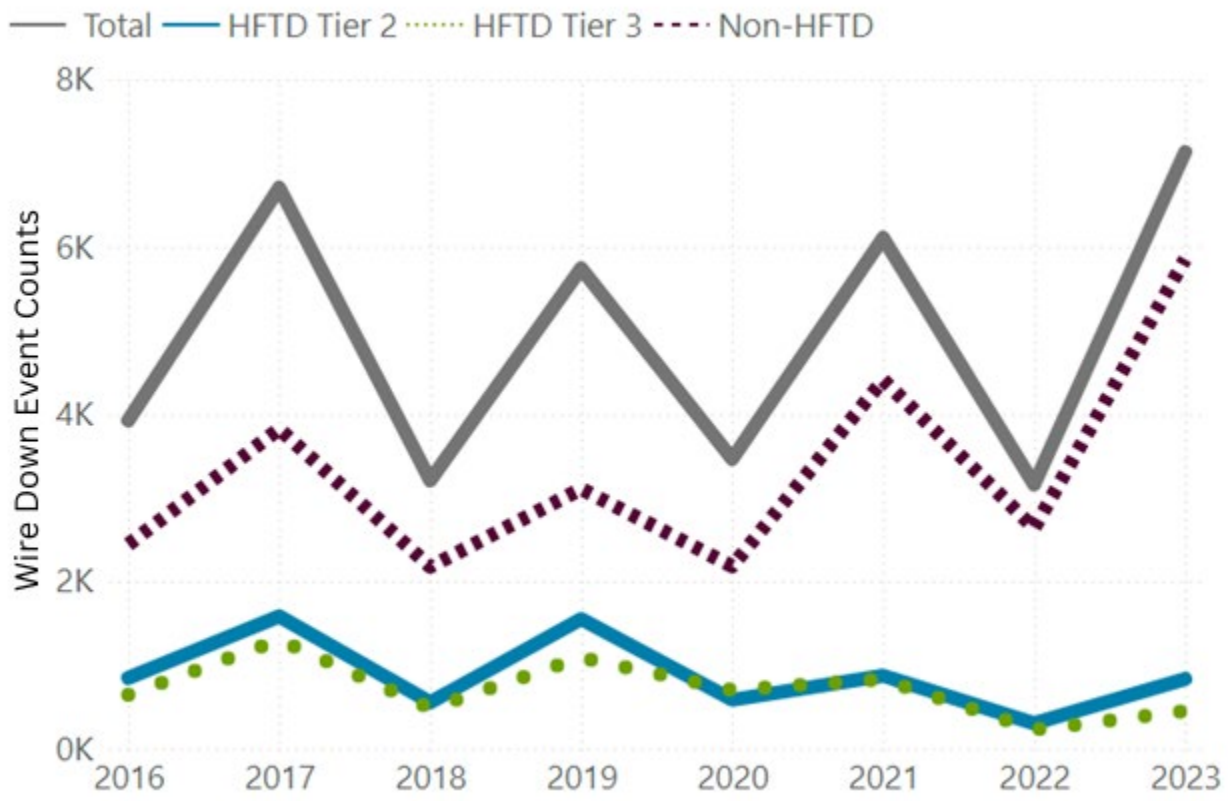
Wire down events are events where a wire is touching the ground, touching an object, or has become disconnected from its mooring. This type of event poses a risk of ignition or a danger to people if that wire is also energized with electricity. The data source for wire down information is the QDRs.[67]

[67] 2022 Q3 QDR, Table 7.1; 2023 Q4 QDR, Table 5.

Raw Wire Down Events

The PG&E wire down event counts show fluctuations across HFTD Tier 2, HFTD Tier 3, and Non-HFTD areas from 2016 to 2023 (Figure 4). The Non-HFTD areas consistently reported the highest number of events, with a sharp increase in 2023. From 2016 through 2023, HFTD Tier 2 and Tier 3 areas displayed congruent year-over-year trends, with peak counts observed in the 2017 and 2019 reporting periods.

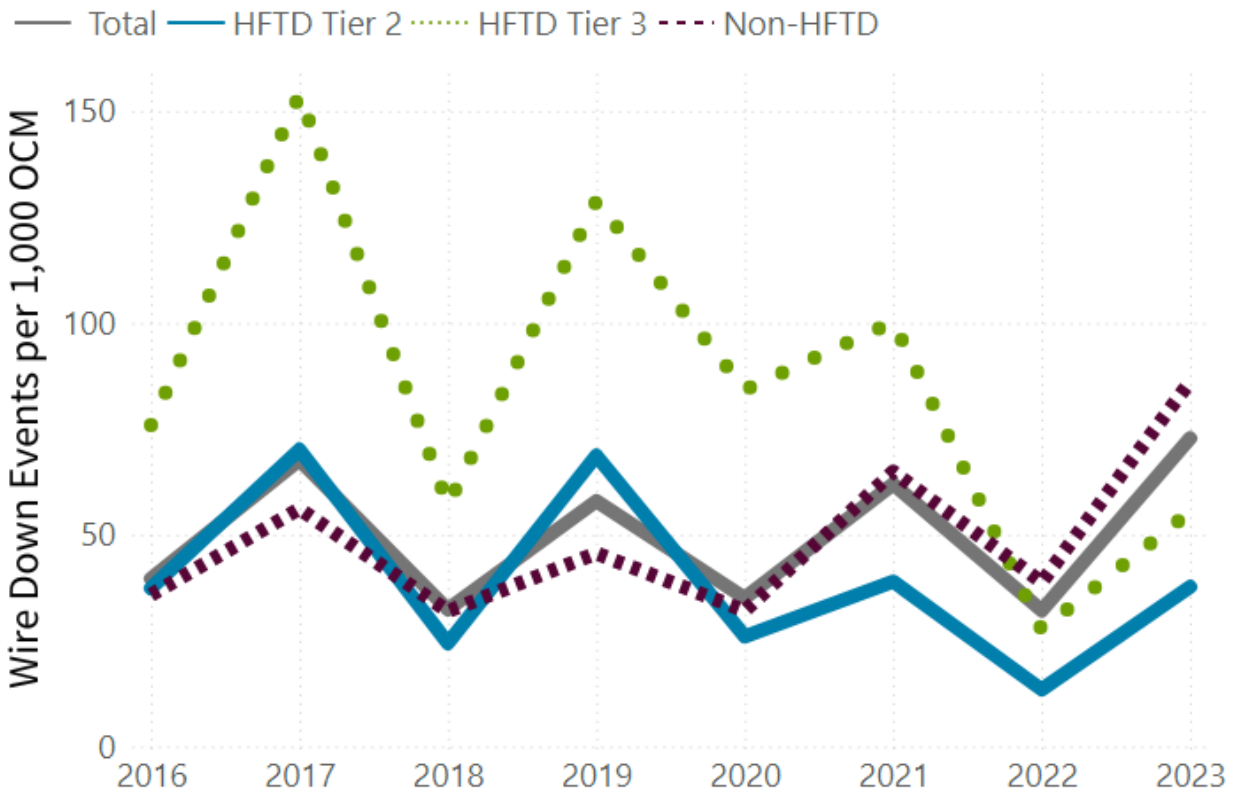
Figure 4. PG&E Wire Down Event Counts (2016-2023) by HFTD Tier



Wire Down Events Normalized by Overhead Circuit Miles

The PG&E wire down events normalized by OCM show fluctuations across HFTD Tier 2, HFTD Tier 3, and Non-HFTD areas from 2016 to 2023 (Figure 5). The HFTD Tier 3 areas consistently had the highest normalized wire down rates, with peaks in 2017, 2019 and 2021, until 2022 when Non-HFTD areas experienced the highest normalized wires down. When accounting for the line miles in the HFTD Tier 3 areas, there is a general decrease in wires down over time. Alternatively, Non-HFTD areas generally increased over time, reaching the highest level in 2023. The HFTD Tier 2 areas experienced the lowest events normalized by OCM overall, with a notable dip in 2022 before an increase in 2023.

Figure 5. PG&E Wire Down Events Normalized by OCM (2016-2023) by HFTD Tier



Wire Down Events Normalized by High Wind Warning Overhead Circuit Mile Days and Red Flag Warning Overhead Circuit Mile Days

Please see Appendix C (Figure 23 and Figure 24) for wire down events normalized by HWWOCMD and RFWOCMD.

6.1.3 Outage Event Data Analysis

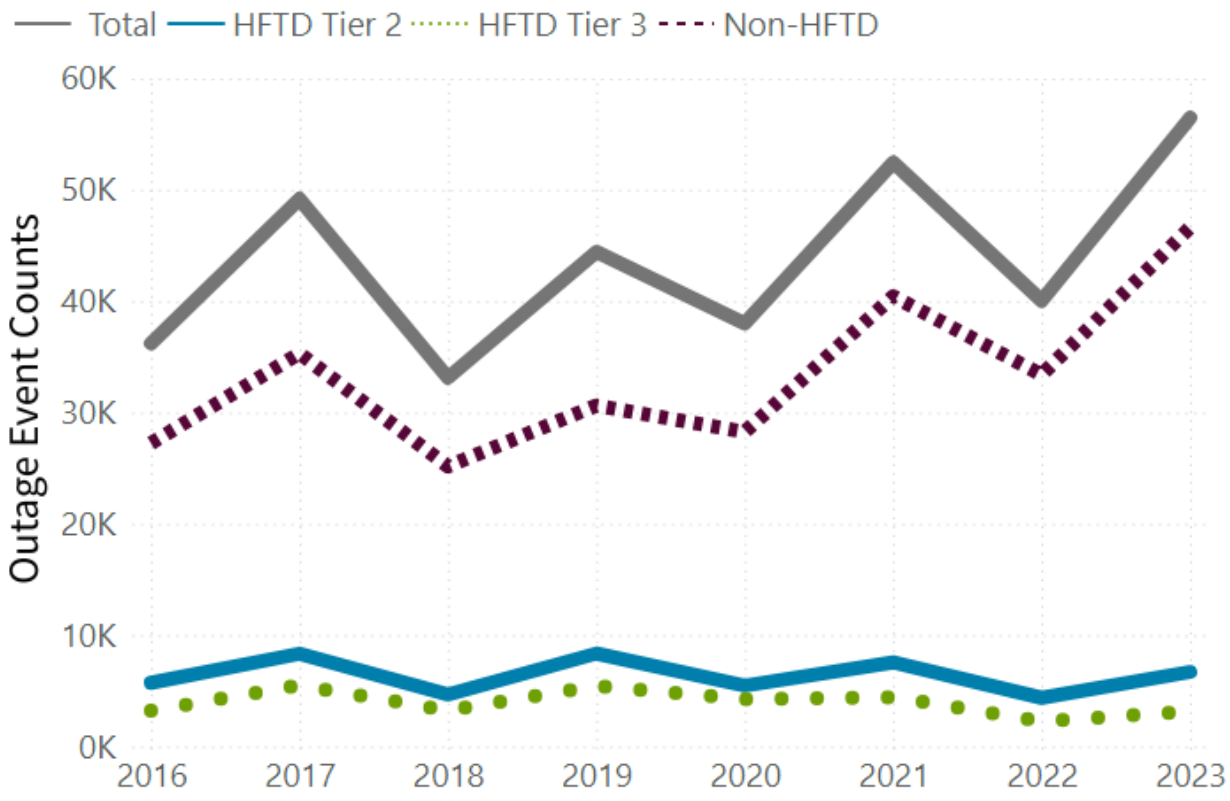
Power outages are unplanned power outage events (does not include PSPS events) tabulated by circuits and not by number of customers impacted. Outage events are tracked as

outcomes that both may cause ignitions and impact a customer's quality of life. The data sources for outage event information are the QDRs.[68]

Raw Outage Event Counts

Total unplanned outage event counts fluctuated between 2016 and 2023 (Figure 6). Outage events in Non-HFTD areas consistently exceeded those in HFTD Tier 2 and Tier 3 areas. Total outage events were lowest in 2018, followed by a 71% increase by 2023. The HFTD Tier 2 and Tier 3 area outage counts remained relatively stable with minor fluctuations, while Non-HFTD area outages saw more pronounced variation, particularly with an increase in 2023.

Figure 6. PG&E Outage Events (2016-2023) by HFTD Tier

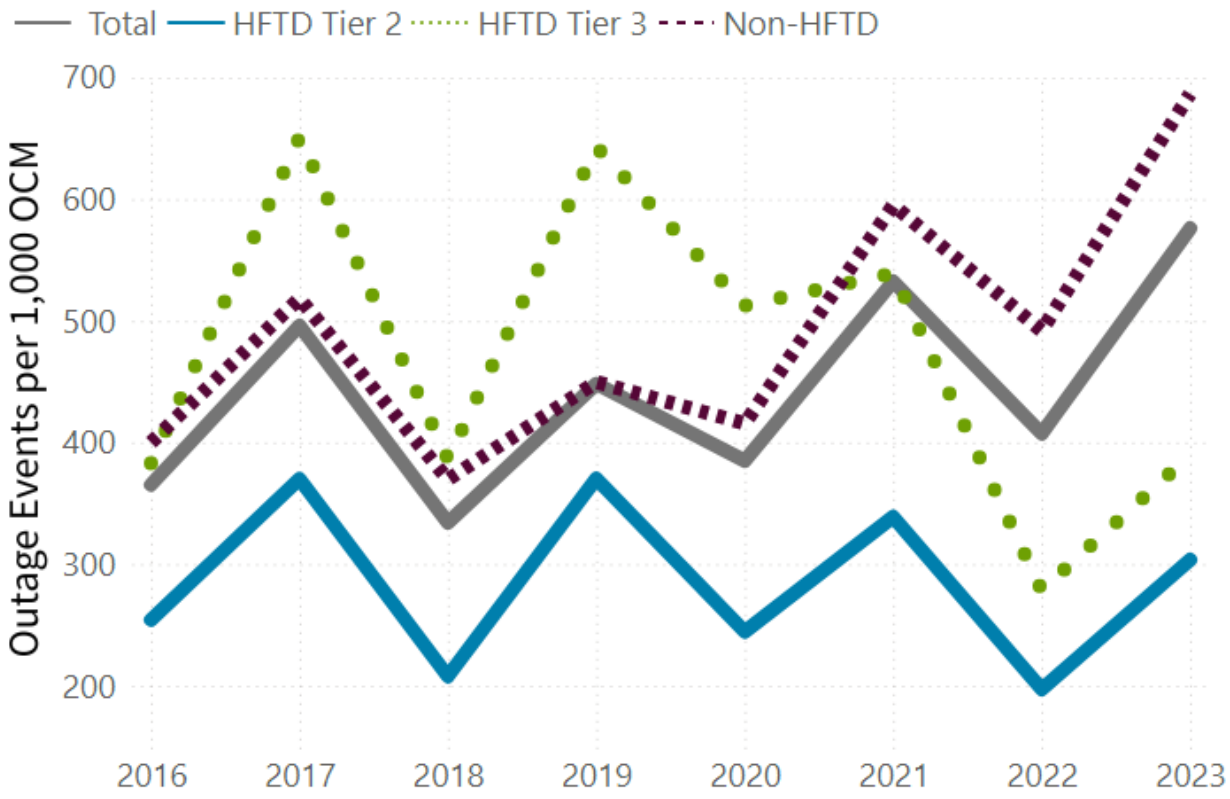


[68] 2022 Q3 QDR, Table 7.1; 2023 Q4 QDR, Table 5.

Outage Events Normalized by Overhead Circuit Miles

Normalized unplanned outage event counts varied between 2016 and 2023, with higher values observed in 2021 and 2023 (Figure 7). Normalized outages in Non-HFTD areas were consistently greater from 2021 to 2023 than in HFTD Tier 2 and Tier 3 areas, with the largest rise occurring in 2023. In 2022, normalized outage events decreased across all categories before rising again in 2023. In 2022, outages in the HFTD Tier 3 area decreased sharply by 44%, while Non-HFTD areas saw the most significant increase in outages, rising by 40% in 2023.

Figure 7. PG&E Outage Events Normalized by OCM (2016-2023) by HFTD Tier



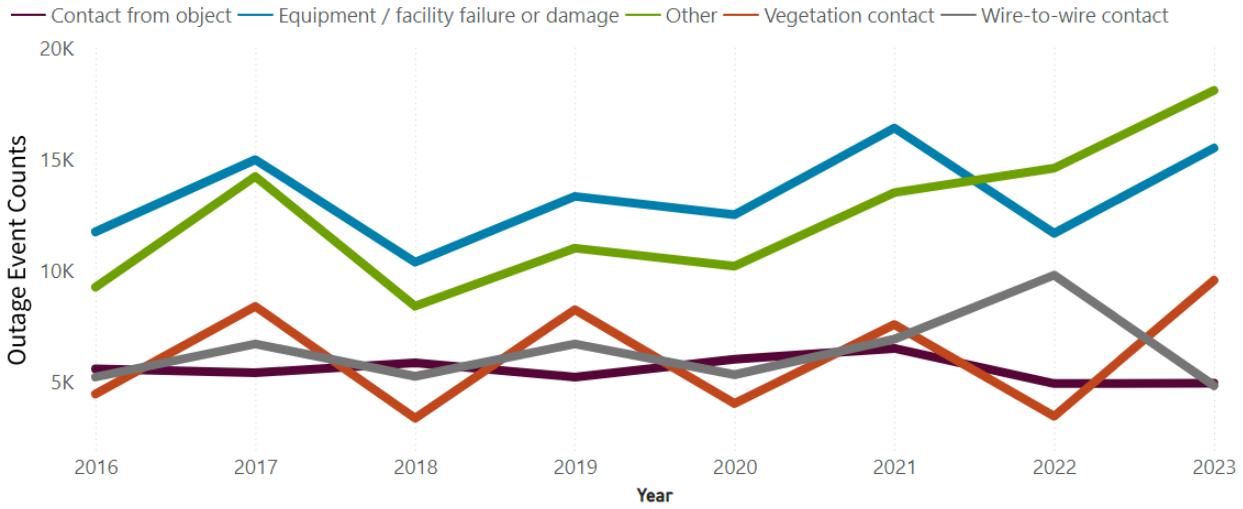
Outage Events Normalized by High Wind Warning Overhead Circuit Mile Days and Red Flag Warning Overhead Circuit Mile Days

Please see Appendix C (Figure 25 and Figure 26) for outage events normalized by HWWOCMD and RFWOCMD.

Outage Events Delineated by Risk Driver

To identify which causes are the largest contributors to unplanned outage events, the Risk Drivers are shown relative to each other (Figure 8). The largest drivers of unplanned outage events over the period are equipment and facility failures and the category of "other." The category of "other" contains several sub-categories such as emergency repairs, fire, lightning, government requests, and vandalism. However, the "other" category is dominated by the sub-category of "unknown" (>97%). Energy Safety recommends that PG&E determine how it can better define and record the driver of unknown outage causes to allow for more effective planning to reduce such outages. This is especially important as PG&E may use the outage data to determine the effectiveness of WMP mitigations reported in their proposed WMPs submitted to Energy Safety.

Figure 8. PG&E Outage Events (2016-2023) by Risk Drivers



6.1.4 Public Safety Power Shutoff Event Data Analysis

PSPS events are planned outages used as a wildfire mitigation tool during extreme fire conditions such as hot, dry, and windy days. While useful as a wildfire mitigation measure, PSPS events carry their own risks and adverse impacts on customers – particularly vulnerable customers who need electricity to survive. As such, electrical corporations take mitigating actions to reduce the frequency, scope, duration, and impacts of PSPS events.

As PSPS events are typically implemented during extreme fire conditions, the PSPS outcomes are presented first in raw count form, and then normalized by RFWOCMD to account for variances in weather across years. The following five PSPS event parameters are presented by year and comprise the PSPS event data analysis:

- *Frequency* is measured as the number or count of all PSPS events,

- *Scope* is measured as the total number of utility circuits impacted because of all PSPS events,
- *Duration* is measured by the total number of customer-hours because of all PSPS events, and
- *Customer Impacts* - is measured as the total number of customers affected by all PSPS events, and
- *Critical Infrastructure Impacts* - Critical Infrastructure is measured as the total number of critical infrastructure locations affected by all PSPS events.

The data source for PSPS events information is the QDRs. [69] The baseline data for RFWOCMD is reflected in Appendix C.

Frequency of PSPS Events

The number of PSPS events increased from zero in 2017 to eight in 2019. Subsequently, the number of PSPS events decreased, dropping to six in 2020 and five in 2021. From 2021 to 2022, the data shows a further reduction, with zero PSPS events reported in 2022. [70] In 2023, an increase occurred with four events reported.

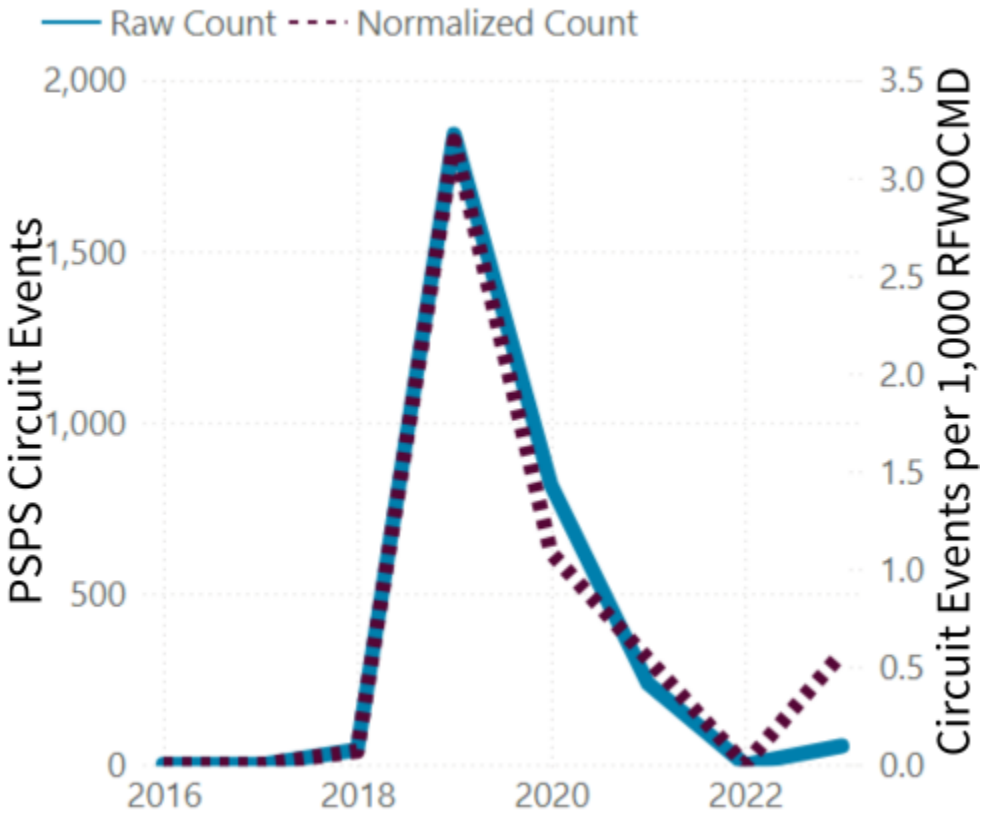
[69] 2022 Q3 QDR, Table 11; 2023 Q4 QDR, Table 10.

[70] These counts do not include instances where PG&E may have notified customers of a potential PSPS event, but later canceled the event without deenergizing any customers. For example, PG&E notified 5,769 customers of the potential for a PSPS event on October 22, 2022. However, no customers were actually deenergized as the PSPS event was cancelled.

Scope of PSPS Events

Although the frequency of PSPS events increased in 2023, the scope (total number of utility circuits impacted) of them did less so. When accounting for the weather, the scope of PSPS events normalized by RFWOCMD show there is little change from the raw data (Figure 9).

Figure 9. PG&E PSPS Event Scope Normalized by RFWOCMD (2016-2023)

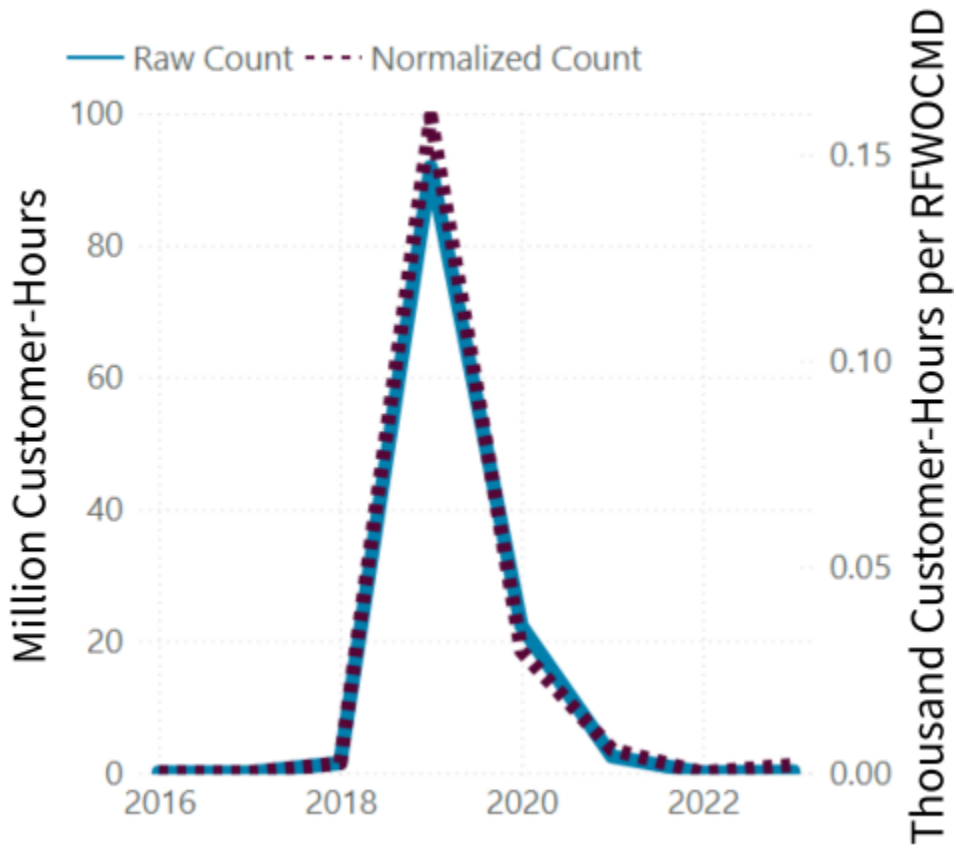


Duration of PSPS Events

For the subsequent PSPS metrics of duration and impacts, the fact that the weather-adjusted pattern aligns with the pattern of raw counts suggests that the adjustment does not provide additional insights beyond what is already observed in the raw count data.

The duration (total customer-hours affected by all PSPS events) from 2016 to 2023 are displayed. The duration of PSPS events peaked at nearly 92 million customer-hours in 2019, followed by a notable decline in subsequent years. In 2020, the number of customer-hours impacted dropped to 22 million, further decreasing to two million in 2021. By 2022, the total number of customer-hours impacted by all PSPS events had fallen to zero, with an increase to 177,000 in 2023. When normalized (Figure 10), the customer-hours impacted by PSPS events show little change from the raw data.

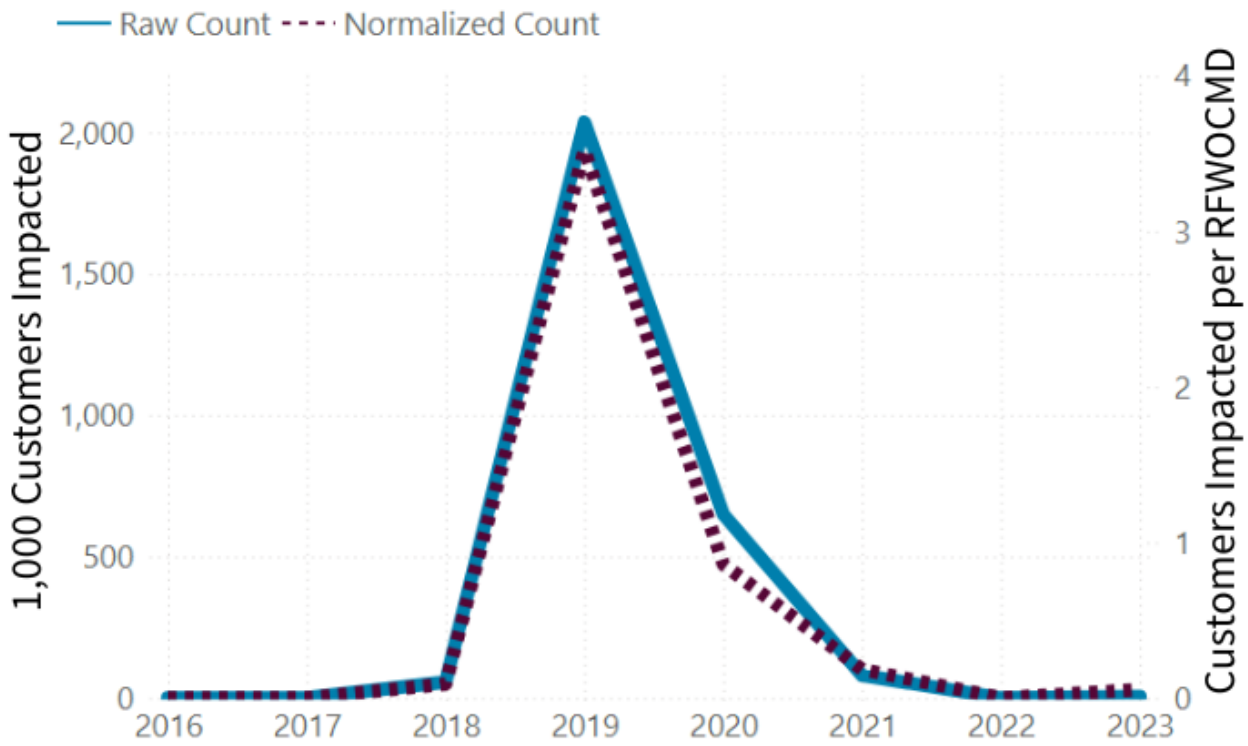
Figure 10. PG&E PSPS Event Duration and Duration Normalized by RFWOCMD (2016-2023)



Customer Impacts of PSPS Events

From 2016 to 2023, the number of customer impacts from PSPS decreased, peaking in 2019 and declining in the following years. From 2021 to 2022, the impacts of customers affected, normalized by RFWOCMD, dropped to zero (Figure 11). In 2023, there was an increase in the number of PSPS events affecting customers.

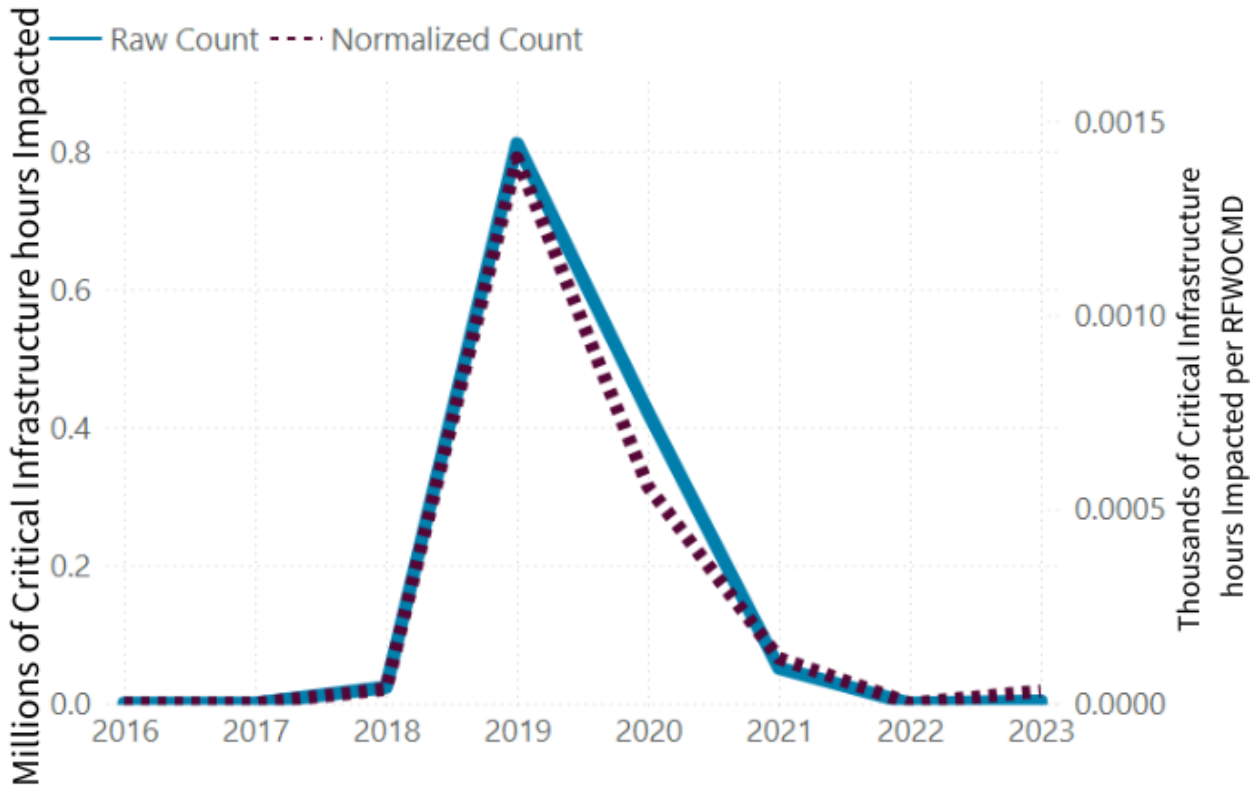
Figure 11. PG&E PSPS Event Impacts on Customers and Event Impacts on Customers Normalized by RFWOCMD (2016-2023)



Infrastructure Impacts of PSPS Events

The number of impacts to critical infrastructure from PSPS peaked in 2019 and declined in the following years. From 2021 to 2022, the impacts on critical infrastructure, normalized by RFWOCMD, dropped to zero (Figure 12). In 2023, there was a negligible increase in the number of PSPS events affecting critical infrastructure.

Figure 12. PG&E PSPS Event Impacts on Critical Infrastructure and Event Impacts on Critical Infrastructure Normalized by RFWOCMD (2016-2023)



6.2 Outcome Metrics

This section presents outcome metrics on electrical corporation-related wildfires including:

1. *Acres burned* – The total number of acres burned due to electrical corporation caused fires,
2. *Structures damaged/destroyed* - The total number of structures damaged or destroyed due to electrical corporation caused fires,
3. *Injuries/fatalities* - The total number of injuries and fatalities due to electrical corporation caused fires,
4. *Value of assets destroyed* - The total value of assets destroyed due to electrical corporation caused fires.

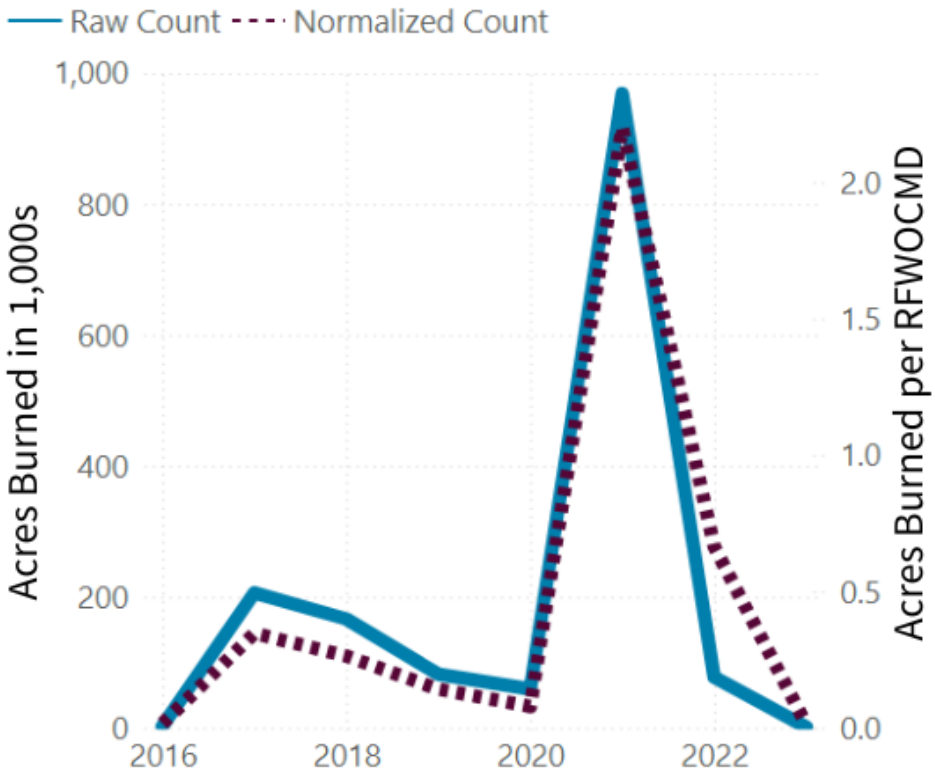
The data source for outcomes metrics information is the QDRs.[71]

[71] 2022 Q3 QDR, Table 2; 2023 Q4 QDR, Table 2.

Acres Burned

From 2016 to 2023, the total number of acres burned by PG&E-ignited wildfires varied, with a peak 969,000 in 2021 (Figure 13). The weather adjusted acres burned shows similar patterns. The acreage burned in 2017—206,000 acres—was the second-largest total recorded during the 2016–2023 period.[72] The large spike in 2021 is largely influenced by one major fire, the Dixie Fire that burned 963,309 acres.[73]

Figure 13. PG&E Total Acres Burned and Total Acres Burned Normalized by RFWOCMD (2016-2023)



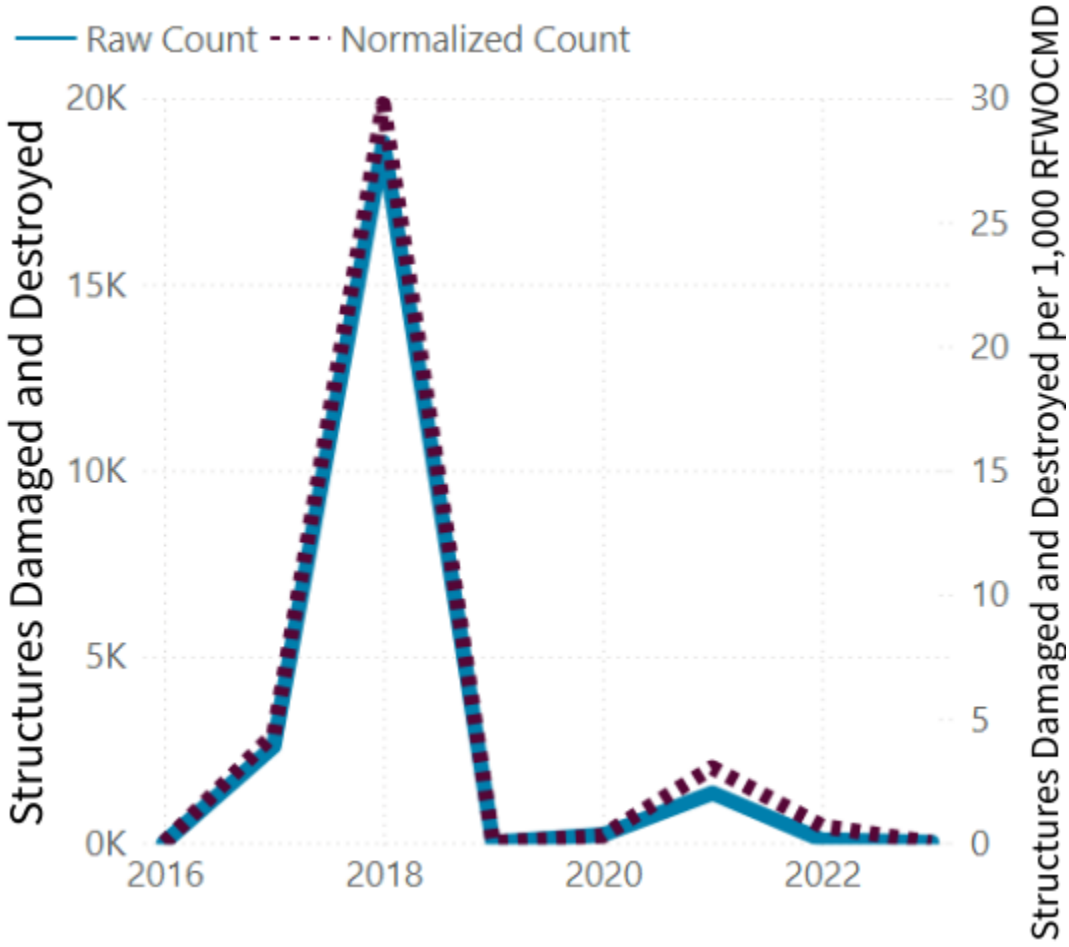
[72] The 2023-2025 WMP Table 5-4: Utility-Related Catastrophic Wildfires Within PG&E's Service Territory listed over 450,000 acres for 2017. However, PG&Es QDR only report 206,000 acres total for 2017. PG&E provided clarification of this discrepancy in Data Request 006, confirmed the QDR total was accurate, and that the WMP at the time was accounting for additional acres of the Nuns Complex fire involving "PG&E and non-PG&E caused fires."

[73] 2023 WMP, page 100.

Structures Damaged or Destroyed

From 2016 to 2023, the number of structures damaged or destroyed by PG&E-ignited wildfires remained low in most years, except for a significant peak in 2018 and a reduction thereafter (Figure 14). Specifically, from 2021 to 2023, there is improvement, with a decrease in the total number of structures damaged or destroyed. When accounting for variances in yearly weather by normalizing by RFWOCMD, the same pattern is observed.

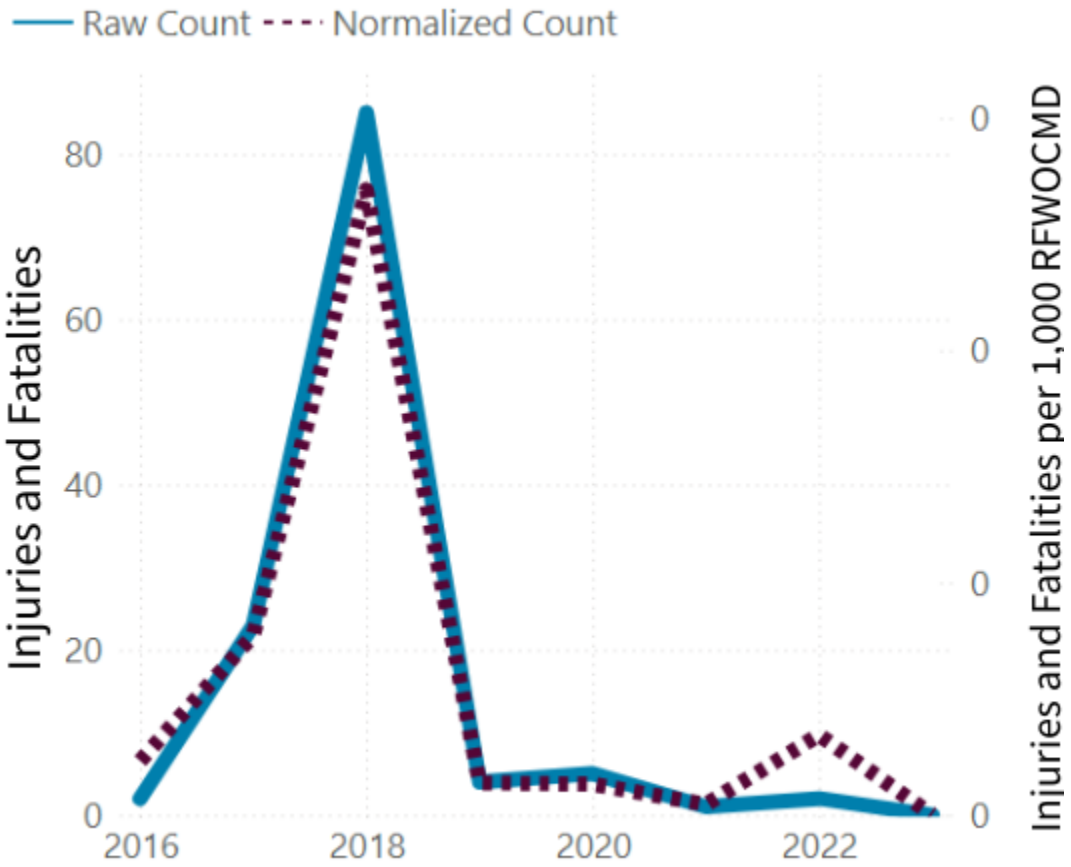
Figure 14. PG&E Structures Damaged or Destroyed and Structures Damaged or Destroyed Normalized by RFWOCMD (2016-2023)



Injuries and Fatalities

The number of injuries and fatalities shows significant variance from 2015 to 2023, with a peak in 2018 and a general decrease to zero injuries and zero fatalities in 2023. When accounting for the yearly variances in weather, the injuries and fatalities normalized by RFWOCMDs show a consistent pattern highlighting the same peak in 2018 and decrease in 2023(Figure 15).

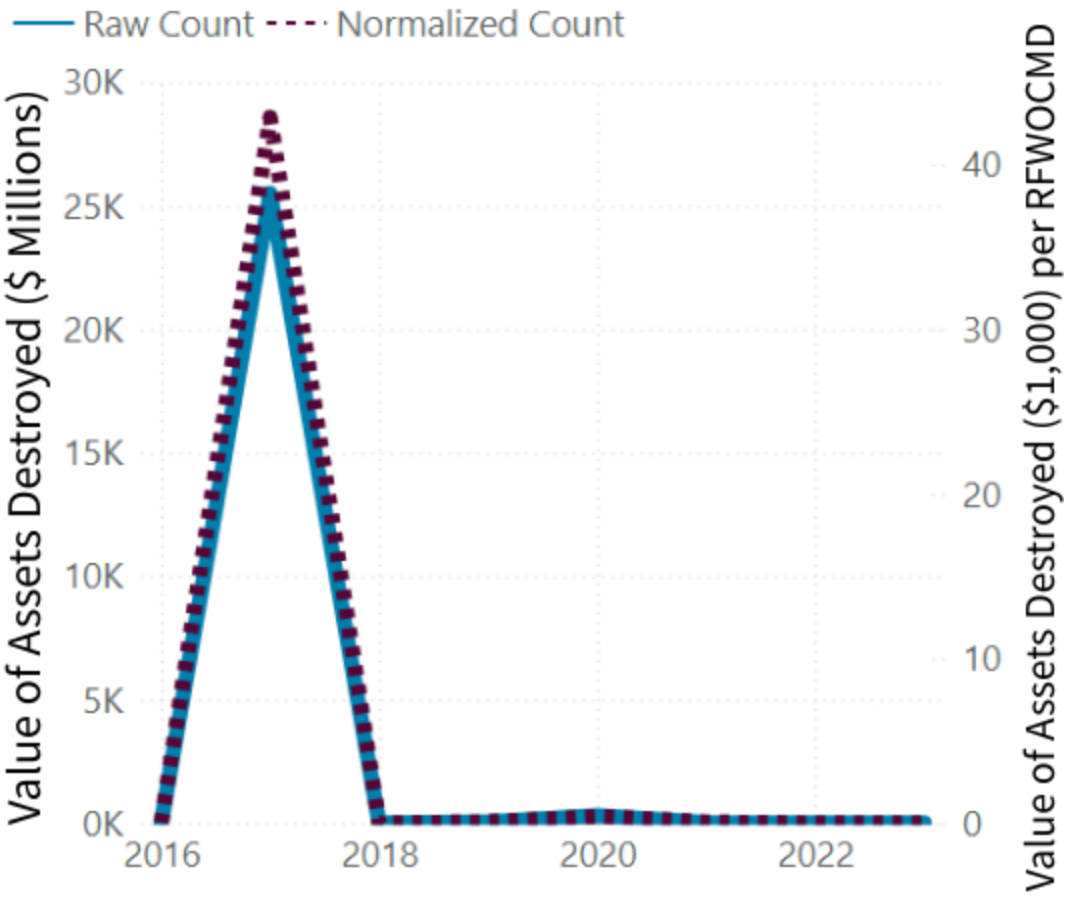
Figure 15. PG&E Injuries and Fatalities and Injuries and Fatalities Normalized by RFWOCMD (2016-2023)



Value of Destroyed Assets

From 2016 to 2023, there is fluctuation in the value of assets destroyed, with a maximum of $25.5 billion in 2017 and a reduction thereafter (Figure 16).[74] The figures for 2017 include the value of destroyed assets for 2017 and the value of destroyed assets related to the Camp Fire, which took place in 2018.

Figure 16. PG&E Value of Destroyed Assets and Value of Destroyed Assets Normalized by RFWOCMD (2016-2023)



6.3 Energy Safety Field Inspection Analysis

Energy Safety performs inspections utilizing an electrical corporation's initiative activity data applicable to the WMP year compliance period. Energy Safety conducts two types of inspections: 1) inspections of grid hardening and other work related to WMP initiatives

[74] 2022 Q3 QDR; DR 289.

related to physical infrastructure, and 2) inspections of general wildfire safety (GWS) conditions at an inspection site. The second category of general wildfire safety conditions (GWS Inspections) is not strictly related to WMP initiatives, and these inspections are additional to Energy Safety's WMP initiative-related inspection work.[75]

During the 2023 compliance period, Energy Safety conducted 4,904 GWS inspection activities and 834 Wildfire Mitigation Plan inspection activities across 340 distinct locations within PG&E's service territory. [76] Energy Safety did not issue any Notices of Violation or Notices of Defect to PG&E in 2023.

6.4 Energy Safety Analysis of Reporting Accuracy and Completeness

As previously noted, Energy Safety evaluated PG&E's performance against its 2023 WMP targets and objectives, and identified inconsistencies in a large number of PG&E's reporting sources. In instances such as tracking vegetation work, tracking undergrounding achievements, and reconciling initiative planned and actual expenditures, the data were significantly compromised, affecting the ability to clearly understand if activities had been completed or not, and to what extent. Eventually, Energy Safety was able to analyze PG&E's WMP performance in 2023 through data requests and reconciliation of competing data sources, but there were initial challenges with the data reported by PG&E, including as described below.

As noted previously in Section 3, PG&E submitted seven sources of information comprising its 2023 EC ARC and revisions. As noted in Section 3.2, PG&E submitted a new financial dataset after the 2023 EC ARC submission deadline, which contradicted the financial data in the QDR. Additionally, PG&E's financial data in the QDR grouped multiple initiatives into one planned expenditure group, complicating efforts to track spending at the initiative level.

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[75] If Energy Safety observes a general wildfire safety concern during an inspection activity, then that is recorded as a "Wildfire Safety Concern." Or as it was known prior to 2024, a "defect." If Energy Safety observes noncompliance with a WMP initiative during an inspection activity that an electrical corporation claimed to have occurred at a site, then that is recorded as a "violation."

[76] Energy Safety uses the term "inspection activity" to refer to a specific question or condition assessed during an inspection. For example, if Energy Safety is inspecting a particular utility pole and looking for eight different conditions associated with a WMP initiative, then that would count as eight WMP inspection activities. If a general wildfire safety inspection occurs at the same time at that utility pole, and 20 general wildfire safety conditions are assessed, then that would count as 20 general wildfire safety inspection activities. In this example, a single utility pole inspection would lead to 28 inspection activities.

Finally, recordkeeping and documentation issues were noted in the SVM Audit and SVM Audit Report, resulting in this ARC finding noncompliance for two vegetation management initiatives. These reporting deficiencies raised concerns about the transparency and accuracy of PG&E's data management. However, Energy Safety did not find any systemic issues that hindered PG&E's ability to adequately implement its WMP in 2023.

7. Conclusion

Energy Safety makes the following observations and recommendations regarding the PG&E's execution of its WMP initiative activities and the performance of its infrastructure relative to its wildfire risk in 2023.

Overall, PG&E implemented the majority of its WMP initiatives in 2023. PG&E completed 58 of 60 (97%) of its 2023 targets for initiative activities and objectives in its 2023 WMP, including for 10 of the 10 initiatives with the largest planned expenditure.

PG&E failed to meet its targets for two of its WMP initiatives for 2023 as a result of, among other things, recordkeeping deficiencies in PG&E's vegetation management program. Additionally, although PG&E met the 2023 WMP targets for two grid hardening initiatives, PG&E only achieved about half of the intended risk reduction associated with them.

PG&E spent less than planned on its initiative work by approximately $73 million (3%) compared to its planned expenditure for the 2023 WMP. PG&E attributed much of this variance to operational efficiencies. Despite not meeting the planned expenditure, PG&E met a significant portion of its quantitative and qualitative 2023 WMP targets and objectives.

With respect to the overall performance of PG&E's system in 2023, raw ignition counts decreased by approximately 24% compared to 2020, reaching their lowest level within the eight years under review. For ignition events, the primary drivers were equipment or facility failures, vegetation contacts, and object contacts from 2016 to 2023, accounting for approximately 92% of all risk driver events. In 2023, four PSPS events were executed on PG&E's system, which was an increase from zero in 2022.

Energy Safety acknowledges that in 2023 PG&E undertook efforts to reduce its wildfire risk, and in many instances achieved its WMP initiative activity and objectives targets. The two missed targets did not materially hinder PG&E's ability to mitigate its wildfire risk.

On balance, PG&E was successful in executing its plan for wildfire risk mitigation in 2023 as it completed 97% of its 2023 WMP initiative activity and objective targets. PG&E exceeded its quantitative targets for many WMP initiatives including, among others, undergrounding, transmission line removal or replacement, and customer batteries provided. While Energy Safety acknowledges that PG&E successfully implemented a majority of its 2023 WMP initiatives, there are still areas for improvement and continued learning, primarily with respect to data governance and financial reporting.

Energy Safety will continue to monitor PG&E's implementation of its ongoing wildfire mitigation activities to push PG&E to improve its ability to eliminate utility-caused catastrophic wildfires in California.

8. References

Table 2. References

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Reference	Citation
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[77] Energy Safety data request procedures were updated in 2025, therefore, data request numbers and naming conventions may appear inconsistent.

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APPENDICES

9. Appendices

Appendix A: PG&E Information on WMP Initiative Activity Attainment

Table 3 summarizes each of PG&E's 60 targets from its 2023 WMP evaluated by this ARC, and PG&E's reporting in its QDR resubmission, responses submitted to Data Requests DR-006 & 036, its EC ARC R1, EC ARC R2, the IE ARC, and Energy Safety's SVM Audit Report.[79] Expenditure information in the table below is sourced from PG&E's EC ARC R2 and therefore some initiatives report zero planned and actual expenditure. As described previously in this ARC, PG&E provided disparate reporting of expenses for the 2023 compliance year which made it difficult to ascertain planned and actual expenses for certain initiatives. Planned and actual expenditure data from the EC ARC R2 are used exclusively below for the sake of consistency. The EC ARC R1 is used for data related to WMP initiative targets and actual attainment.

[79] 2023 Q4 QDR Resubmission; Response to Data Request 006; Response to Data Request 282; EC ARC R1; EC ARC R1 Appendix A; EC ARC R2 Appendix B; IE ARC; SVM Audit Report.

Table 3. PG&E WMP Initiative Activity Attainment Information[80]

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
System Hardening - Distribution 8.1.2.1 GH-01	420 circuit miles hardened among a mixture of undergrounded conductor, covered conductor installation, and line removal	Target: 420 circuit miles Actual: 446.5 circuit miles	Target: 420 circuit miles Actual: 446.5 circuit miles	Target: 420 circuit miles Actual: 446.5 circuit miles	Met	$67,504	$125,029

[80] This table includes all initiative activities that had targets for the 2023 compliance year but does not include initiative activities for which PG&E had planned or actual expenditures and no targets for the 2023 compliance year.

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Evaluate and Implement Covered Conductor Effectiveness Impact on Inspections and Maintenance Standards 8.1.2.1 GH-03	Evaluate the output of the Phase 1 and Phase 2 covered conductor effectiveness study to: (1) determine the impacts of the study on the maintenance and inspections standards for deployed covered conductor assets; and (2) update TD-2305M-JA02 (overhead inspections job aid), as needed.	Target: See WMP Target Actual: The Q4 compliance tasks were successfully met with the release of the updated Job Aid TD-2305M-JA02 that includes additional guidance for the inspection and maintenance of covered conductor. This objective has now been completed.	Target: See WMP Target Actual: Effectiveness study occurred, and an update was made to technical document TD2305M-JA02 (overhead inspections job aid).	Target: See WMP Target Actual: Activity Validated	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
10K Undergrounding 8.1.2.2 GH-04	350 circuit miles undergrounded	Target: 350 circuit miles Actual: 363.87 circuit miles	Target: 350 circuit miles Actual: 364 circuit miles	Target: 350 miles Actual: 363.9 miles	Met	$1,233,981	$1,151,452
System Hardening – Transmission 8.1.2.5.1 GH-05	43 circuit miles	Target: 43 circuit miles Actual: 56.4 circuit miles	Target: 43 circuit miles Actual: 57.49 circuit miles	Target: 43 circuit miles Actual: 56 circuit miles	Met	$14,134	$17,282
System Hardening – Transmission Shunt Splices 8.1.2.5.1 GH-06	20 shunt splices installed	Target: 20 transmission lines Actual: 20 transmission lines	Target: 20 shunt splices Actual: 20 shunt splices	Target: 20 transmission lines Actual: 20 transmission lines	Met	$5,000	$2,673

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Distribution Protective Devices 8.1.2.8.1 GH-07	Install and commission 75 new Supervisory Control and Data Acquisition (SCADA) protective devices	Target: 75 distribution sectionalizing devices Actual: 76 distribution sectionalizing devices	Target: 75 SCADA-enabled distribution protective devices Actual: 76 SCADA-enabled distribution protective devices	Target: 75 protective devices Actual: 76 protective devices	Met	$12,679	$12,151
EPSS – Down Conductor Detection (DCD) 8.1.2.10.1 GM-06	Make 500 protective device controllers or relays capable of DCD settings	Target: 500 protective device controllers or relays that are DCD capable Actual: 720 protective device controllers or relays that are DCD capable	Target: 500 protective devices controllers/ relays DCD capable Actual: 720 protective devices controllers/ relays DCD capable	Target: 500 protective device controllers or relays capable for DCD Actual: 720 protective device controllers or relays capable for DCD	Met	$15,901	$12,743

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Distribution Line Motor Switch Operator (MSO) – Replacements 8.1.2.10.3 GH-09	20 MSO replacements	Target: 20 MSO replacements Actual: 21 MSO replacements	Target: 20 MSO devices Actual: 21 MSO devices	Target: 20 MSO replacements Actual: 21 MSO replacements	Met	$3,170	$1,809
Surge Arrestor – Removals 8.1.2.10.4 GH-08	Remove 663 non-exempt surge arrestors	Target: 663 non-exempt surge arrestors Actual: 663 non-exempt surge arrestors	Target: 663 non-exempt surge arrestors Actual: 663 non-exempt surge arrestors	Target: 663 non-exempt surge arrestors Actual: 663 non-exempt surge arrestors	Met	$3,797	$5,190

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Non-Exempt Expulsion Fuse – Removal 8.1.2.10.5 GH-10	Remove 3,000 non-exempt expulsion fuses/cutouts	Target: 3,000 fuses Actual: 3,080 fuses	Target: 3,000 non-exempt expulsion fuses Actual: 3,080 non-exempt expulsion fuses	Target: 3,000 non-exempt expulsions fuses Actual: 3,080 non-exempt expulsions fuses	Met	$27,962	$18,258
Detailed Inspection Transmission – Ground 8.1.3.1.1 AI-02	27,000 ground inspections	Target: 27,000 structures Actual: 27,691 structures	Target: 27,000 transmission ground inspections Actual: 27,691 transmission ground inspections	Target: 27,000 structures Actual: 27,691 structures	Met	$15,292	$15,425

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Detailed Inspection Transmission – Aerial 8.1.3.1.2 AI-04	24,000 aerial inspections	Target: 24,000 structures Actual: 25,360 structures	Target: 24,000 transmission detailed aerial inspections Actual: 25,360 transmission detailed aerial inspections	Target: 24,000 structures Actual: 25,360 structures	Met	$31,707	$32,947
Detailed Inspection Transmission – Climbing 8.1.3.1.3 AI-05	1,700 climbing inspections	Target: 1,700 structures Actual: 1,786 structures	Target: 1,700 transmission climb inspections Actual: 1,786 transmission climb inspections	Target: 1,700 structures Actual: 1,786 structures	Met	$3,366	$4,532

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Perform Transmission Infrared (IR) Inspections 8.1.3.1.4 AI-06	4,000 circuit miles	Target: 4,000 miles Actual: 4,292 miles	Target: 4,000 miles Actual: 4,292 miles	Target: 4,000 miles Actual: 4,292 miles	Met	$1,823	$2,909
Detailed Ground and Aerial Inspections – Distribution 8.1.3.2.1 AI-07	234,648 inspections overall total	Target: 234,648 poles Actual: 236,544 poles	Target: 234,648 distribution ground inspections Actual: 236,531 distribution ground inspections	Target: 234,648 poles Actual: 236,544 poles	Met	$55,665	$65,428

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Develop Distribution Aerial Inspections program 8.1.3.2.7 AI-03	Evaluate the continued use of aerial inspections for distribution overhead equipment	Target: Evaluate the continued use of aerial inspections for distribution overhead equipment Actual: A summary of the 2023 pilot and 2024 inspection plan was presented to PG&E's Wildfire Risk Governance Steering Committee on October 12, 2023	Target: Evaluate the continued use of aerial inspections for distribution overhead equipment Actual: Report presented on October 12 and 16, 2023	Target: N/A Actual: In Progress / Activity Validated	Met	$0	$7,432

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Supplemental Inspections – Substation Distribution 8.1.3.3.1 AI-08	52 supplemental inspections	Target: 52 distribution substations Actual: 52 distribution substations	Target: 52 supplemental inspections Actual: 52 supplemental inspections	Target: 52 distribution substations Actual: 52 distribution substations	Met	$2,826	$1,084
Supplemental Inspections – Substation Transmission 8.1.3.3.1 AI-09	34 supplemental inspections	Target: 34 transmission substations Actual: 34 transmission substations	Target: 34 supplemental inspections Actual: 34 supplemental inspections	Target: 34 transmission substations Actual: 34 transmission substations	Met	$2,633	$1,778

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Supplemental Inspections – Hydroelectric Substations and Powerhouses 8.1.3.3.1 AI-10	41 supplemental inspections	Target: 41 hydroelectric substations and powerhouses Actual: 41 hydroelectric substations and powerhouses	Target: 40 substation power generations and powerhouses inspections Actual: 40 substation power generations and powerhouses inspections[81]	Target: 41 hydroelectric substations and powerhouses Actual: 41 hydroelectric substations and powerhouses	Met	$1,182	$745

[81] PG&E sold Tule River Powerhouse Switchyard in Q2 2023. Therefore, only 40 inspections were completed, as there were only 40 locations to inspect. EC ARC R1, Appendix A.

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Asset Inspections - Quality Assurance 8.1.6.1 GM-01	1) Transmission Ground Inspections - HFTD/HFRA (Field): 500 audit locations; 92% pass rate 2) Distribution Ground Inspections - HFTD/HFRA (Field): 1,500 audit locations; 82% pass rate	Target: 1) QA Transmission 90% Actual: 1) QA Transmission 99.95%; Locations: 2,012 Target: 2) QA Distribution 82% Actual: 2) QA Distribution 92.88%; Locations: 5,012	Target: 1) Ground Inspections: 500 locations, 92% pass Rate Actual: 1) 2,012 locations audited and pass rate of 99.95% Target: 2) Ground Inspections: 1,500 locations, 82% pass rate Actual: 2) 5,012 locations audited and pass rate of 92.88%	Target: 1) 500 [locations] Actual: 1) 2,012 [locations] Target: 2) 1,500 [locations] Actual: 2) 5,012 [locations]	Met	$2,944	$8,483

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Asset Inspection – Quality Control 8.1.6.2 GM-09	QC asset inspections had four sub-targets as follows: 1) Transmission – desktop review. Target of 20,000 locations with a 90% pass rate. 2) Transmission – field review. Target of 1,800 locations with a 90% pass rate. 3) Distribution – desktop review. Target of 140,000 locations with an 80% pass rate. 4) Distribution - field review. Target of 30,000 locations with an 80% pass rate.	1) Target and actual reported as N/A 2) Target reported as 90%; actual reported as 2,006 locations and a 99.6% pass rate 3) Target and actual reported as N/A 4) Target reported as 80%; actual reported as 38,880 locations and an 86.1% pass rate	1) Actual reported as a 99.2% pass rate and 20,988 locations 2) Actual reported as a 99.6% pass rate and 2,006 locations 3) Actual reported as a 93.7% pass rate and 186,140 locations 4) Actual reported as a 86.11% pass rate and 38,880 locations	1) Actual reported as a 99.2% pass rate and 20,988 locations 2) Actual reported as a 99.6% pass rate and 2,006 locations 3) Actual reported as a 93.7% pass rate and 186,140 locations 4) Actual reported as a 86.1% pass rate and 38,880 locations	Met	$23,500	$32,182

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
HFTD/HFRA Open Tag Reduction – Transmission 8.1.7.1 GM-02	Eliminate 16,831 HFTD and HFRA transmission ignition risk tags	Target: 16,831 transmission line corrective (LC) tags Actual: 16,069 transmission LC tags	Target: 16,831 tags Actual: 16,069 tags	Target: 16,831 transmission LC tags Actual: 16,069 transmission LC tags[82]	Met	PG&E's EC ARC defined planned and actual expenditures as related to Provider Cost Centers (PCCs), which provide company-wide services. PCC expenses are therefore not broken out by initiative.	PCC Costs

[82]Energy Safety understands PG&E attempted to address all LC tags, however some LC tags were unaddressed due to what PG&E said were external factors (i.e. customer refusals, permit delays, work clearance requirements, and operational constraints) that could not be addressed by the end of calendar year 2023.

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
HFTD/HFRA Open Tag Reduction – Distribution Backlog 8.1.7.2 GM-03	Work in this initiative was broken into two sub-targets as described below: 1) Close 52,000 distribution tags, including a minimum of 29,000 backlog tags 2) Reduce 48 percent (72.5 risk units) of the wildfire risk associated with backlog tags in HFTD/HFRA locations. [83]	1) No information provided 2) Target described as 48% distribution tags; actual described as 52.2% distribution tags	1) Target described as 52,000 distribution tags, including a minimum of 29,000 backlog tags; actual described as 60,503 tags closed, with 44,453 of those being backlog tags 2) Target described as 48% (72.5 risk units) backlog risk reduction; actual described as 52.2% (78.8 risk units) backlog risk reduction	1) Target described as 52,000 distribution tags; actual described as 60,503 distribution tags 2) Target described as 48% backlog reduction; actual described as 52.2% reduction	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
LiDAR Data Collection - Transmission 8.2.2.1.1 VM-01	17,500 circuit miles	Target: 17,500 circuit miles Actual: 17,816.6 circuit miles	Target: 17,500 circuit miles Actual: 17,741 circuit miles[84]	Target: 17,500 miles Actual: 17,817 miles	Met	$10,163	$8,575
Routine Transmission – Ground 8.2.2.1.1 VM-13	17,740 circuit miles	Target: 17,740 circuit miles Actual: 18,172.44 circuit miles	Target: 17,740.0 miles Actual: 18,172.4 miles	Target: 17,740 miles Actual: 18,172 miles	Met	$21,728	$23,798

[83] 2023 WMP, page 545. PG&E uses the Wildfire Distribution Risk Model version 3 (WDRM v3), which considers the location of the asset and provides the consequence of failure, and the likelihood of an ignition based on the Facility Damage Action (FDA). These two factors combined provide a wildfire risk value for each EC notification.

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Second Patrol - Transmission 8.2.2.1.2 VM-14	5,625 circuit miles	Target: 5,625 circuit miles Actual: 5,681.0 circuit miles	Target: 5,625 units Actual: 5,681 units	Target: 5,625 miles Actual: 5,681 miles	Met	$1,000	$4,210
Integrated Vegetation Management - Transmission 8.2.2.1.3 VM-15	11,194 acres	Target: 11,194 acres Actual: 11,742 acres	Target: 11,194 acres Actual: 13,019 acres[85]	Target: 11,194 acres Actual: 11,742 acres	Met	$12,679	$9,253

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2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Routine Patrol - Distribution 8.2.2.2.1 VM-16	79,000 circuit miles	Target: 79,000 circuit miles Actual: 79,950.2 circuit miles	Target: 79,000 miles Actual: 79,950.2 miles	Target: 79,000 miles Actual: 79,950.2 miles	Met	$711,944	$785,446
Second Patrol - Distribution 8.2.2.2.2 VM-17	43,000 circuit miles	Target: 43,000 circuit miles Actual: 43,222 circuit miles	Target: 43,000 miles Actual: 43,222 miles	Target: 43,000 miles Actual: 43,222 miles	Met	$100,617	$127,440
Tree Removal Inventory (TRI) 8.2.2.2.4 VM-04	15,000 trees	Target: 15,000 trees removed Actual: 35,760 trees removed	Target: 15,000 trees removed Actual: 35,760 trees removed	Target: 15,000 EA Actual: 35,760 EA	Met	$160,357	$34,947

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Focused Tree Inspection (FTI) 8.2.2.2.5 VM-03	250 circuit miles	Target: 250 circuit miles Actual: 266.6 circuit miles	Target: 250 circuit miles Actual: 273.78 circuit miles[86]	Target: 250 miles Actual: 267 miles	Met	$83,418	$12,089
Defensible Space Inspections - Distribution Substation 8.2.2.3.1 VM-05	131 inspections	Target: 131 distribution substations Actual: 131 distribution substations	Target: 131 inspections Actual: 131 inspections	Target: 131 EA Actual: 131 EA	Met	$2,522	$5,443

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Defensible Space Inspections - Transmission Substation 8.2.2.3.1 VM-06	55 inspections	Target: 55 transmission substations Actual: 55 transmission substations	Target: 55 inspections Actual: 55 inspections	Target: 55 inspections Actual: 55 inspections	Met	$408	$2,800
Defensible Space Inspections - Hydroelectric Substations and Powerhouses 8.2.2.3.1 VM-07	61 inspections	Target: 61 hydroelectric substations and powerhouses Actual: 61 hydroelectric substations and powerhouses	Target: 61 inspections Actual: 61 inspections	Target: 61 inspections Actual: 61 inspections	Met	$1,907	$1,694

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Pole Clearing Program 8.2.3.1 VM-02	77,503 poles	Target: 77,503 distribution poles Actual: 79,882 distribution poles	Target: 77,503 poles Actual: 79,882 poles	Target: 77,503 poles Actual: 79,882 poles	Met	$31,000	$27,877
Wood and Slash Management 8.2.3.2	Reduction or adjustment of dead fuel, including all downed wood and “slash” generated from vegetation management activities.	N/A	N/A	N/A	Not Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Clearance 8.2.3.3	Maintain clearances after inspection to ensure that vegetation does not encroach upon electrical equipment and facilities, such as tree trimming.	N/A	N/A	N/A	Met	$0	$0
Fall-In Mitigation 8.2.3.4	Identify and remove or otherwise remediate trees that pose a high risk of failure or fracture that could potentially strike electrical equipment.	N/A	N/A	N/A	Not Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Substation Defensible Space 8.2.3.5	Assess the area around electric substations in HFTD and HFRA areas to identify potential flammable fuels and vegetation for removal.	N/A	N/A	N/A	Met	$0	$0
High-Risk Species 8.2.3.6	Identify trees at elevated risk of failing and striking electrical facilities.	N/A	N/A	N/A	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Fire Resilient Right-of-Ways 8.2.3.7	Promote vegetation communities that are sustainable, fire-resilient, and compatible with the use of the land as an electrical corporation right-of-way.	N/A	N/A	N/A	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Emergency Response Vegetation Management 8.2.3.8	Planning and execution of vegetation activities in response to emergency situations including weather conditions that indicate an elevated fire threat and post-wildfire service restoration.	N/A	N/A	N/A	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Vegetation Management Enterprise System 8.2.4	Operation of and support for centralized vegetation management and inspection enterprise system(s) updated based upon inspection results and activities such as hardening, maintenance, and remedial work.	N/A	N/A	N/A	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Vegetation Management – Quality Assurance 8.2.5 VM-08	1) Distribution Routine VM - HFTD: 2,500 audit locations; 95% pass rate 2) Transmission VM - HFTD: 1,200 audit locations; 95% pass rate 3) Vegetation Control Pole Clearing - HFTD: 1,800 audit locations; 95% pass rate	1) Target described as 95% pass rate; actual described as 99.75% pass rate with 4,285 locations 2) Target described as 95% pass rate; actual described as 99.93% pass rate with 2,038 locations 3) Target described as 95% pass rate; actual described as 99.04% pass rate with 2,284 locations	1) Target 95% pass rate with 2,500 locations; actual described as 99.75% pass rate with 4,285 locations 2) Target 95% pass rate with 1,200 locations; actual described as 99.93% pass rate with 2,038 locations 3) Target 95% pass rate with 1,800 locations; actual described as 99.04% pass rate with 2,284 locations	1) Target 95% pass rate with 2,500 locations; actual described as 99.75% pass rate with 4,285 locations 2) Target 95% pass rate with 1,200 locations; actual described as 99.93% pass rate with 2,038 locations 3) Target 95% pass rate with 1,800 locations; actual described as 99.04% pass rate with 2,284 locations	Met	$5,970	$13,295

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Vegetation Management - Quality Control 8.2.5.2 VM-22	1) Distribution Routine VM-HFTD: 75,000 audit locations; 80% pass rate 2) Transmission VM - HFTD: 12,500 audit locations; 88% pass rate 3) Vegetation Control (VC) Pole Clearing: 10,500 audit locations; 80% pass rate	1) Target 80% QC; actual of 85.7% QC and 117,285 trees audited 2) Target 88% QC; actual of 92.9% QC and 15,902 trees audited 3) Target 80% QC VC Pole Clearing; actual 86.1% QC and 10,791 trees audited	1) Target 75,000 locations and 80% pass rate; actual 80,877 locations and 85.7% pass rate 2) Target 12,500 locations and 88% pass rate; actual 17,063 locations and 92.9% pass rate 3) Target 10,500 locations and 80% pass rate; actual 10,791 locations and 86.1% pass rate[87]	1) Target 75,000 locations and 80% pass rate; actual 117,285 locations and 85.7% pass rate 2) Target 12,500 locations and 88% pass rate; actual 15,902 locations and 92.9% pass rate 3) Target 10,500 locations and 80% pass rate; actual 10,791 locations and 86.1% pass rate	Met	$5,006	$25,828

[87] Information is sourced from EC ARC R1 and may differ from EC ARC R1 Appendix A. Energy Safey has decided to go with EC ARC R1.

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Constraint Resolution Procedural Guideline 8.2.6 VM-09	Develop a process for centralizing constraint resolution, which will address customer, environmental, and permitting constraints.	Target: Develop a process for centralizing constraint resolution, which will address customer, environmental, and permitting constraints. Actual: PG&E developed standardized processes through a centralized constraints team to address customer, environmental, and permitting constraints.	Target: Target: Develop a process for centralizing constraint resolution, which will address customer, environmental, and permitting constraints. Actual: In 2023, PG&E developed standardized processes through a centralized constraints team to address customer, environmental, and permitting constraints.	Target: Develop a process for centralizing constraint resolution, which will address customer constraints, environmental constraints, and permitting constraints. Actual: Activity Validated / In Progress	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Workforce Planning 8.2.7	Ensure that the electrical corporation has qualified vegetation management personnel and to ensure that both employees and contractors tasked with vegetation management responsibilities are adequately trained to perform relevant work.	N/A	N/A	N/A	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Artificial Intelligence (AI) in Wildfire Cameras 8.3.2.3 SA-01	Enable AI processing of Wildfire Camera Data to provide automated wildfire notifications in the internal PG&E monitoring tool (Wildfire Incident Viewer (WIV)). Deadline of June 30, 2023	Target: Enable AI processing of Wildfire Camera Data to provide automated wildfire notifications in the internal PG&E monitoring tool (WIV). Actual: This objective was completed in Q2 2023.	Target: Enable AI processing data to provide automated wildfire notifications in the internal PG&E monitoring tool WIV. Actual: developed, tested, and implemented an AI system that can detect and alert Hazard Awareness and Warning Center (HAWC) analysts of potential wildfires before they spread.	Target: Enable AI processing of Wildfire Camera Data to provide automated wildfire notifications in the internal PG&E monitoring tool (WIV). Actual: Activity Validated	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Line Sensor - Installations 8.3.3.1 SA-02	Install line sensors on 40 circuits	Target: 40 circuits Actual: 55 circuits	Target: 40 circuits Actual: 55 circuits	Target: 40 circuits Actual: 55 circuits	Met	$5,620	$5,707

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Early Fault Detection (EFD) and Distribution Fault Anticipation (DFA) Reporting 8.3.3.1 SA-03	Develop scalable processes to: (a) analyze alarms and alerts from EFD and DFA sensors; (b) conduct field investigation and reporting; (c) track identified mitigations to completion; and (d) track effectiveness of issue identification and remediation using EFD/DFA technologies.	Target: Same as WMP target Actual: This objective is completed.	Target: Same as WMP target Actual: This objective is completed.	Target: Same as WMP target. Actual: Activity Validated	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Distribution Fault Anticipation (DFA) Installations 8.3.3.1 SA-10	Install five DFA sensors	Target: Five DFA sensors Actual: Five DFA sensors	Target: Five DFA sensors Actual: Five DFA sensors	Target: Five DFA sensors Actual: Five DFA sensors	Met	$1,000	$180
Early Fault Detection (EFD) Installations 8.3.3.3 SA-11	Install two EFD sensors	Target: Two EFD sensors Actual: Two EFD sensors	Target: Two EFD sensors Actual: Two EFD sensors	Target: Two EFD sensors Actual: Two EFD sensors	Met	$1,000	$644

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
FPI and IPW Modeling - Revision Evaluation 8.3.6.3 SA-04	Evaluate enhancements to the Fire Potential Index (FPI) model and the Ignition Probability Weather (IPW) model. This involves testing new features and types of model configurations that could improve model skill. At present we do not know if model skills can be improved, but we will attempt to do so.	Target: Same as WMP target Actual: This work was completed in Q3 2023. This objective is completed.	Target: Same as WMP target Actual: In 2023, evaluations of enhancements to the FPI, the IPW, and the Outage Probability Weather (OPW) models were completed. The final OPW and IPW model solution showed improved skill over our current operational version. If approved, PG&E plans to operate these new models in 2024 to improve performance.	Target: Same as WMP target Actual: Activity Validated	Met	$1,474	$1,374

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Complete PSPS and Wildfire Tabletop and Functional Exercises 8.4.2.3.1 EP-01	Complete PSPS and Wildfire Tabletop and Functional Exercise annually in compliance with the guiding principles of the Homeland Security Exercise Evaluation Program (HSEEP)	Target: Same as WMP target Actual: This target has met all annual milestones. The second PSPS seminar was completed on October 11, 2023. The 2023 Tabletop Exercises were completed June 14, 2023. The functional exercise was completed on May 11, 2023.	Target: Same as WMP target Actual: The 2023 functional exercise and tabletop were completed in May and June, 2023, respectively. A planning workshop produced the 2024 exercise and training schedule. Planning began for the 2024 PSPS and wildfire exercise.	Target: Same as WMP target Actual: Activity Validated	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Annually review, and revise if appropriate, the Company Emergency Response Plan (CERP) and the two wildfire-related annexes (the Wildfire Annex and the PSPS Annex) 8.4.3.1 EP-06	Review and revise if appropriate three documents (one CERP and two wildfire-related annexes)	Target: Review and revise if appropriate three Company Emergency Response Plan (CERP) and the two wildfire related annexes Actual: three Company Emergency Response Plan (CERP) and the two wildfire related annexes were reviewed	Target: three documents Actual: three documents	Target: three (CERP and the two wildfire related annexes) Actual: three (CERP and the two wildfire related annexes)	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Threats and Hazards Identification and Risk Assessment (THIRA) updates 8.4.3.1 EP-08	Execute a Threats and Hazards Identification and Risk Assessment (THIRA) update every three years to address changes in hazard landscape. Use information from THIRA to inform changes to the CERP and hazard annexes.	Target: Same as WMP target. Actual: 2023 THIRA was performed and completed on August 10, 2023.	Target: N/A Actual: N/A	Target: Same as WMP target. Actual: Activity Validated	Met	$0	$0

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Community Engagement – Meetings 8.5.2 CO-01	Hold 22 community engagement meetings	Target: PG&E will hold annually a total of 22 community engagement meetings within the five regions of service. Actual: The program met its goal of 22 community engagement meetings.	Target: 22 community engagement meetings Actual: 22 wildfire community engagement meetings across the five regions of service by September 30, 2023.	Target: For 2023-2025, PG&E will hold annually a total of 22 community engagement meetings. Actual: Activity Validated	Met	PCC Costs	PCC Costs

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Community Engagement - Surveys 8.5.2 CO-02	Conduct two PSPS education & outreach surveys	Target: conduct two surveys Actual: two surveys conducted	Target: conduct two PSPS education & outreach surveys Actual: two PSPS education & outreach surveys conducted	Target: conduct two surveys Actual: two surveys conducted	Met	PCC Costs	PCC Costs

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Provide 4,000 cumulative new or replacement portable batteries to PG&E customers 8.5.3 PS-06	Provide 4,000 portable batteries	Target: 4,000 batteries Actual: 4,715 batteries	Target: 4,000 portable batteries Actual: 4,700 portable batteries[88]	Target: 4,000 portable batteries Actual: 4,715 portable batteries	Met	$15,249	$15,134

2023 WMP Initiative/ Objective	2023 WMP Activity Target	QDR	EC ARC R1	IE ARC	Attainment Status	Planned Expenditure ($ thousand) (EC ARC R2)	Actual Expenditure ($ thousand) (EC ARC R2)
Reduce PSPS impacts by 15,000 customer events based on Wildfire mitigation projects including but not limited to MSO replacements and Undergrounded miles planned for 2023 9.1.5 PS-07	Reduce PSPS impacts to 15,000 customer events (i.e., power outages) based on planned Wildfire mitigation projects	Target: 15,000 customer events Actual: 15,672 customer events	Target: 15,000 customer events Actual: 15,629 customer events	Target: 15,000 customer events Actual: 15,672 customer events	Met	$0	$0

Appendix B: Substantial Vegetation Management Audit of PG&E

On February 18, 2025, Energy Safety issued its Substantial Vegetation Management (SVM) Audit for PG&E.

In the SVM Audit, Energy Safety found six initiatives where PG&E did not perform all required work and required PG&E to provide a response in its Corrective Action Plan.

After reviewing PG&E's Corrective Action Plan, filed on March 20, 2025, Energy Safety issued its SVM Audit Report on June 25, 2025. The SVM Audit Report found that PG&E did not substantially comply with two initiative activities, and this finding is reflected in previous tables and discussion in this ARC.

The findings from Energy Safety's SVM Audit and SVM Audit Report are summarized in Table 4, below.

Table 4. Energy Safety Findings from PG&E 2023 SVM Audit and SVM Audit Report of WMP Vegetation Management Initiatives

2023 WMP Initiative Tracking ID	2023 WMP Initiative Name	Audit Determination	Audit Report Determination
8.2.2 Vegetation Management Inspections	8.2.2. Vegetation Management Inspections	Did not complete all work	Substantially complied
8.2.3 Vegetation and Fuels Management	8.2.3.1 Pole Clearing	Completed all work	Not addressed in SVM Audit Report
8.2.3 Vegetation and Fuels Management	8.2.3.2 Wood and Slash Management	Did not complete all work	Did not substantially comply

2023 WMP Initiative Tracking ID	2023 WMP Initiative Name	Audit Determination	Audit Report Determination
8.2.3 Vegetation and Fuels Management	8.2.3.3 Clearance	Completed all work	Not addressed in SVM Audit Report
8.2.3 Vegetation and Fuels Management	8.2.3.4 Fall-In Mitigation	Did not complete all work	Did not substantially comply
8.2.3 Vegetation and Fuels Management	8.2.3.5 Substation Defensible Space	Completed all work	Not addressed in SVM Audit Report
8.2.3 Vegetation and Fuels Management	8.2.3.6 High-Risk Species	Completed all work	Not addressed in SVM Audit Report
8.2.3 Vegetation and Fuels Management	8.2.3.7 Fire Resilient Right-of-Way	Completed all work	Not addressed in SVM Audit Report
8.2.3 Vegetation and Fuels Management	8.2.3.8 Emergency Response Vegetation Management	Did not complete all work	Substantially complied
8.2.4 Vegetation Management Enterprise System	8.2.4 Vegetation Management Enterprise System	Completed all work	Not addressed in SVM Audit Report

2023 WMP Initiative Tracking ID	2023 WMP Initiative Name	Audit Determination	Audit Report Determination
8.2.5 Quality Assurance and Quality Control	8.2.5. Quality Assurance and Quality Control	Completed all work	Not addressed in SVM Audit Report
8.2.6 Open Work Orders	8.2.6 Open Work Orders	Did not complete all work	Substantially complied
8.2.7 Workforce Planning	8.2.7. Workforce Planning	Did not complete all work	Substantially complied

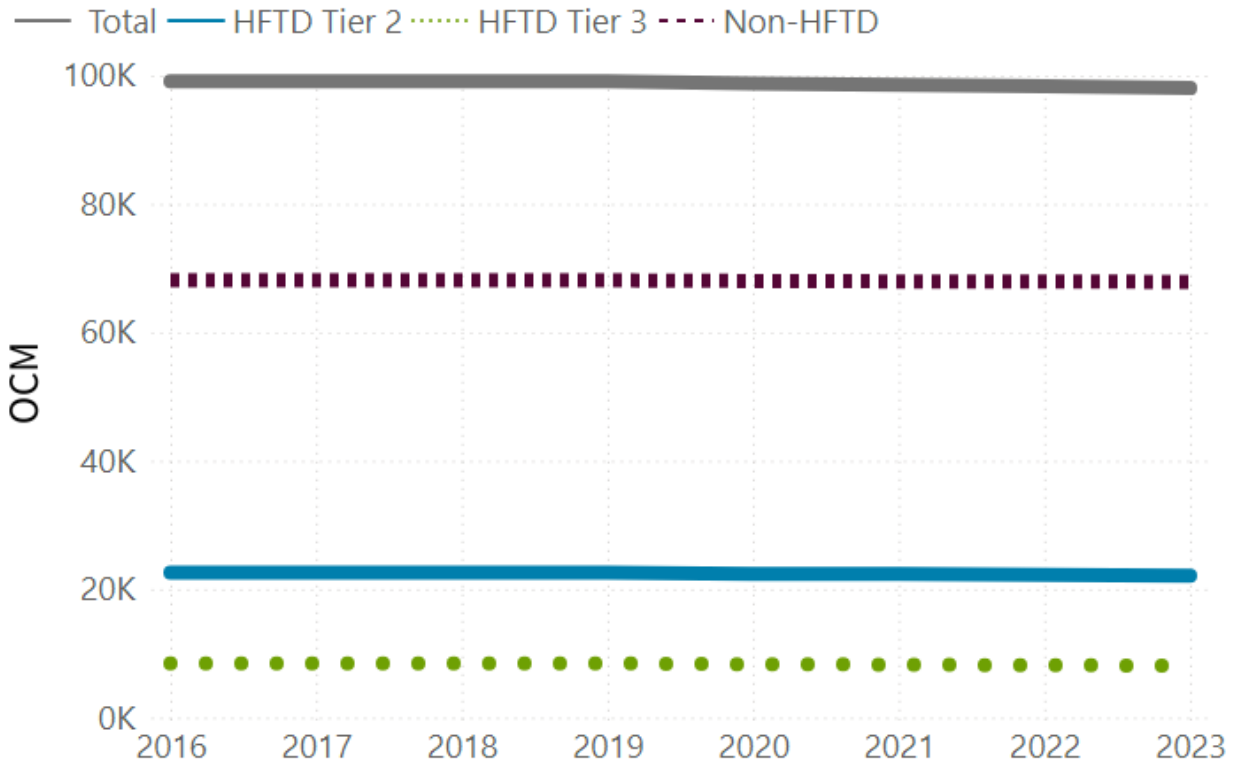
Appendix C: Additional Ignition Risk Analyses

Data for this appendix comes from the QDRs as reported by PG&E.[89]

Overhead Circuit Miles

The number of overhead circuit miles (OCM) has remained mostly constant between 2016 and 2023 (Figure 17).

Figure 17. PG&E Overhead Circuit Miles (2016-2023) by HFTD Tier

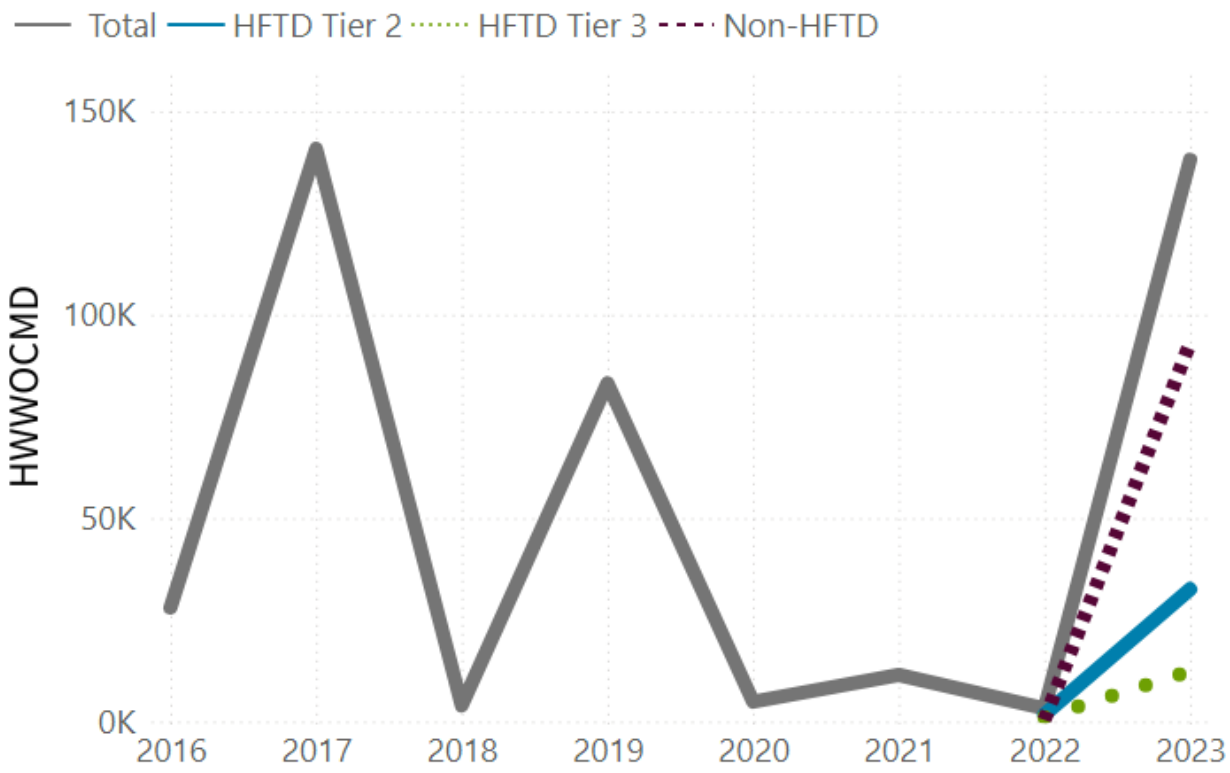


[89] 2023 Q3 QDR, Table 6, 7.1, 7.2, 8; 2023 Q4 QDR, Table 4, 5, 6, and 7.

High Wind Warning Overhead Circuit Mile Days

From 2016 to 2023, the numbers of HWWOCMD fluctuated, with the lowest in 2018 and the highest in 2017 (Figure 18). The values peaked in 2017, showing variability over the years. PG&E provided data for HWWOCMD broken out by the HFTD tiers only for the years 2022–2023, and did not provide those data for the years prior.

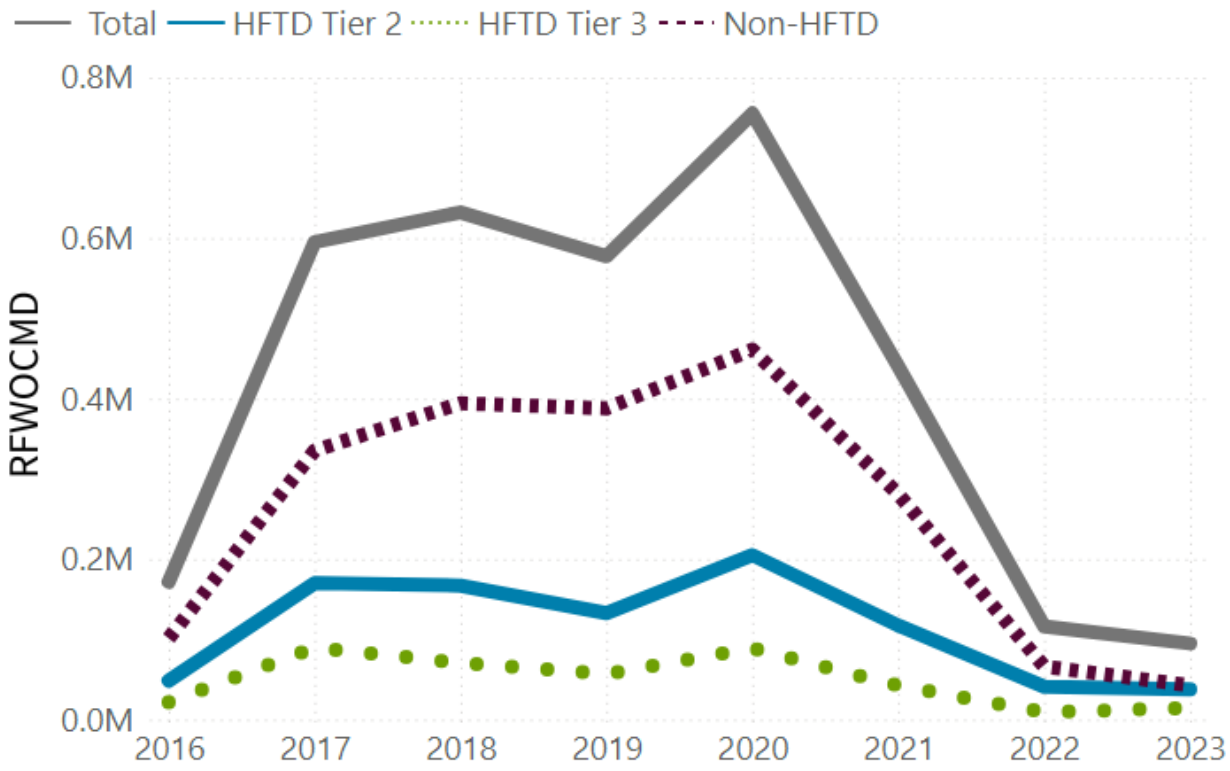
Figure 18. PG&E High Wind Warning Overhead Circuit Mile Days (2016-2023)



Red Flag Warning Overhead Circuit Mile Days

The number of red flag warning overhead circuit mile days (RFWOCMD) generally increased from 2016 to 2020, followed by a drop from 2020 to 2023 in Non-HFTD, HFTD Tier 2, and HFTD Tier 3 areas (Figure 19). The total number of RFWOCMDs in all areas decreased to nearly zero in 2022 and 2023, which results in large fluctuations of the normalized data presented in figures normalized by RFWOCMD throughout this report.

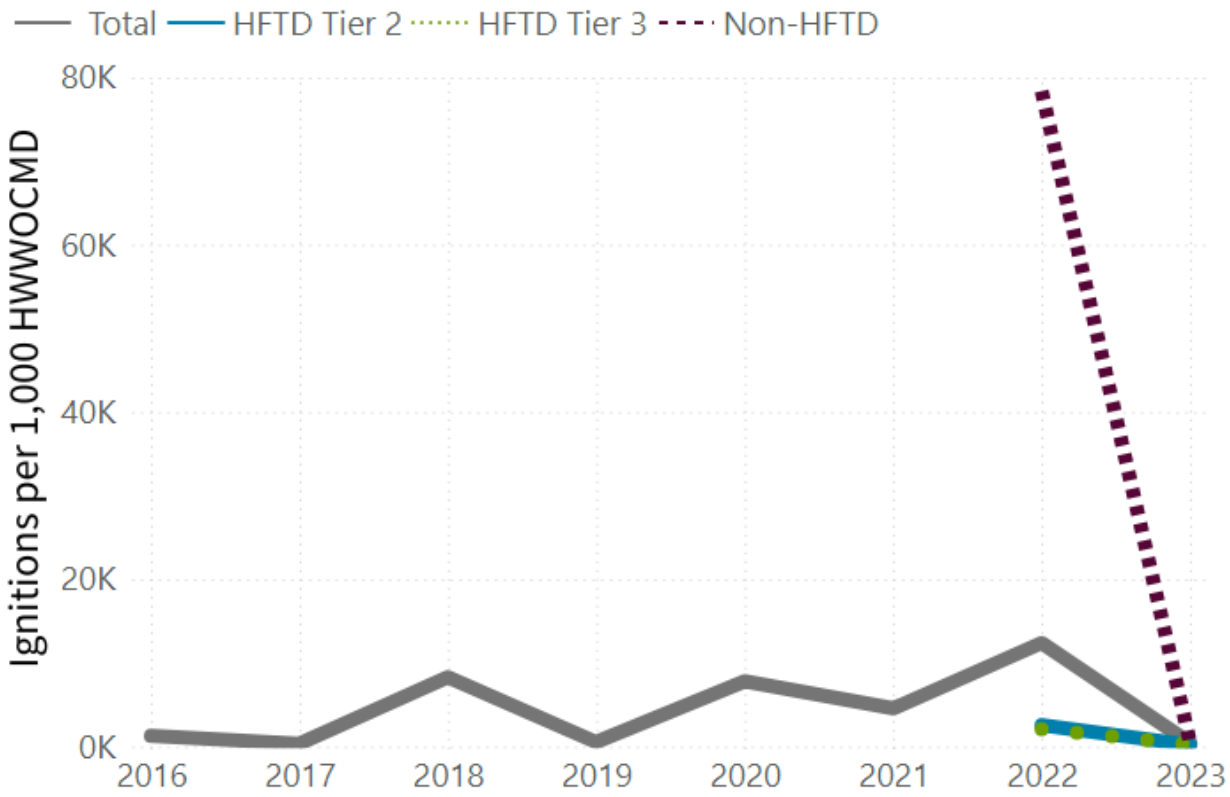
Figure 19. PG&E Red Flag Warning Overhead Circuit Mile Days (2016-2023) by HFTD Tier



Ignitions Normalized by High Wind Warning Overhead Circuit Mile Days by HFTD Tier

When accounting for high wind conditions, the number of ignitions normalized by HWWOCMD shows similar fluctuations between 2016 and 2023, with notable peaks and valleys occurring in different years across HFTD Tier 2 and Tier 3 areas (Figure 20). PG&E provided data for HWWOCMD broken out by HFTD tier only for the years 2022–2023, and did not provide those data for the years prior. In years where the total number of HWWOCMDs is present, such as 2022, the normalized values appear relatively large due to division by a very small number. These large values do not reflect the actual number of raw ignitions but rather the normalization effect.

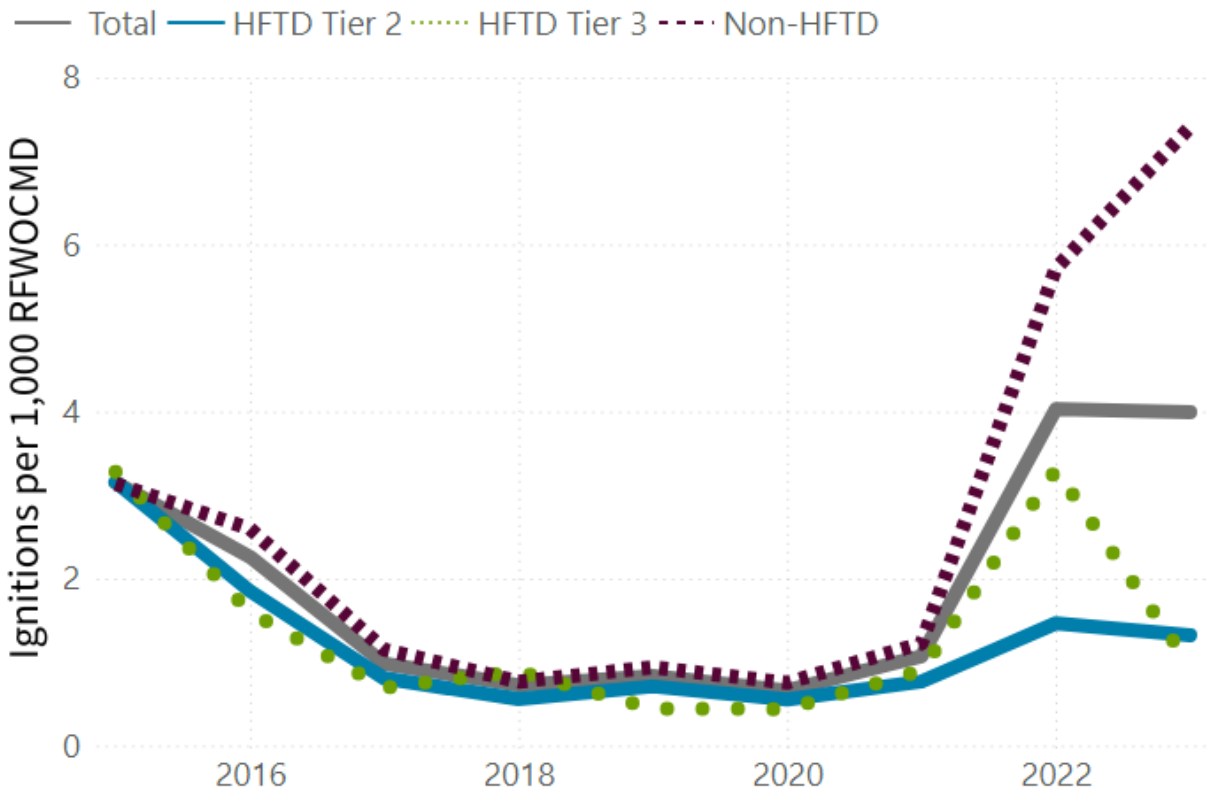
Figure 20. PG&E Ignitions Normalized by HWWOCMD (2016-2023)



Ignitions Normalized by Red Flag Warning Overhead Circuit Mile Days by HFTD Tier

Ignitions normalized by RFWOCMD show fluctuations from 2016 to 2023, with peaks in certain years and varying patterns across HFTD Tier 2, HFTD Tier 3, and Non-HFTD areas (Figure 21). In years where the total number of RFWOCMDs is nearly zero, such as 2016 and 2022, the normalized values appear relatively large due to division by a very small number. These large values do not reflect the actual number of raw ignitions but rather the normalization effect.

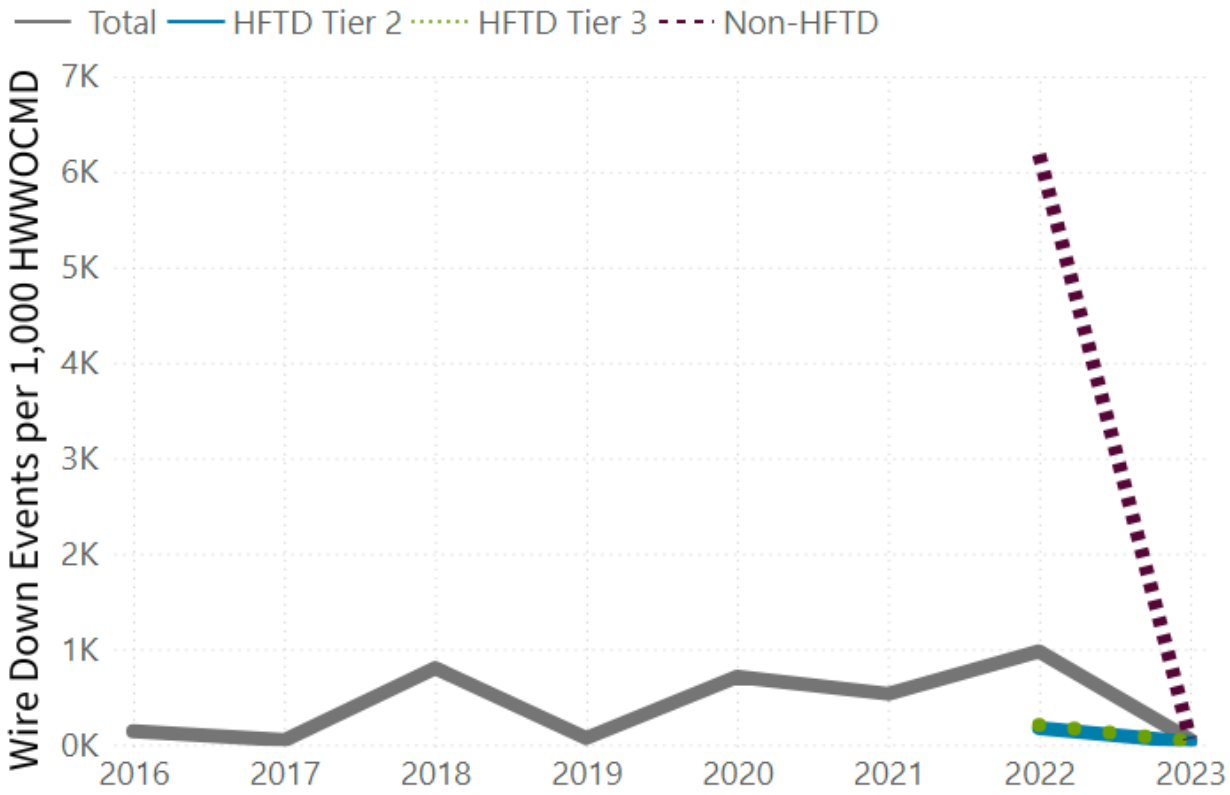
Figure 21. PG&E Ignitions Normalized by RFWOCMD (2016-2023) by HFTD Tier



Wire Down Events Normalized by High Wind Warning Overhead Circuit Mile Days

When accounting for high wind conditions, wire down events normalized by HWWOCMD fluctuate similarly from 2016 to 2023, though peaks and valleys vary across HFTD Tier 2, HFTD Tier 3, and Non-HFTD areas. The data highlights variability in wire down events relative to high wind conditions, with distinct patterns for each HFTD tier. PG&E provided HWWOCMD data broken down by HFTD tier only for 2022 to 2023, and did not provide those data for the years prior (Figure 22). In years where the total number of HWWOCMDs is present, such as 2022, the normalized values appear relatively large due to division by a very small number. These large values do not reflect the actual number of raw ignitions but rather the normalization effect.

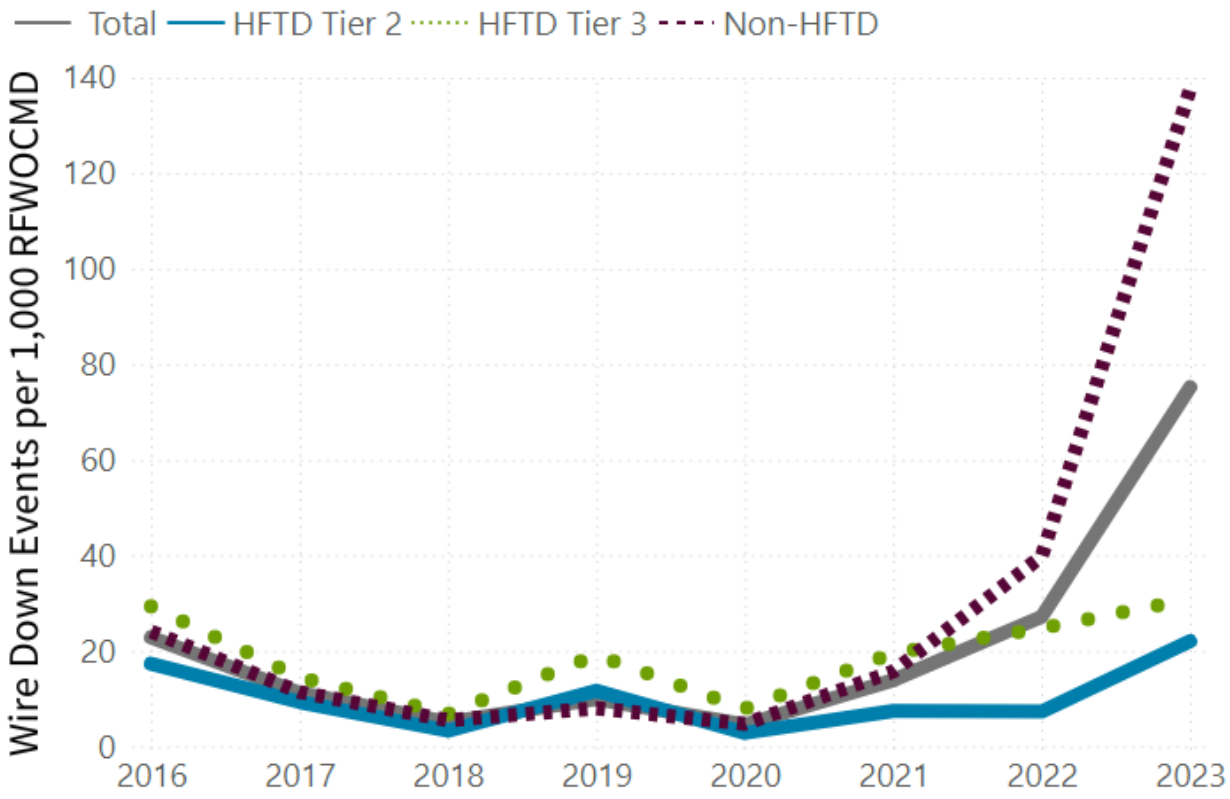
Figure 22. PG&E Wire Down Events Normalized by HWWOCMD (2016-2023)



Wire Down Events Normalized by Red Flag Warning Overhead Circuit Mile Days

Wire down events normalized by RFWOCMD show fluctuations from 2016 to 2023, with peaks and valleys in different years across HFTD Tier 2, HFTD Tier 3, and Non-HFTD areas. In years where the total number of RFWOCMDs is nearly zero, such as 2018 and 2020, the normalized values appear relatively large due to division by a very small number. These large values do not reflect the actual number of raw wire down events but rather the normalization effect. The data indicates variability in wire down events relative to red flag warning conditions, with distinct patterns observed for each HFTD tier over the specified period (Figure 23).

Figure 23. PG&E Wire Down Events Normalized by RFWOCMD (2016-2023) by HFTD Tier

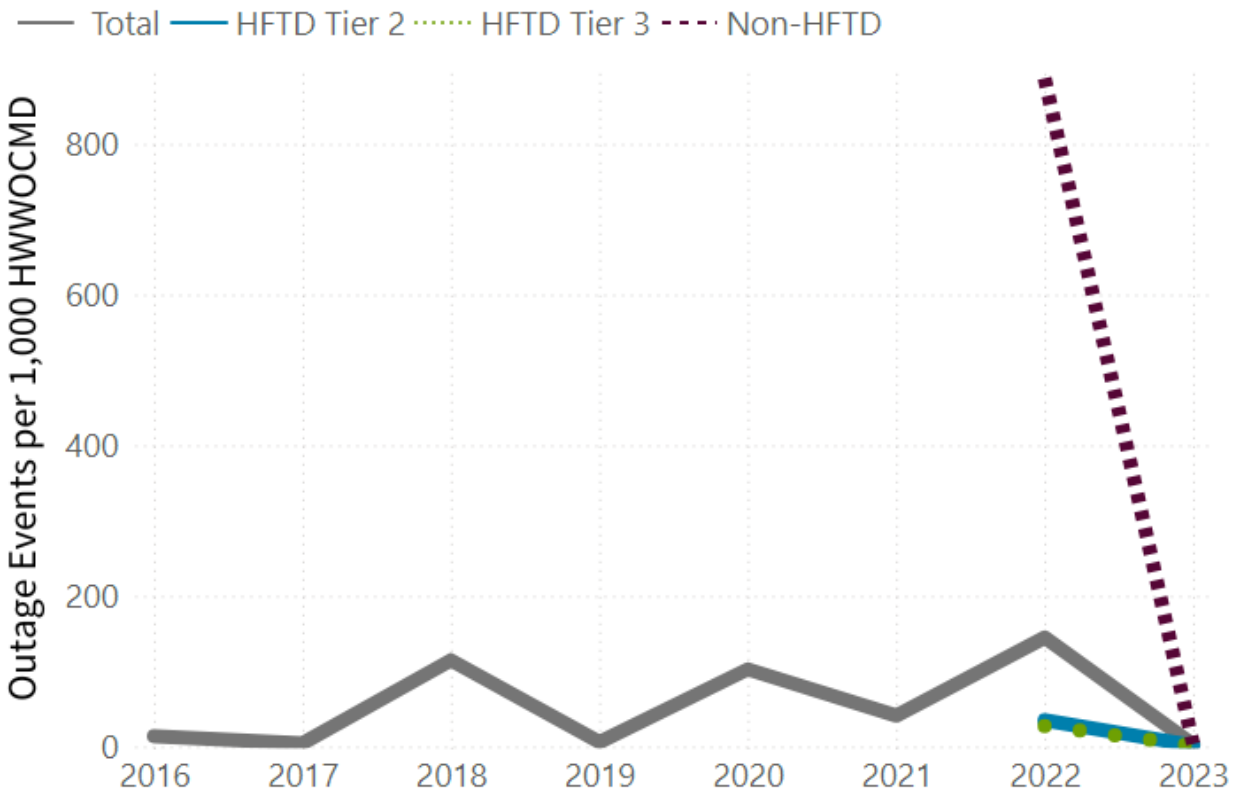


Outage Events Normalized by High Wind Warning Overhead Circuit Mile Days

To view the outage event patterns with respect to year-to-year weather variations, outage event counts have been normalized by HWWOCMD.

Once the outage event counts are adjusted for year-to-year variances in high wind warning days, outage events fluctuate from 2016 to 2023, with peaks in 2018, 2020, and 2022. From 2021 to 2022, there is an increase in normalized outage events. By 2023, the data suggest a continued reduction in normalized outage events across HFTD Tier 2, Tier 3, and Non-HFTD areas. PG&E provided HWWOCMD data broken down by HFTD tier only for 2022–2023, leaving prior years blank (Figure 24). In years where the total number of HWWOCMDs is present, such as 2022, the normalized values appear relatively large due to division by a very small number. These large values do not reflect the actual number of raw ignitions but rather the normalization effect.

Figure 24. PG&E Outage Events Normalized by HWWOCMD (2016-2023)



Outage Events Normalized by Red Flag Warning Overhead Circuit Mile Days

Unplanned outage events normalized by RFWOCMD show fluctuations from 2016 to 2023, with an increase observed from 2020 to 2022 (Figure 25). In 2018 and 2020, the total number of RFWOCMDs are low, which results in relatively large values when the data are normalized due to dividing by a very small number. These large values do not reflect the number of raw outage events but rather the normalization effect. By 2023, the data suggests an increase in normalized outage events across HFTD Tier 2, Tier 3, and Non-HFTD areas.

Figure 25. PG&E Outage Events Normalized by RFWOCMD (2016-2023) by HFTD Tier