PACIFIC GAS AND ELECTRIC COMPANY

ANNUAL REPORT ON COMPLIANCE FOR 2022 WILDFIRE MITIGATION PLAN

MARCH 31, 2023

Pacific Gas and Electric Company
Annual Report on Compliance for 2022 Wildfire Mitigation Plan
(March 31, 2023)

Consistent with the Office of Energy Infrastructure Safety's (Energy Safety) *Compliance Operational Protocols* (Operational Protocols) issued on February 16, 2021, and California Public Utilities Code Section 8386.3(c)(1)[1], Pacific Gas and Electric Company (PG&E) respectfully submits this Annual Report on Compliance (2022 Annual Report) for our 2022 Wildfire Mitigation Plan (WMP).

I. EXECUTIVE SUMMARY

PG&E substantially complied with its 2022 WMP and that compliance had real-world results and benefits for our customers and the communities that we serve. Our substantial compliance is evidenced by our implementation of WMP initiatives, achieving our stated objective and goals, and reducing wildfire risk.

PG&E's 2022 WMP included 54 initiatives that were developed to meet our objective of reducing the risk and consequences of wildfires associated with utility electrical equipment. To achieve this objective, we structured our 2022 WMP initiatives around three strategic goals: (1) reducing wildfire potential; (2) reducing the impact of EPSS and PSPS events; and (3) improving situational awareness.

Throughout 2022, our internal teams and contract partners worked to implement our WMP initiatives, in addition to implementing existing programs that also reduce the risks and consequences of wildfires such as routine vegetation management and inspections. As a result of these efforts, we were able to meet or exceed, and in some cases substantially exceed, 52 of the 54 WMP initiative targets. For the remaining two initiatives, we made significant progress and developed corrective plans for continuous improvement. Our initiative target implementation results are described in detail in Sections III(a) and (b) below.

By implementing our 2022 WMP initiatives, we were able to achieve our objective and goals and significantly reduce wildfire risk. Specifically, our 2022 WMP implementation resulted in substantial wildfire risk reductions compared to historical averages including:

- 34% reduction in CPUC-reportable ignitions in High Fire Threat Districts (HFTD);
- 35% reduction in CPUC-reportable fire ignitions in High-Fire Risk Areas (HFRA);
- 59% reduction in CPUC-reportable ignitions caused by PG&E equipment in Tier 2 and Tier 3 HFTDs;

[1] All statutory references in this report are to the California Public Utilities Code unless otherwise noted.

- 40% reduction in CPUC-reportable ignitions caused by vegetation contact in Tier 2 and Tier 3 HFTDs; and,

- 99% reduction in acres impacted by wildfires as compared to the three-year average from 2018 to 2020.

In addition, our initiatives reduced the duration of Enhanced Powerline Safety Setting (EPSS) outages by 56% and our customers did not experience any Public Safety Power Shutoff (PSPS) events in 2022. The reduction in wildfire risk and achieving our objective and goals is described in more detail in Section III(a) below, and PSPS event work is described in Section III(d).

In terms of funding, we spent 89% of the forecasted budget and were able to achieve significant cost savings for our ratepayers. In many cases, our actual expenses were lower than forecasts because we were able to achieve cost savings and efficiencies. In other cases, resources and funding were reprioritized to address emerging needs or higher priority work. We also substantially increased funding for certain programs such as distribution pole replacements and distribution and transmission system maintenance, both of which mitigate equipment and pole failure and reduce wildfire risk. We also increased funding for programs such as fuel (wood) management, which is an important part of our overall vegetation management program. Funding is described in more detail in Section III(c).

The remainder of this 2022 Annual Report describes the California Public Utilities Commission's (CPUC) approved criteria for evaluating 2022 WMP substantial compliance in Section II and provides the information required by the Operational Protocols in Section III.[2]

II. CRITERIA FOR EVALUATING 2022 WMP SUBSTANTIAL COMPLIANCE

Under Section 8389(c) and (d), the Legislature directed: (1) Energy Safety to annually provide an analysis and recommendation concerning the process for determining an electrical corporation's compliance with its approved wildfire mitigation plan; and (2) the CPUC, after consulting with Energy Safety, to adopt and approve on an annual basis a wildfire mitigation plan compliance process.

For the 2022 WMPs, the CPUC approved the wildfire mitigation plan compliance process in Resolution SPD-7 issued on December 16, 2022. Resolution SPD-7 largely adopted Energy Safety's recommended compliance process with some clarifications. With regard to the criteria for evaluating substantial compliance, SPD-7 provides:

> Energy Safety presents the findings of its review of an electrical corporation's compliance with the WMP in its Annual Report on Compliance (ARC). In performing the review, Energy Safety considers the totality of all compliance assessments completed with respect to an electrical corporation's approved WMP. This includes all inspection, audit, investigation, and data analysis work

[2] The specific Operational Protocol requirements are in bold and italics.

performed by Energy Safety, as well as separate electrical corporation and independent third-party evaluations of compliance.

Energy Safety's evaluation primarily considers the matter of whether the electrical corporation substantially complied with its WMP. In consideration of this matter, Energy Safety evaluates whether the electrical corporation implemented the wildfire mitigation initiatives in its approved WMP, looking specifically at whether the electrical corporation funded and performed the work stated for each initiative. Energy Safety also considers the electrical corporation's stated goals and objectives of its plan, its performance of initiatives essential to reducing wildfire risk and achieving its objectives, and the ultimate performance of its infrastructure relative to wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

In performing the review, Energy Safety considers information (1) provided by the electrical corporation and related to compliance with its WMP, (2) provided by the independent evaluator's review of the electrical corporation's compliance with its WMP, (3) documented in Energy Safety's field inspections, (4) documented in Energy Safety's audits, (5) developed through Energy Safety's analysis of data provided by the electrical corporation, and (6) provided by the electrical corporation in response to information requests or during meetings with Energy Safety. For data analysis, Energy Safety includes, but is not limited to, the performance metrics adopted in accordance with Pub. Util. § 8389(d)(1).[3]

III. RESPONSES TO ANNUAL REPORT ON COMPLIANCE QUESTIONS

a) An assessment of whether the EC met the risk reduction intent by implementing all of their approved WMP initiatives; i.e., the degree to which initiative activities have reduced ignition probabilities;

i. If the EC fails to achieve the intended risk reduction, EC shall provide a detailed explanation of why and a reference to where associated corrective actions are incorporated into their most recently submitted WMP.

PG&E achieved its intended risk reduction by implementing its Energy Safety-approved 2022 WMP initiatives. PG&E's 2022 WMP had an "over-arching objective" to reduce the risk and consequences of wildfires associated with utility electrical equipment.[4] To achieve this objective, we structured our 2022 WMP around three strategic goals: (1) reduce wildfire potential; (2) reduce the impact of EPSS and PSPS events; and (3) improve situational awareness.

[3] Resolution SPD-7, Attachment 1, pp. 6-7 (footnotes omitted).

[4] 2022 Revised WMP, p. 269.

In this section, we describe how we achieved our overall 2022 WMP objective and goals, the implementation of our 2022 WMP initiatives, and how the implementation of these initiatives met our risk reduction intent and reduced ignition probabilities.

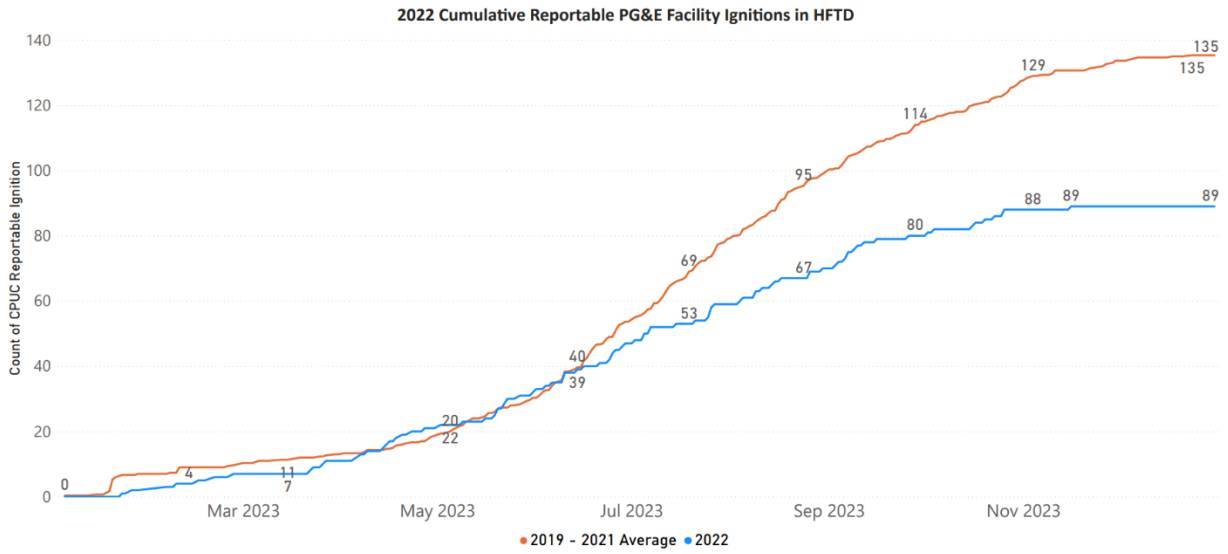
Reduction in Wildfire Risk/Potential

Our first 2022 WMP goal was to reduce wildfire potential. One of the most important ways to reduce wildfire potential is to reduce ignition probabilities and thus reduce the number of actual ignitions caused by electrical equipment. While there are a number of factors that can cause an ignition to become a catastrophic wildfire, such as weather and fuel conditions, reductions in ignition probabilities and actual ignitions directly reduce the potential for a catastrophic wildfire. As a result of the implementation of 2022 WMP initiatives, PG&E saw a substantial reduction in ignitions in HFTD and HFRA areas in 2022 as compared to historical averages, as well as a reduction in events such as vegetation contact that could cause an ignition:

- 34% reduction in CPUC-reportable ignitions in HFTD as compared to the three-year average from 2019-2021;
- 35% reduction in CPUC-reportable fire ignitions in HFRA compared to the three-year average from 2019-2021;
- 59% reduction in CPUC-reportable ignitions caused by PG&E equipment in Tier 2 and Tier 3 HFTDs as compared to the three-year average from 2019-2021;
- 40% reduction in CPUC-reportable ignitions caused by vegetation contact in Tier 2 and Tier 3 HFTDs as compared to the three-year average from 2019-2021;
- 48% reduction in vegetation caused outages in HFTDs as compared to a three-year average from 2019-2021; and,
- Ignitions on EPSS enabled circuits were 68% lower than the weather-normalized 2018 to 2020 three-year average.

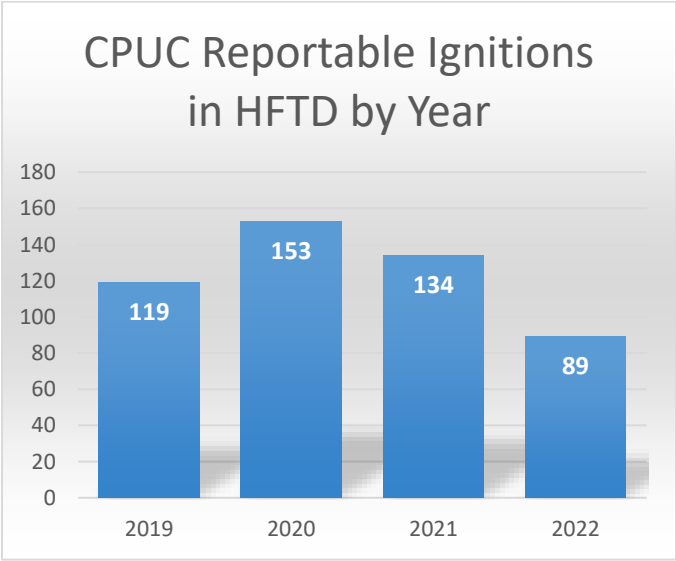
Figure 1 below depicts the reduction in CPUC-reportable ignitions in HFTDs in 2022 as compared to the three-year average from 2019-2021.

FIGURE 1: 2022 CPUC-REPORTABLE IGNITIONS IN HFTD AREAS COMPARED TO THE THREE YEAR AVERAGE (2019-2021)



Several additional graphics help highlight the reduction in ignitions that occurred in 2022 as compared to historical averages. As indicated above, for CPUC-reportable ignitions in HFTD areas, there was a substantial reduction in 2022 compared to the prior three years, as depicted in Figure 2:

FIGURE 2: CPUC-REPORTABLE HFTD AREA IGNITIONS BY YEAR



In addition, there were significant reductions in CPUC-reportable ignitions caused by PG&E equipment and vegetation contact, as depicted in Figures 3 and 4 below.

FIGURE 3: CPUC-REPORTABLE IGNITIONS CAUSED BY PG&E EQUIPMENT IN HFTD AREAS BY YEAR

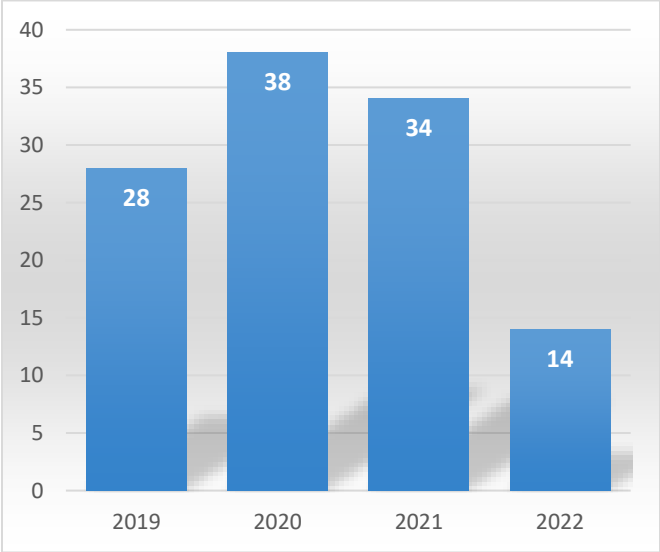
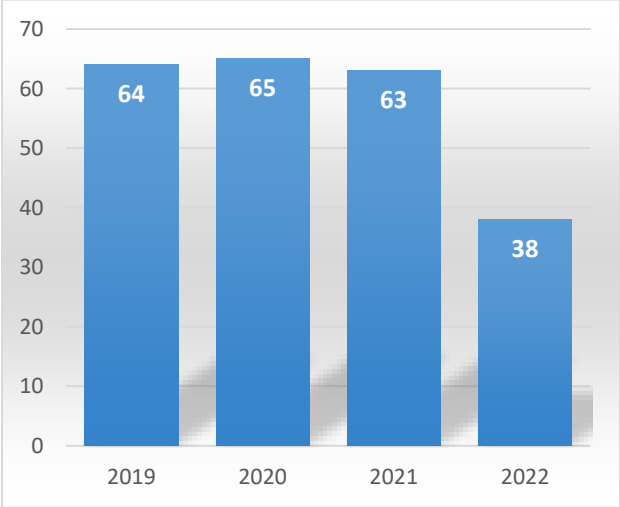


FIGURE 4: CPUC-REPORTABLE IGNITIONS CAUSED BY VEGETATION CONTACT IN HFTD AREAS BY YEAR



Finally, our 2022 actual ignitions were less than forecasted in our 2022 WMP. In the 2022 WMP, we forecasted in Table RN-PG&E-22-07-01 the ignition reductions that would occur as a result of the 2022 WMP initiatives and programs.[5] Table 1 below compares the forecast in Table RN-PG&E-22-07-01 for HFTD ignitions with the 2022 actual ignition data. As indicated in Table 1, our actual HFTD ignitions were almost 17% lower than forecast and were 42.6% lower than the five-year ignition average between 2015 and 2020.

[5] 2022 Revised WMP, p. 112.

Table 1: HFTD Ignition Data – Updated Version of Table RN-PG&E-22-07-01

	Voltage Class	2015-2020 Average Observed	2021 Observed	2022 Forecast	2022 Observed
HFTD	Distribution	144	129	97	84
HFTD	Transmission	11	4	10	5
HFTD	Total (T&D)	155	133	107	89

Reduction In Wildfire Consequences and PSPS/EPSS Impacts

Our overall objective was to reduce wildfire consequences and our second 2022 WMP goal was to reduce the impact of EPSS and PSPS events. Our 2022 WMP initiatives helped reduce wildfire consequences, as well as the impact of EPSS and PSPS, so that both our overall objective and goal was achieved. Specifically, in 2022, PG&E and our customers experienced:

- 99% reduction in acres impacted by wildfires as compared to the three-year average from 2018 to 2020;
- EPSS outage durations were, on average, 56% less than in 2021; and,
- No PSPS events.[6]

Improved Situational Awareness

Our third 2022 WMP goal was to improve situational awareness, which helps achieve our overall objective of reducing wildfire risk. We achieved this goal by installing weather stations and high-definition cameras, deploying new technologies such as Distribution Fault Anticipation, Line Sensors, and Early Fault Detection, and continuing to significantly improve our risk modeling. We were able to achieve, and in a number of cases significantly exceed, all of our initiative targets related to situational awareness.

2022 WMP Initiative Targets

We were able to achieve our 2022 WMP objective and goals by implementing our 2022 WMP initiatives. In 2022, we identified and tracked 54 initiative targets that were designed to help us meet our 2022 WMP overall objective of reducing the risk and consequences of wildfires associated with utility electrical equipment and our strategic goals to reduce wildfire potential, reduce the impact of PSPS and EPSS, and improve situational awareness.[7] The 54 initiative

[6] We recognize that 2022 wind conditions associated with fire potential were favorable, and as a result, we did not have to utilize PSPS as a mitigation option. However, with the prolonged drought, there was significantly more exposure to Fire Potential Index (FPI) Rating R3 and above conditions with respect to what would have been expected in an average year.

[7] 2022 Revised WMP, pp. 269-270.

targets focused on wildfire mitigation activities such as situational awareness and forecasting, grid design and system hardening, asset management and inspections, vegetation management and inspections, grid operations and protocols, and stakeholder cooperation and community engagement. Some of the initiatives had quantitative targets while others had qualitative targets.

In 2022, we met, and in many cases exceeded, all but two of our WMP initiative targets. Table 2 below provides the key quantitative targets for our 2022 WMP, with the actual work performed and completion percentage for each target.

Table 2: 2022 WMP Key Quantitative Target Results				
Plan Area	**Wildfire Mitigation Activity**	**Target**	**Actual**	**% of Plan**
Situational Awareness and Forecasting	Weather Stations - Installations and Optimizations	100	111	**111%**
	High-Definition Cameras - Installation	98	100	**102%**
	Distribution Fault Anticipation (DFA) - Installation	40	48	**120%**
	Early Fault Detection (EFD) - Installations	2	2	**100%**
	Line Sensor (LS) - Installations	40	63	**158%**
Grid Design and System Hardening	Expulsion Fuse - Removal	3,000	3,085	**103%**
	Distribution Sectionalizing Devices - Install and SCADA commission	100	124	**124%**
	Transmission Line Sectionalizing - Install and SCADA commission	15	18	**120%**
	Distribution Line Motorized Switch Operator (MSO) - Replacements	50	57	**114%**
	SCADA Recloser Equipment - Installations	17	17	**100%**
	Fuse Savers (Single Phase Reclosers) - Installations	80	81	**101%**
	Temporary Distribution Microgrids	4	4	**100%**
	Rincon Transformer Fuse - Replacement	1	1	**100%**
	Emergency Back-up Generation	15	15	**100%**
	10K Undergrounding	175	179.7	**103%**
	System Hardening - Distribution	470	483	**103%**

Table 2: 2022 WMP Key Quantitative Target Results				
Plan Area	**Wildfire Mitigation Activity**	**Target**	**Actual**	**% of Plan**
	System Hardening - Transmission	33	37.8	**114%**
	Surge Arrestor - Removals	4,590	4,621	**100%**
	Remote Grid - Operate New SPS Units	2	2	**100%**
	Butte County Rebuild - Undergrounding	55	57.8	**105%**
Asset Management and Inspections	Detailed Inspections - Distribution	396,000	398,184	**100%**
	Detailed Inspection Transmission – Ground	39,000	39,005	**100%**
	Detailed Inspection Transmission – Climbing	1,832	1,835	**100%**
	Detailed Inspection Transmission – Aerial	39,000	39,004	**100%**
	Infrared Inspections - Distribution	9,000	9,560	**106%**
	Supplemental Inspections - Substation Distribution	86	86	**100%**
	Supplemental Inspections - Substation Transmission	43	43	**100%**
	Supplemental Inspections - Hydroelectric Substations/Powerhouses	52	52	**100%**
	HFTD/HFRA Open Tag Reduction - Distribution	55,000	45,951	**83%**
	HFTD/HFRA Open Tag Reduction - Transmission	18,000	21,145	**117%**
Vegetation Management	Enhanced Vegetation Management - Miles	1,800	1,923.8	**106%**
	Pole Clearing Program	7,000	8,356	**119%**

Table 2: 2022 WMP Key Quantitative Target Results				
Plan Area	**Wildfire Mitigation Activity**	**Target**	**Actual**	**% of Plan**
and Inspections	LiDAR Ground Inspections - Distribution	2,000	3,358.66	**167%**
	LiDAR Routine Inspections - Transmission	17,867[8]	17,867	**100%**
	Defensible Space Inspections - Distribution Substation	132	132	**100%**
	Defensible Space Inspections - Transmission Substation	55	55	**100%**
	Defensible Space Inspections - Hydroelectric Substations and Powerhouses	61	61	**100%**
	Utility Defensible Space - Distribution	7,000	7,168	**102%**
	Pole Clearing in State Responsibility Areas	80,258	80,208	**100%**[9]
Grid Operations and Protocols	EPSS - Install Settings on Distribution Line devices	3,580	3,580	**100%**
	EPSS - Reliability Improvements	50	50	**100%**

[8] We had initially established target of complete LiDAR inspection of approximately 18,000 circuit miles of transmission lines, barring External Factors. We completed Transmission LiDAR inspection of 17,867 circuit miles. During 2022, we informed Energy Safety of an error in the unit of measure used to define the 2022 WMP target for this initiative. We explained that our target of approximately 18,000 "circuit miles" was intended to have meant "line miles" per the Energy Safety definition (resulting in 17,867 circuit miles vs. 18,194 line miles). Thus, this initiative target was 100% complete.

[9] We reported this commitment as completed with 80,208 distribution poles inspected and cleared, where clearance was needed. The remaining 50 poles from the original target number were reclassified to the Pole Clearing Program. Those poles were shifted out of the State Responsibility Area in our database hence the reclassification. For additional context, please refer to Appendix A.

Table 2: 2022 WMP Key Quantitative Target Results				
Plan Area	**Wildfire Mitigation Activity**	**Target**	**Actual**	**% of Plan**
Stakeholder Cooperation & Community Engagement	Community Engagement - Meetings	22	23	**104%**

A summary of the status and performance of all 54 initiative targets is included in Appendix A. In response to subpart (b) below, we provide a detailed description of the two initiative targets that were missed.

b) A full and complete listing of all operational changes made to WMP initiatives, an explanation of why the changes were necessary, and an assessment of whether the changes achieved the same risk reduction intent;

In this section of the 2022 Annual Report, we provide a description of three categories of operational changes: (1) missed initiative targets[10]; (2) targets and initiatives subject to Change Orders; and (3) operational measures incremental to the 2022 WMP.

1. Missed Initiative Targets

In 2022, we missed two WMP initiative targets:

> **Target ID E.05 Vegetation Management – Quality Assurance / Quality Verification:** As part of the Revision Notice[11], Energy Safety directed PG&E to establish a 95% Acceptable Quality Level (AQL) score for audits/reviews for seven vegetation management programs. This initiative target had 14 different components, 7 of which related to the number of audits/reviews performed and 7 which related to programs achieving a 95% AQL score. In our Revision Notice response, we explained that we may not be able to meet this target given that it was established midway through the year and a lot of the work had already taken place, especially for pole clearing.[12] While were able to achieve the specified number of audits/reviews for the seven vegetation management programs, we were unable to achieve a 95% AQL score for 4 of the 7 programs, which are identified below:
>
> - QAVM Procedure Audit 76.0% AQL
> - QVVM Distribution 91.3% AQL
> - QVVM Pole Clearing 90.3% AQL

[10] For the Quarterly Data Response (QDR), Energy Safety directed that the status of an initiative be designated as planned, in progress, completed, delayed, or cancelled. Thus, in the QDR, these two initiatives were listed as "delayed." For purposes of the 2022 Annual Report, we are using the term "missed" as it more accurately describes the status of the initiative target for overall annual compliance purposes. The term "missed" used in this 2022 Annual Report is the same as the term "delayed" in the QDR.

[11] *Office of Energy Infrastructure Safety's Issuance of Revision Notice for Pacific Gas and Electric Company's 2022 Wildfire Mitigation Plan Update and Notice of Extension of Office of Energy Infrastructure Safety's Determination per Public Utilities Code 8389.3(a),* issued May 26, 2022 and updated June 6, 2022 (Revision Notice).

[12] *PG&E 2022 Wildfire Mitigation Plan Response to Revision Notice*, dated June 27, 2022, p. 43.

- QVVM Transmission 94.2% AQL

Of these four programs, two of these programs (QVVM Distribution and QVVM Transmission) had 2021 AQL scores and these programs increased their AQL scores in 2022 by between 3.41% and 6.25%. In order to address this issue going forward, we are revising and updating our procedures and standards, as well as instituting additional controls and corrective action plans. The corrective action plans resulting from the initiative are described in more detail in Appendix A.

Although we did not meet the AQL targets for four of the audits/reviews, we believe that our overall vegetation management program achieved risk reduction by removing limbs or trees that could potentially contact electrical infrastructure. We met or exceeded our other vegetation management initiative targets and in 2022 saw a 40% reduction in CPUC-reportable ignitions caused by vegetation contact in Tier 2 and Tier 3 HFTDs as compared to the three-year average from 2019-2021. In addition, with the corrective plan we will be implementing for this initiative, we expect to see continued improvement in the quality of our vegetation management work.

Target ID D.10 HFTD/HFRA Open Tag Reduction - Distribution: This initiative target involved the closure of a minimum of 55,000 distribution maintenance tags, barring external factors, for facilities located in HFTD and HFRA that were in our workplan as of June 30, 2022. Our 2022 tag population included both ignition and non-ignition risk tags in alignment with our quarterly and annual WMP target language. Initiative Target D.10, like Target E.05, was the result of the Revision Notice. This target was specific to closing Priority E maintenance tags, given that these tags constituted the largest percentage of risk in our distribution tag backlog.

While we did not meet the target of a minimum of 55,000 HFRA/HFTD priority E tags, we were able to exceed 55,000 total tags closed for the year. Specifically, we had higher priority work arise after our Revision Notice submission pertaining to A and B tags, and addressing these A and B tags was appropriate given that they are higher priority and pose a greater risk to our customers. Thus, although we were only able to complete 45,951 E tags in 2022, we also completed priority A, B and F tags, which brought our total number of completed tags to 58,275 for the year. A and B tags are prioritized over E tags because of shorter regulatory compliance requirements and A and B tags are generally greater higher risk than E tags. Thus, while we did not meet this target, we continued to prioritize our commitment to working the riskiest tags first and preventing A and B tags from being added to the backlog. Consistent with Energy Safety's guidance, we have prioritized resolving our asset tag backlog and will describe in detail our continued strategy for achieving this goal, including corrective actions to address the delay in resolving E tags, in our 2023 WMP.

2. Initiatives and Targets Subject to Change Orders

No change orders were submitted for initiatives or targets in 2022.

3. Operational Measures Incremental to the 2022 WMP

In 2022, we implemented two additional layers of protection to the existing EPSS protection scheme. Both were implemented to address high impedance faults, a fault type that "looks like" electrical load on the primary distribution system to traditional protection schemes, and therefore is difficult to detect and can lead to ignitions. These additional operational measures facilitated a further reduction in the potential for a wildfire ignition.

First, we rolled out the Partial Voltage Force Out protocol. As described in our 2023 WMP, we enabled single phase and polyphase SmartMeter devices to send real-time alarms to the Distribution Management System when they detect partial voltage conditions.[13] If equipment is in a condition that may increase wildfire risk and partial voltage conditions are detected, Control Center Operators can force out an upstream Supervisory Control and Data Acquisition (SCADA) device at the location where multiple partial voltage alarms are received. This technology helps PG&E detect and locate a downed wire within minutes, instead of relying on an employee assessment or customer alert. This can reduce the amount of time a downed line is energized and could potentially cause an ignition. If an ignition does occur, first responders can extinguish it more quickly.

Second, after extensive laboratory testing, we began the process of engineering and installing Down Conductor Detection (DCD) on existing recloser controllers where feasible. DCD technology can improve the ability to detect and isolate high impedance faults before an ignition can occur, much more quickly (~1 second) and at lower thresholders (~1 amp) than existing Sensitive Ground Fault (SGF); typically, 15 seconds and 15 amps) protection. DCD technology and the algorithms associated with it are hardware vendor specific. As such, installation of these settings began on existing available devices, and efforts in 2023 and beyond will focus on retrofitting existing controllers and installation of additional new devices.

c) Descriptions of all planned WMP initiative spend vs actual WMP initiative spend and an explanation of any differentials between the planned and actual spends.

In 2022, PG&E's actual expense and capital expenditures on WMP initiatives were 89% of the forecasted amount. Our forecast for our 2022 WMP mitigation work was $3.07 billion in expense and $2.89 billion in capital, for a total of $5.96 billion.[14] Our actual spending was $2.61 billion for expense and $2.69 billion for capital, which was 85% and 93% of the forecasted amount, respectively. Much of this variance was due to efficiencies in performing work, favorable environmental conditions, timing variance of our undergrounding work, and strategic opportunities to reduce costs for our customers while still completing our mitigation work.

Appendix B to this report provides financial information that compares the forecast spend versus the actual spend for all of our 2022 WMP initiatives. The column entitled "Variance Driver" includes explanations for each variances between the forecast and actual spend that meet both of

[13] 2023-02-13 PGE 2023 WMP, p. 463.

[14] The forecasted spending was included in Table 3.1-2 of the 2022 Revised WMP and was broken down by category.

the following criteria: (1) the variance meets or exceeds $10 million; and (2) the variance constituted a greater than 20% change in an initiative's planned total expenditure.

In total, out of the 130 initiatives in our 2022 WMP, there were 12 initiatives where our expense spending exceeded the variance threshold described above and 13 capital initiatives that met this criteria.[15] Notable variances in expense spending include over $59 million saved on EPSS patrols[16] due to efficiencies made by our EPSS program, and over $68 million and $72 million saved on PSPS events and PSPS mitigation work[17] due to favorable weather conditions precluding the need for PSPS events and lower costs for temporary generators than anticipated. It should also be noted that there were initiatives that required substantially more expense spending than was initially forecast, including our fuel management program[18] which required over $67 million in additional funding due to significantly more customers opting into the program and a higher unit cost to perform the work.[19]

For capital spending, notable variances include $274 million on updates to grid topology (*i.e.*, system hardening)[20] due to favorable unit cost performance on covered conductor installation and changes in the timing of our undergrounding program and $88 million in savings on transmission tower maintenance and replacement[21] due to successful contract negotiations for some projects and necessary deferrals for other projects as a result of permitting and access constraints. Importantly, we completed all our undergrounding and system hardening initiative targets and this variance in actual spending was because we were able to realize lower unit costs for this mitigation work in 2022. One particular initiative that required significant capital overspend was our corrective action and maintenance work for our distribution assets[22] which necessitated an additional $129 million in spending due to the higher cost of materials and the higher use of contract resources.

Overall, we were able to reduce costs for our customers while still accomplishing our critical wildfire mitigation work and meeting or exceeding 52 of our 54 initiative targets.

d) A description of whether the implementation of WMP initiatives changed the threshold(s) for triggering a PSPS event and/or reduced the frequency, scale, scope, and duration of PSPS events.

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[15] Please note that while there are 130 initiatives in the 2022 WMP with budget forecasts, only 54 of these initiatives have targets.

[16] Initiative 7.3.6.8.

[17] Initiatives 7.3.6.5-D and 7.3.3.11.1, respectively.

[18] Initiative 7.3.5.5.

[19] This higher unit cost was driven by a larger number of difficult to access locations which necessitated higher labor costs, as well as higher disposal fees.

[20] Initiative 7.3.3.17.1.

[21] Initiative 7.3.3.15.

[22] Initiative 7.3.3.12.4.

PG&E did not have any PSPS events in 2022. Although there were no PSPS events, we continued to implement program improvements, particularly opportunities to mitigate PSPS events for customers who are repeatedly impacted. Potential reduction in PSPS event size, scope, and duration in 2022 came from our WMP mitigations. As described in Section 8.3 of the 2022 WMP, the mitigations directly impacting the size, scope, and duration of PSPS events included: (1) installation of 100 additional sectionalizing devices; (2) installation of 15 transmission line switches; (3) replacement of at least 50 motorized switch operators; (4) making four microgrid pre-installed interconnection hubs operationally ready; and (5) completing 470 miles of system hardening work. We completed each of these mitigations in 2022.

Because no PSPS events occurred in 2022, our evaluation of the potential impact of 2022 mitigations on scale, scope, and duration of a PSPS event is limited to the analysis presented in Section 8.3 of the 2022 WMP. In that section, we described how we analyzed four years of PSPS events and identified which customers and circuits could have remained energized had the mitigations been in place based on our current PSPS Protocols. We then averaged the results over the four years to produce a forecast for what impact the mitigations may have on our customers looking forward. We determined that the planned 2022 WMP mitigations would have resulted in the 2018 to 2021 PSPS scope being reduced by 3.3 percent and duration by 2.4 percent when compared to the 2018 to 2021 PSPS scope without the 2022 WMP mitigations.

We are also continuously updating and enhancing our operational models to prepare for fire season. To account for year-over-year changes, new outage data is incorporated each year into the Outage Producing Winds (OPW) and Ignition Probability Weather (IPW) machine learning models. These updates account for any updated wind to outage to ignition responses in local areas of the grid. In addition, enhancements were made to the key inputs of the Transmission Operability Assessment (OA) Model which include updated conservative age assumption logic, improved Bayesian updating, enhanced below-grade corrosion modeling, and the incorporation of flashover probabilities. These changes enhanced model capabilities but did not have an impact on the thresholds that trigger a PSPS event.[23]

Despite not having an event where PSPS was initiated in 2022, we continued to make progress toward both mitigating wildfire risks and reducing the customer impacts of each PSPS event. We also maintained our focus on continuous improvement based on lessons learned from past PSPS events, and our continuing efforts to listen to our customers and communities to find ways to reduce the impact of PSPS outages without compromising safety. We have learned and improved significantly since we executed our first PSPS event in 2018, and we expect to continue to evolve and improve this critical wildfire risk mitigation program in the coming years.

e) A summary of all defects identified by the WSD/Energy Safety within the annual compliance period, the corrective actions taken and the completion and/or estimated completion date.[24]

[23] Please see Section 6.1.2 of the 2023 WMP for a detailed summary of our risk modeling work.

[24] For purposes of this portion of the 2022 Annual Report, we understand a "defect" to be a defect identified in an Inspection Report or Audit Report.

1. Inspection Reports

In response to defects identified by Energy Safety, we took the following actions:

1. Reviewed each defect to confirm the non-compliance via desktop assessment and (where deemed necessary) field assessment.

2. If a non-compliance was confirmed, we identified and/or initiated corrective actions.

3. Prepared and submitted a response summarizing our assessment findings and corrective actions to Energy Safety.

We track corrective actions and targets made in the inspection responses. The corrective action resolution timeline for the defects identified during inspections is based on the risk category (e.g., Severe, Moderate, Minor) assigned by Energy Safety.

a. Summary of findings

The corrective action status of the 11 defects identified in 2022 is summarized below. Ten of these defects involved vegetation contacting a guy wire above an insulator and one involved wire splices within a span. All 11 defects were designated as Category 3 (Minor Defect) and all of the defects have now been closed by Energy Safety.

The 11 defect findings from Energy Safety resulted in the following actions:

- 3 defect findings were remediated in the field. We confirmed the remediation through the creation and closure of a work order or electric corrective (EC) notification tag, and/or capturing photos validating that the asset is now compliant.

- 8 defect findings did not require any corrective action on our part. We reviewed the conditions identified and determined the conditions did not meet Energy Safety's definition of a defect at the time the report was received; therefore, no action was required. We leveraged the following processes to make these determinations on the eight defects: (1) field site visits; and (2) clarifying rule interpretations.

Please see Appendix C for further details on the defects identified in 2022, the corrective actions taken, and the completion dates.[25]

b. Completion Date and/or Estimated Completion Date

We collaborated with Energy Safety on each of the 11 defect findings. For each defect, we either remediated the defect or determined that remediation was unnecessary because the finding did not meet the statutory definition of a defect. There are no other outstanding defects from the 2022 compliance period to be completed or for which estimated completion dates need to be provided.

[25] Appendix C is file "*PGE_2022 ARC_20230331_ Defects_ Summary.xlsx"*

IV. CONCLUSION

As demonstrated above, PG&E implemented the wildfire mitigation initiatives described in its approved 2022 WMP and met the goals and objectives of our plan. Our initiative implementation contributed to significant risk reduction, including importantly reductions in CPUC-reportable ignitions in HFTDs and HFRAs. Based on the work performed in 2022 and the corresponding risk reduction, PG&E substantially complied with its 2022 WMP.

APPENDIX A: 2022 WMP TARGETS AND PERFORMANCE[26]

Please note that the summary of 2022 performance is taken from PG&E's March 1, 2023 QDR. In this Appendix, we have taken from the QDR a summary of performance on each initiative. The QDR has additional detail regarding these initiative targets, including detail about activities on a quarterly basis. Any difference between information in this 2022 Annual Report and the QDR is inadvertent.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
A.01 Distribution Modeling Enhancements - Equipment Failure and Contact From Object	Develop additional Distribution Equipment/Facility Failure (EFF) and Distribution Contact From Object (CFO) sub-models. Conduct assessment to determine whether newly developed sub-models should be included in the WDRM model.	After further developing scope and initiating exploratory analysis on model data, data pipelines for Asset models, including Capacitor Banks, Switches, Conductors, and Voltage Regulators were built and exploratory data analysis was performed. Asset model prototype training was completed, and EVM work history data was obtained and incorporated into the Vegetation model. Analysis of Salo tree mortality data began, and EPSS device activation history data was obtained and analyzed in preparation for draft development into the probability of ignition model. The enhanced model analysis presented results to the Wildfire Risk Governance Steering Committee (WRGSC), and the modeling approach was approved by the WRGSC on December 7, 2022.
A.02 - Transmission Modeling Enhancements - Threat and Hazard Risk Drivers	Develop Threat and Hazard (Risk drivers) sub-models that cover: Threats (e.g., Atmospheric corrosion, Underground corrosion, Fatigue, Mechanical Wear, Decay, Contamination, Vibration), and Hazards (primarily Wind). Conduct assessment to determine whether newly developed sub-	The first versions of all committed Threat\Hazard models that have the greatest impact to the safety of our Transmission line assets have been deployed. The WTRM models were approved for use by the WRGSC on September 14, 2022.

[26] Color code legend: Blue Fill = Target was completed on time; Red = Target was missed.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	models are to be included in the WTRM model.	
A.03 - PSPS Consequence Model	Conduct an assessment of the PSPS Consequence model to inform if it is fit for use to inform PSPS mitigation plans to minimize customer impact.	Solicited stakeholder feedback and usage through meetings and review of results as part of the Undergrounding mileage selection framework. The assessment of the PSPS Consequence model was submitted and approved by the WRGSC on May 11, 2022.
A.04 - Wildfire Consequence Model Enhancements - Ingress/Egress	Develop an approach on how to incorporate ingress/egress into the Wildfire Consequence Model.	After receiving Egress and RAVE (Risk Associated with Value Exposure) models from UCLA and Technosylva respectively, resources were deployed to identify the preferred allocation to include Egress in the risk models. Upon further review, it was determined that the UCLA portion of the project was not practical as part of the 2022 model development. Thus, the focus of our resources went to the use and development of the RAVE data for the Egress model. We developed an initial formulation of potential approaches to accounting for egress as part of the Wildfire Consequence model. The team evaluated several new potential variables that could be used to enhance the Wildfire Consequence model for the complications of egress, including population demographic factors such as age, poverty, and disability levels, and additional engineering factors such as burnable area, fuel layer content, and wind characteristics. Exploratory data analysis was performed, and new consequence model training and evaluation began. The approach for integrating egress was approved by the WRGSC on November 16, 2022.
A.05 - Wildfire Consequence Model Enhancements - Resistance to Control	Evaluate an approach to incorporate "Resistance to Control" (i.e., TDI or Terrain Difficulty Index) into the Wildfire Consequence Model. Resistance to Control is the relative difficulty of constructing and holding a control line as affected by	The team evaluated several new potential variables that could be used to enhance the Wildfire Consequence model for the complications related to fire suppression, including population demographic factors such as age, poverty, and disability levels, and additional engineering factors such as burnable area, fuel layer content, and wind characteristics. Exploratory data analysis was performed, and new consequence model training and

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	resistance to line construction and by fire behavior.	evaluation took place. An analysis for a modeling approach for adding resistance to control (ingress and suppression) to the Wildfire Consequence model was completed and presented to the WRGSC. The approach for integrating resistance to control was approved by the WRGSC on November 16, 2022.
B.01 - FPI and IPW Modeling - Revision Evaluation	Evaluate running the FPI and IPW Models with the ensemble mean output of the POMMS-EPS.	We built and deployed our PSPS models in a separate data pipeline driven by the ensemble mean forecast in our lower computing environments to prove feasibility. After testing, we have now promoted the pipeline through our QA and production environments and are now running our PSPS models in parallel allowing for direct comparison of outputs. We've also integrated the outputs into our ArcGIS pro environments and have built a front-end dashboard using Tableau to compare results. Forecast skill between model inputs has been evaluated and we have evaluated and built the data pipelines needed to run the PSPS models using different inputs operationally. In addition, the new FPI model was presented and approved by the WRGSC on August 24, 2022.
B.02 - Weather Stations - Installations and Optimizations	Install or Optimize 100 weather stations. A unit is deemed "installed" when it is in service and verified as operating when initially installed. A unit is deemed "optimized" when a weather station is moved from an existing location to a new location for the purposes of improving our understanding of the weather conditions in the area.	In 2022, we installed 105 new weather stations and optimized 6 weather stations, bringing the total number of new and optimized sites to 111, and exceeding the annual target of 100.
B.03 - High-Definition Cameras - Installations	Install 98 new cameras that are facing HFTD Tier 2 or Tier 3 viewsheds. In the case a site is destroyed, and a camera can be replaced /	In 2022, we installed 100 cameras, exceeding the annual target of 98 by 2.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	relocated nearby with a different visual coverage than the original, this will count as a new installation.	
B.04 - Distribution Fault Anticipation (DFA) - Installations	Install 40 Distribution Fault Anticipation (DFA) sensors on circuits feeding into HFTD areas or HFRA. One sensor per circuit at initiating substation.	We completed a total of 48 circuits and exceeded our annual target of 40 circuits by 8.
B.05 - Early Fault Detection (EFD) - Installations	Install Early Fault Detection (EFD) sensors on 2 circuits feeding into HFTD areas or HFRA.	We completed installs on 2 circuits, meeting the annual target.
B.06 - Line Sensor - Installations	Install Line Sensor devices on 40 circuits feeding into HFTD areas or HFRA to cover mainline and major tap lines in areas meeting minimum load requirements and within cellular coverage areas to provide visibility.	The Line Sensor installation program surpassed the 2022 WMP target of 40 circuits, completing installations on 63 circuits.
C.01 - Non-Exempt Expulsion Fuses - Removal	Remove 3,000 non-exempt fuses/ cutouts identified on distribution poles in HFTD areas or HFRA.	We exceeded our target by removing 3,085 units.
C.02 - Distribution Protective Devices	Install and SCADA commission 100 new PSPS SCADA enabled Distribution Sectionalizing devices.	The program met the WMP target of 100 commissioned devices with 124 devices commissioned. New PSPS SCADA enabled Distribution Sectionalizing devices include: 1) New automated SCADA devices intended to reduce the number of customers impacted during a PSPS/EPSS event.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
		2) Automated SCADA devices that replace existing manual devices and are intended to reduce PSPS/EPSS duration.
C.03 - Transmission Line Sectionalizing - Install and SCADA commission	Install and SCADA commission 15 transmission line switches on lines that traverse the HFTD areas. The switches themselves may not be located in the HFTD areas but can be used to support customer impact reduction.	We installed a total of 18 sectionalizing switches, exceeding the annual target of 15 by 3.
C.04 - Distribution Line Motorized Switch Operator (MSO) - Replacements	Replace at least 50 of the 104 remaining Motorized Switch Operators that are located within or are energizing line sections that feed into HFTD areas or HFRA.	We replaced a total of 57 units in 2022, exceeding the annual target of 50 by 7.
C.05 – SCADA Recloser Equipment - Installations	Install 17 substation SCADA enabled reclosers on circuits serving line sections that feed into HFTD areas or HFRA, barring any exceptions due to connectivity issues necessary to SCADA-enable the recloser. Footnote: There may be connectivity issues for some SCADA reclosers that will require manual setting updates, but there is still benefit in installing the recloser to get the sectionalization on the circuit.	We installed 17 units in 2022, meeting the annual target. SCADA equipment can be used to detect and address high impedance fault conditions.
C.06 - Fuse Savers (Single Phase Reclosers) - Installations	Install 80 single phase recloser sets in HFTD areas or HFRA.	We installed 81 single phase reclosers in 2022, exceeding the annual target of 80 by 1.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
C.07 - Temporary Distribution Microgrids	Make operationally ready at least four (4) additional Distribution Microgrid Pre-installed Interconnection Hubs (PIHs). This target will include 1 PIH that completed construction in December 2021 and will be made ready to operate in 2022.	A total of 4 additional temporary distribution microgrids with pre-installed interconnection hubs reached operational readiness, completing the 2022 WMP target for this initiative.
C.08 - Rincon Transformer Fuse - Replacement	Replace the fuse with a circuit switcher on the Rincon Transformer Bank 1.	The Rincon Transformer Fuse Replacement was completed and went in-service in May 2022, meeting our initiative target.
C.09 – Emergency Back-up Generation – Equip PG&E Service Centers & Materials Distribution Centers	Equip 15 PG&E Service Centers or Materials Distribution Centers sites with emergency back-up generation to allow the sites to operate with the same amount of functionality as they would if they were being fed from their normal utility power source.	The target of equipping 15 sites was completed in December 2022.
C.10 - 10K Undergrounding	Complete at least 175 circuit miles of undergrounding work. The 175-circuit mile target includes undergrounding taking place as part of both System Hardening (Section 7.3.3.17.1), Butte County Rebuild efforts (Section 7.3.3.17.6) including a small volume of previously hardened overhead lines that are being placed underground, and any other undergrounding work performed in HFTD, or fire rebuild areas.	We completed 179.7 miles of undergrounding in 2022, exceeding our annual target of 175 circuit miles.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
C.11 - System Hardening - Distribution	Complete at least 470 circuit miles of system hardening work which includes overhead system hardening, undergrounding and removal of overhead lines in HFTD or buffer zone areas with the exception of any mileage being undergrounded and tracked separately as part of our Butte County Rebuild efforts (Section 7.3.3.17.6).	We hardened a total of 483 circuit miles in 2022, exceeding our annual target of 470 circuit miles.
C.12 - System Hardening - Transmissions	Remove or replace 32 circuit miles of transmission conductor on lines traversing the HFTD areas or HFRA.	We removed or replaced 37.8 circuit miles in 2022, exceeding our annual target of 32 circuit miles.
C.13 - Surge Arrestor - Removals	Remove all of the remaining non-exempt surge arrestors in HFTD areas (based on the known population of 4,590 surge arrestors as of January 1, 2022) through replacement with exempt equipment.	PG&E had a target to replace 4,590 surge arrestors with known grounding issues in the HFTD based on the known population as of January 1, 2022. PG&E exceeded that target by replacing 4,621 units in 2022. Not all surge arresters with known grounding issues in the HFTD were replaced in 2022 because the target was created using an estimate based on the historical number of cancellations each year. In 2022, we experienced fewer cancellations than estimated. We also reviewed our data to ensure we were capturing all remaining surge arresters with known grounding issues in the HFTD. In total, 139 additional sites could not be completed in 2022 due to access issues, customer refusals, and poles that need replacement before surge arrester work can take place. These remaining surge arresters in the HFTD will be completed in 2023, barring external factors. In addition, in 2023 we are expanding the scope to include surge arresters with known grounding issues in the HFRA.
C.14 - Remote Grid - Operate New SPS Units	Operate 2 new Remote Grid Standalone Power System (SPS) units	Two SPS units, Corning Remote 0001 and 0002, were brought online in December 2022 after successful commissioning and cutover. Two other units completed commissioning but not cutover, which will be carried into

2022 Target Name	2022 Target Description	Summary of 2022 Performance
		2023 to go online when weather permits access to these relatively remote sites.
C.15 - Butte County Rebuild - Undergrounding	Complete 55 circuit miles of undergrounding work as part of the Butte County Rebuild program.	We exceeded our WMP target of 55 circuit miles with 57.8 circuit miles undergrounding miles completed in 2022.
D.01 - Detailed Inspections - Distribution	Complete detailed inspections on a minimum of 396,000 distribution poles, which were identified in PG&E's asset registry as of January 1, 2022, in HFTD areas or HFRA, barring External Factors. Any poles discovered after January 1, 2022 with a field installation date on or before 2020 will be inspected within 90 days of when added to the asset registry. Any poles discovered after January 1, 2022, with a field installation date in 2021 or 2022 will not be in scope for inspection as part of this 2022 WMP target.	We exceeded our WMP target of 396,000 detailed distribution ground inspections by completing 398,184 detailed distribution ground inspections in 2022.
D.02 - Detailed Inspection Transmission – Ground	Complete detailed ground inspections on a minimum of 39,000 transmission structures in PG&E's asset registry as of January 1, 2022, in HFTD areas or HFRA, barring External Factors. Any assets discovered after January 1, 2022, with a field installation date on or before 2020 will be inspected within 90 days of	We exceeded our WMP target of 39,000 detailed transmission ground inspections by completing 39,005 detailed transmission ground inspections in 2022.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	when added to the asset registry. Any assets discovered after January 1, 2022, with a field installation date in 2021 or 2022 will not be in scope for inspection as part of this 2022 WMP target.	
D.03 - Detailed Inspection Transmission – Climbing	Complete detailed climbing inspections on a minimum of 1,800 transmission structures in PG&E's asset registry as of January 1, 2022, in HFTD areas or HFRA, barring External Factors. Any assets discovered after January 1, 2022, with a field installation date on or before 2020 will be inspected within 90 days of when added to the asset registry. Any assets discovered after January 1, 2022, with a field installation date in 2021 or 2022 will not be in scope for inspection as part of this 2022 WMP target.	We exceeded our WMP target of 1,800 transmission climb inspections by completing 1,835 detailed climbing inspections in 2022.
D.04 - Detailed Inspection Transmission – Aerial	Complete detailed aerial inspections on a minimum of 39,000 transmission structures in PG&E's asset registry as of January 1, 2022, in HFTD areas or HFRA, barring External Factors. Any assets discovered after January 1, 2022, with a field installation date on or before 2020 will be inspected within 90 days of when added to the asset registry. Any assets discovered after January 1, 2022, with a field	We exceeded our WMP target of 39,000 detailed transmission aerial inspections by completing 39,004 detailed aerial inspections in 2022.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	installation date in 2021 or 2022 will not be in scope for inspection as part of this 2022 WMP target.	
D.05 - Infrared Inspections - Distribution	Complete infrared inspections on a minimum of 9,000 distribution circuit miles in PG&E's asset registry as of January 1, 2022, in HFTD areas or HFRA, barring External Factors. Any assets identified after January 1, 2022 with a field installation date on or before 2020 will be inspected within 90 days of when added to the asset registry. Any assets identified after January 1, 2022, with a field installation date in 2021 or 2022 will not be in scope for inspection as part of this 2022 WMP target.	We exceeded the WMP target of 9,000 circuit miles of infrared inspections by completing 9,560 circuit miles of infrared inspections in 2022.
D.06 - Supplemental Inspections - Substation Distribution	Complete supplemental inspections on 86 distribution substations in HFTD areas or HFRA, barring External Factors.	We met our 2022 target of completing 86 supplemental inspections on distribution substations.
D.07 - Supplemental Inspections - Substation Transmission	Complete supplemental inspections on 43 transmission substations within HFTD areas or HFRA, barring External Factors.	We completed our WMP target of 43 supplemental inspections on transmission substations with 43 completed in 2022.
D.08 - Supplemental Inspections - Hydroelectric Substations and Powerhouses	Complete supplemental inspections on 52 Hydroelectric Generation Substations and Powerhouses within HFTD areas or HFRA, barring External Factors.	We completed our WMP target of 52 supplemental inspections on hydroelectric substations and powerhouses with 52 completed in 2022.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	Co-located Hydroelectric substations and Transmission & Distribution substations are counted separately as two distinct units.	
D.09 - Asset Inspections - Quality Assurance	Perform Transmission and Distribution system inspection quality audits prioritizing HFTD/HFRA areas. Statistically valid methodology parameters, such as a confidence level of 95%, will be utilized.	The Quality Management Transmission System Inspection Audit, which followed a statistically valid sampling methodology using a 95% confidence level and was specifically concentrated in High Fire Threat District locations, was completed with a final total number of locations audited of 2,696 (versus a planned 2,695). The audit has achieved approximately 100% of its 2022 target. The Quality Management Distribution System Inspections Audit, which followed a statistically valid sampling methodology using a 95% confidence level and was specifically concentrated in High Fire Threat District locations, is complete with a final total number of locations audited of 3,041 (versus a planned 2,835). The audit has achieved approximately 107% of its 2022 target.
D.10 - HFTD/HFRA Open Tag Reduction - Distribution	Close a minimum of 55,000 HFTD or HFRA distribution tags in PG&E's workplan as of June 30, 2022, barring External Factors.	For 2022, we closed a total of 45,951 E tags in HFTD and HFRA areas, which was 16.5% lower than our target of 55,000 E maintenance tags. We were not able to meet the target for E tags because more category A and B tags were created during 2022 than PG&E anticipated. A and B tags are prioritized over E tags because of shorter regulatory compliance requirements and A and B tags are generally greater higher risk than E tags. Thus, while we did not meet this target, we continued to prioritize our commitment to working the riskiest tags first and preventing A and B tags from being added to the backlog. Consistent with Energy Safety's guidance, we have prioritized resolving our asset tag backlog and will describe in detail our continued strategy for achieving this goal, including corrective actions to address the delay in resolving E tags, in our 2023 WMP. Completed E Tags (Including tags that migrated to A, B, or H Tags): 45,896 Tags. Additional Tags Completed:

2022 Target Name	2022 Target Description	Summary of 2022 Performance
		• Completed A & B Tags created after 6/30/22: 6,243 Tags. • Completed F Tags: 6,136 Total Tags Completed: 58,275 Tags
D.11 - HFTD/HFRA Open Tag Reduction - Transmission	Close a minimum of 18,000 HFTD or HFRA transmission tags in PG&E's workplan as of June 30, 2022, barring External Factors.	Our annual total of completed transmission tags was 21,145, exceeding our annual target of 18,000 in 2022.
E.01 - EVM (line miles)	Complete EVM work on 1,800 risk ranked distribution circuit miles, barring External Factors.	The EVM program completed 1,923.81 circuit miles by the end of 2022, exceeding the WMP target of 1,800 miles. 98.7% of the EVM work performed in 2022 was performed on the highest 20% risk-ranked miles.
E.02 - Pole Clearing Program	Inspect and clear (where clearance is needed) all poles identified in PG&E's Vegetation Management Database as of October 1, 2021, in HFTD areas or HFRA, not required by PRC 4292 and barring External Factors. Any assets discovered between October 1, 2021 and August 31, 2022 will be inspected and cleared (where clearance is needed) by the target due date, barring External Factors. Any assets discovered after August 31, 2022, will be inspected and cleared (where clearance is needed) within 45 days of when added to the Vegetation Management Database, barring External Factors.	Our Pole Clearing program completed inspection and clearing, where clearing was needed, of 8,356 poles cumulatively within the current annual inspection cycle. The language in the initiative target focuses on all poles identified in PG&E's Vegetation Management Database as of October 1, 2021, in HFTD areas or HFRA, not required by PRC 4292 and barring External Factors. However, as a result of challenges in our legacy recordkeeping system, we were unable to establish a precise baseline pole population as of October 1, 2021. To validate the pole population and completion of initiative target E.02, our pole clearing team captured the data in the legacy system as of April 4, 2022, and reviewed the inspection records that had taken place from October 1, 2021 (the start of the program) to April 4, 2022. This created the baseline database of poles for validating completion of the initiative target. Based on this approach, we believe that we have completed initiative target E.02. We plan to make improvements to our legacy system to better track the number of poles in our database and that are inspected and cleared as a part of our Pole Clearing program. We are developing a process to address

2022 Target Name	2022 Target Description	Summary of 2022 Performance
		documentation gaps identified in 2022 until our legacy system and program has transitioned to the One Veg technology tool.
E.03 - LiDAR Ground Inspections - Distribution	Complete at least 2,000 circuit miles of Mobile LiDAR capture on HFTD road-access electric distribution lines, barring External Factors. If at any point PG&E determines this technology does not effectively support efforts to reduce wildfire risk when compared to other viable approaches or technology, PG&E will pause or discontinue Ground Based LiDAR efforts.	The LiDAR Ground program worked 3,358.66 circuit miles by the end of 2022, exceeding the WMP target of 2,000 circuit miles.
E.04 - LiDAR Routine Inspections - Transmission	Complete LiDAR inspection of approximately 18,000 circuit miles of transmission lines, barring External Factors.	The program has completed aerial LiDAR inspections of all transmission circuit miles resulting in 17,867 circuit miles completed. Note: We completed Transmission LiDAR inspection of 17,867 circuit miles. We informed Energy Safety of an error in the unit of measure used to define the 2022 WMP target for this initiative – at completion of initiative, we identified that our target of approximately 18,000 "circuit miles" was intended to have meant "line miles" per the Energy Safety definition (resulting in 17,867 circuit miles vs. 18,194 line miles).
E.05 - Vegetation Management - Quality Verification	Target revised per Revision Notice #10 1. Quality Assurance Audits Type of audits; Distribution - voltages less than 60kV in our Routine, Tree Mortality, EVM and Pole Clearing programs. (43 audits) Vegetation Pole Clearing (1 audit)	QAVM YTD Status: 1. All 43 planned Distribution Audits were completed with a FINAL 2022 PASS RATE of 99.78% resulting in meeting the AQL Target of 95% 2. 1 planned Vegetation Pole Clearing audit was complete with a FINAL 2022 PASS RATE of 98.20% resulting in meeting the AQL Target of 95%

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	Transmission - high voltage 60kV and greater and applies to maintaining high voltage transmission corridors to Minimum NERC clearance, PRC 4293 clearance, and GO 95 Rule 35 clearance (1 audit) Procedure audit of the following: Enhanced Vegetation Management, Record Keeping, Transmission and Distribution Line Verification, and Refusal Procedure (4 audits) Distribution and transmission audits include multiple trees and a 95% AQL would represent 95% of the total trees audited being in compliance with PG&E requirements. The vegetation pole clearing audit includes multiple poles and a 95% AQL would represent 95% of the total poles audited being in compliance with PG&E requirements. The procedure audit includes a review of PG&E's vegetation standards and whether PG&E's vegetation management team adhered to the process and procedures in the standard. 2. Quality Verification Reviews Type of Verification; Distribution - voltages less than 60kV in our Routine, Tree Mortality, EVM and Pole Clearing programs (1,522 Reviews). Vegetation Pole Clearing (3,421 Poles). Transmission - high voltage 60kV and greater and applies to maintaining high	3. 1 planned Transmission audit was completed with a FINAL 2022 PASS RATE of 100%, resulting in meeting the AQL Target of 95% 4. 4 Procedure Audits were completed with a FINAL 2022 PASS RATE of 76.00% which did not meet the AQL Target of 95% <u>QVVM YTD Status:</u> 1. A total of 1,640 Distribution Reviews were completed (versus a plan of 1,522) with a FINAL 2022 PASS RATE of 91.34% which did not meet the AQL Target of 95% 2. A total of 349 Transmission Reviews were completed (versus a plan of 260) with a FINAL 2022 PASS RATE of 94.21% which did not meet the AQL Target of 95% 3. A total of 3,469 Poles were audited in the Pole Clearing audit (versus a plan of 3,421) with a FINAL 2022 PASS RATE of 90.26% which did not meet the AQL Target of 95% As part of the Revision Notice, Energy Safety directed PG&E to establish a 95% AQL for audits/reviews for seven VM programs. The initiative target has 14 different components; seven relate to the number of audits/reviews performed and seven relate to programs achieving a 95% AQL. In our Revision Notice response, we explained that we may not be able to meet this target given that we established it midway through the year and a lot of work had already taken place, especially for pole clearing. We were able to achieve the specified number of audits/reviews for the seven programs. However, we were unable achieve 95% AQL for four of the seven programs. Of these four programs, two of these programs (QVVM Distribution and QVVM Transmission) had 2021 AQL scores. These programs increased their AQL scores in 2022 (increases ranged from 3.41% - 6.25%). <u>Corrective Actions Plans for QAVM include</u>:

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	voltage transmission corridors to Minimum NERC clearance, PRC 4293 clearance, and GO 95 Rule 35 clearance (260 Reviews). Distribution and transmission reviews include multiple trees and a 95% AQL would represent 95% of the total trees reviewed being in compliance with PG&E requirements. The vegetation pole clearing reviews includes multiple poles and a 95% AQL would represent 95% of the total poles reviewed being in compliance with PG&E requirements.	1. Process Audit: A CAP was created to memorialize this audit and give clarity into the corrective action. As a result, multiple procedures and standards are being revised and/or updated. These controls will go through the proper change management and communication to ensure compliance going forward. <u>Corrective Actions for QVVM include</u>: 2. Distribution: Findings were attributed to: (1) missed clearance; (2) overlist of trees; and (3) improper cut. In process QC and controls have been implemented which resulted in improvements in VM work execution when compared to 2021. These controls are expected to yield an AQL of 95% or higher in 2023. 3. Transmission: Findings were attributed to: (1) inconsistent use of Shape Tags; and (2) missed clearance at pole base. Shape tags represented a majority of all findings. This practice of shape tags was eliminated and communicated accordingly to establish standard work. Although we expect significant improvements when compared to 2021, this work was substantially complete when this target was established in July 2022. 4. Pole Clearing: Findings were attributed to: (1) missed clearance; (2) overlist of trees; and (3) missed tree marking. In process QC and controls have been implemented which resulted in improvements in VM work execution when compared to 2021. These controls are expected to yield an AQL of 95% or higher in 2023.
E.06 - Defensible Space Inspections - Distribution Substation	Complete defensible space inspections in alignment with the guidelines set forth in PRC 4291 at 132 distribution substations within HFTD areas or HFRA, barring External Factors.	All 132 Distribution Substation inspections were timely completed and executed.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
E.07 - Defensible Space Inspections - Transmission Substation	Complete defensible space inspections in alignment with the guidelines set forth in PRC 4291 at 55 transmission substations within HFTD areas or HFRA, barring External Factors.	All 55 Transmission Substation inspections were completed and prescribed routine maintenance activities were being executed by the 2nd quarter of 2022.
E.08 - Defensible Space Inspections - Hydroelectric Substations and Powerhouses	Complete defensible space inspections at 61 Hydroelectric Generation Substations and Powerhouses within HTFD areas or HFRA, barring External Factors. Co-located hydroelectric substations and Transmission & Distribution substations are counted separately as two distinct units.	All 61 Power Generation powerhouses and switchyards were inspected for Defensible Space by the 2nd quarter of 2022.
E.09 - Utility Defensible Space - Distribution	Complete utility defensible space work on a minimum of 7,000 poles in the HFTD, barring External Factors.	The UDS program completed clearing 7,168 poles by the end of 2022, exceeding the annual Target of 7,000 poles.
E.10 - Pole Clearing in State Responsibility Areas	PG&E will inspect and clear, where clearance is needed, 80,258 distribution poles subject to PRC 4292 in State Responsibility Areas identified by PRC 4292, barring External Factors or poles that are exempt under Title 14 Cal. Code of Regulations 1255. This number may change as poles are added, removed, or have a change in status during the pole clearing program cycle. Any assets	At the end of the 3rd quarter in 2022, we reported this target as completed with 80,208 distribution poles inspected and cleared, where clearance was needed. E.10 pole Clearing program, like E.02, is managed through a VM legacy database system. Due to the timing of the Revision Notice, the team was near the end of its inspection cycle and was able to use the pole population as the total and provide the database for our internal auditing teams to review and support it meet the spirit and intent, which is the next level down from full validation. To mature and support this program forward, the team has created a record of evidence process to address the documentation gaps identified in 2022 until this legacy system and program has transitioned to the One Veg

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	discovered between October 1, 2021, and August 31, 2022, will be inspected and cleared (where clearance is needed) by the target due date, barring External Factors. Any assets discovered after August 31, 2022 will be inspected and cleared (where clearance is needed) within 45 days of when added to the Vegetation Management Database, barring External Factors. Poles in fields that are plowed or cultivated, such as planted row crops, cultivated fields, vineyards, nonflammable summer fallow, irrigated pastureland, fruit, nut, citrus orchards, Christmas tree farms, swamp, marsh or bog land and where vegetation is maintained less than 30.48 cm in height, is fire resistant, and is planted and maintained for the specific purpose of preventing soil erosion and fire ignition.	technology tool. Despite the challenges in the legacy system, we believe that the current records are sufficient to demonstrate that the target was achieved. We have evidence that a base population of poles was inspected and cleared, meeting the spirit and intent of this target. Furthermore, to demonstrate the teams' efforts to improve the data management challenges within the legacy system, towards the end of the two program cycles, the team reviewed and created a more deliberate administrative boundary and separation of poles in the LRA and SRA in initiatives E.02 and E.10, respectively. This resulted in 1,841 poles having their respective administrative boundaries changed, causing the pole count to be moved from E.10 to E.02. These poles are not doubled counted, but the result lowered the count for E.10 and raised the count for E.02, thus leaving the 50-pole deficit in E.10. These poles were originally part of the E.10 SRA inspection and clearing, but the data scrub and corresponding data file reflect the data clean-up effort and the movement of these poles to the E.02 LRA inspection count.
F.01 - EPSS - Settings Design and Test	Conduct laboratory testing to refine the circuit device design parameters for 2022 EPSS implementation.	In the 1st quarter of 2022, 174 tests were performed at the ATS High Current Test Yard. The testing results indicate the following: • The probability of ignition is higher on dried sod compared to other natural fuel media with higher moisture content. • As the fault current increases, the probability of sustained ignition increases. • As the clearing time increases, the probability of sustained ignition increases for all the fault current magnitudes used for testing.

2022 Target Name	2022 Target Description	Summary of 2022 Performance
		Based on the test results, the reduction in clearing time (fast relaying) for all faults will help reduce the ignition risk and is aligned with enhanced safety practices by other utilities and industry research. Faster relaying will also help limit the movement of faults/traveling arcs on circuits and flashover/arcing to adjacent phases.
F.02 - EPSS - Install Settings on Distribution Line devices	Load the engineered settings on protection devices (line reclosers and fuse savers) on the identified 1,018 circuits (as of March 10, 2022) on the following schedule, barring External Factors: (1) On 80 percent of line devices by 5/1/22 and, (2) On the remaining 20 percent of line devices by 8/1/22	We met the target of 3,580 installed setting on distribution line devices on the 1,018 circuits as per schedule in Q3 2022, subject to exclusions. For additional details regarding 2022 performance, please see PG&E's Q4 2022 QDR dated March 1, 2023.
F.03 - EPSS - Develop Enablement Standards and Procedures	Develop the procedure to govern the enablement of EPSS settings in 2022.	The work on this initiative was completed on April 30, 2022, and the TD-1470S EPSS Standard and supplemental documentation were provided as evidence of completion.
F.04 - EPSS - Reliability Improvements	Initiate reliability mitigations on 50 EPSS capable circuits in the HFTD areas, HFRA and non-HFTD buffer zones based on highest projected Customer Experiencing Sustained Outage (CESO).	The program achieved the annual target with work completed on 50 circuits by the end of Q3 2022.
G.01 - Data Governance - Identify and Centralize High Priority Data	1. Document and implement a process to identify data gaps in Foundry for critical risk drivers	This annual target has been met as we have: (1) documented and implemented a process to identify data gaps in Foundry for critical risk drivers; (2) identified and incorporated new high-priority data sets into Foundry in support of analytic products; and (3) successfully completed the

2022 Target Name	2022 Target Description	Summary of 2022 Performance
	2. Identify and incorporate new high-priority datasets into Foundry in support of analytic products 3. Identify and incorporate 20 new, foundational ontology objects into Foundry	development and incorporation of 22 L2 Ontology objects in support of wildfire mitigation analytics.
H.01 - Risk Spend Efficiency - Develop and Share Governance Process	Develop and share RSE Governance Process with Energy Safety.	The RSE Governance team documented the Risk Spend Efficiency (RSE) Governance Process, including 3rd-party findings, to ensure continued improvements in the robustness of RSEs. The progress and findings are summarized in a PowerPoint presentation which was sent via email to OEIS on September 22, 2022, thereby completing this target.
J.01 - Community Engagement - Meetings	Host 22 customer and community focused virtual meetings (i.e., Safety Town Halls, CWSP Webinars) to further stakeholder and community awareness of PG&E's wildfire mitigation efforts.	We hosted a total of 23 Safety Town Halls and CWSP Webinars by the end of the 3rd quarter in 2022, exceeding our annual target by one.