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April 18, 2022 **BY ENERGY SAFETY E-FILING**

Caroline Thomas Jacobs, Director
Office of Energy Infrastructure Safety
California Natural Resources Agency
715 P Street, 20th Floor
Sacramento, CA 95814

Re: **Reply Comments of Pacific Gas and Electric Company to the 2022 Wildfire Mitigation Plan**
Docket: 2022-WMPs

Dear Director Thomas Jacobs:

Please find enclosed Pacific Gas and Electric Company's reply comments on our 2022 Wildfire Mitigation Plan. If you have any questions, please do not hesitate to contact me.

Very truly yours,

/s/ Jay Leyno

Jay Leyno

REPLY COMMENTS ON THE 2022 WILDFIRE MITIGATION PLAN OF PACIFIC GAS AND ELECTRIC COMPANY

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I. INTRODUCTION

Pacific Gas and Electric Company's (PG&E) 2022 Wildfire Mitigation Plan (WMP) was submitted to the Office of Energy Infrastructure Safety (Energy Safety) on February 25, 2022. The 2022 WMP describes in detail our comprehensive and multi-faceted wildfire safety strategy, utilizing programs and actions that have proven effective at reducing wildfire risk and expanding innovative programs and actions initiated in prior years. Our WMP reflects learnings, new ideas, and feedback from stakeholders including Energy Safety, the California Public Utilities Commission (CPUC), our Federal Monitor, the Governor's operational observer, and other engaged stakeholders. The WMP outlines our broad program to reduce wildfires, with many complementary parts that work together to boldly address this risk. Our strategy was developed with a single stand in mind: catastrophic wildfires shall stop.

The 2022 WMP highlights our significant progress in 2021, including new initiatives started in 2021 that will continue in 2022, such as our Enhanced Powerline Safety Setting (EPSS) program. We also described our bold and unprecedented 10,000 miles of undergrounding initiative, which will keep our communities safe while eliminating or substantially reducing significant recurring costs, such as vegetation management for overhead distribution lines. A few of the highlights from our 2022 WMP include:

- **Moving Forward to Underground Powerlines and Harden Our System** – Aggressively moving forward with our program to underground 10,000 circuit miles of distribution lines in High Fire Threat Districts (HFTD) areas which effectively eliminates the ignition risk for overhead lines and hardening additional miles with covered conductor or line removal using a risk-ranked approach to prioritize work.

- **Expanding EPSS to All Risk Areas** – Expanding the scope of EPSS to all of our distribution lines in HFTD areas and High Fire Risk Areas (HFRA), as well as select non-HFTD areas that are adjacent to HFTD areas and HFRA. Much like the work we have done to improve the Public Safety Power Shutoff (PSPS) program, we will continue to adjust EPSS safety settings, undertaking a more surgical

approach to only activate the settings in areas most at risk to limit reliability impacts to our customers.

- **Applying New Mitigation Technology** – Deploying equipment to reduce the potential for wildfire ignitions and mitigate wildfire impacts, such as Supervisory Control and Data Acquisition (SCADA)-enabled automated sectionalizing devices, single phase recloser sets, and advanced system sensors.

- **Continuing Aggressive Vegetation Management Practices** – Continuing our extensive vegetation management practices that are above and beyond regulatory requirements, such as our Enhanced Vegetation Management (EVM) program.

- **Performing Enhanced Inspections** – Conducting enhanced detailed inspections (i.e., inspections that include significantly more detail than traditional detailed inspections completed prior to 2020) of our facilities in HFTD areas.

- **Risk Modeling** -- Deploying the most up to date risk modeling capabilities to support our data-driven, risk-informed approach to wildfire mitigation.

- **Improving Situational Awareness** – Maximizing the use of cameras and weather stations to identify potential wildfire ignitions and risk and expand the situational awareness capabilities of PG&E, the California Department of Forestry and Fire Protection (CAL FIRE), first responders and the public.

- **Utilizing PSPS as a Final Safety Action** – Continuing to implement as a measure of last resort our data-driven, model-based PSPS protocols that resulted in more targeted and smaller PSPS events in 2021.

After our 2022 WMP was submitted, PG&E participated in a public workshop on March 10, 2022. Parties then conducted extensive discovery and submitted comments on April 11, 2022. Seven parties submitted comments on our 2022 WMP.[1] While the 2022 WMP describes a broad array of initiatives and programs, parties' comments primarily focused on a few areas, including risk modeling, undergrounding, asset inspections, vegetation management, EPSS, and PSPS. In some cases, parties recognized the significant progress that PG&E has made since the first WMP was submitted in 2019. In

[1] Comments were submitted by the Public Advocates Office (Cal Advocates), California Department of Fish and Wildfire (CDFW), Green Power Institute (GPI), Mussey Grade Road Alliance (MGRA), Rural County Representatives of California (RCRC), The Utility Reform Network (TURN), and William Abrams.

other cases, parties had suggestions as to how PG&E and other California utilities could continue to improve wildfire mitigation efforts. Finally, some parties criticized various aspects of PG&E's wildfire mitigation programs, including program costs.

We have carefully reviewed parties' comments and are providing this reply to the issues raised. In cases where we agree with parties, we have indicated agreement or support for a proposal.[2] In certain cases, parties misunderstood aspects of our 2022 WMP or raised concerns that were unfounded. We address these issues and concerns below.

It is notable that no party claims PG&E's 2022 WMP does not satisfy the statutory requirements developed by the California Legislature for a WMP. Nor does any party state that Energy Safety should deny PG&E's 2022 WMP. While parties have raised specific concerns, none of these issues merit denial of the 2022 WMP. To the contrary, the extensive materials and attachments provided with PG&E's 2022 WMP demonstrate unequivocally that PG&E has put forward a plan which fully satisfies the Legislature's ambition that WMPs present "preventive strategies and programs . . . to minimize the risk of electrical lines and equipment causing catastrophic wildfires . . .."[3] Because PG&E has fully satisfied the statutory requirements and the Legislature's underlying intent, Energy Safety should approve PG&E's 2022 WMP.

II. STATUTORY REQUIREMENTS (SECTION 2)

Section 2 includes a table that identifies each of the WMP statutory requirements and the location(s) in our 2022 WMP that satisfies each requirement.[4] No party disputes

[2] In the 2022 WMP Guidelines, Energy Safety requested that "[e]lectrical corporations' reply comments [] address which recommendations from public comments, if any, the electrical corporations agree to incorporate into their 2022 WMP Updates and which recommendations, if any, the electrical corporations agree to incorporate or work towards in future plan years."[2] Our reply comments indicate where we agree with parties' recommendations related to the 2022 WMP. In addition, in Section IX below we address parties' recommendations regarding future WMPs.

[3] Cal. Pub. Util. Code § 8386(c)(3).

[4] 2022 WMP, pp. 30-37.

the 2022 WMP's compliance with the statutory requirements. MGRA was the only party that commented on Section 2, but the issues that MGRA raises relate to a recent State Auditor report, not the WMP.[5] As MGRA acknowledges, its analysis of, and comment on, the State Auditor Report is "not within the scope of this review . . .."[6] Given the significant number of issues directly related to WMP review, this is not the appropriate venue for addressing the merits or implications of the State Auditor Report.

III. SPENDING (SECTION 3)

GPI recognizes that this is not a cost recovery proceeding, but nevertheless recommends that a 10-year financial forecast be provided in the next WMP cycle.[7] The WMP already includes a discussion of long-term plans.[8] Given the significant changes in wildfire risk, the utilities' WMPs may substantively change over time and thus including 10-year cost projections in future WMPs would have limited value. The current WMP cost forecasting requirements (*i.e.*, data during the three-year WMP cycle) are more appropriate and useful than long-term forecasts which are subject to significant changes.

IV. LESSONS LEARNED AND RISKS (SECTION 4)

Section 4 of the WMP addresses lessons learned, major trends impacting ignition probability and wildfire consequences, changes in ignition probability drivers, research proposals, risk modeling methodologies, calculation of key metrics, and progress reporting on key improvements. The majority of these subject areas were not addressed by any party. The two areas that parties commented on were risk modeling and a research proposal by the Cal Poly FIRE Institute. Below, we address the comments from Cal Advocates, GPI, and MGRA related to these issues.

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[5] MGRA Comments, pp. 14-17, discussing the *Auditor of the State of California; Electrical System Safety; California's Oversight of the Efforts by Investor-Owned Utilities to Mitigate the Risk of Wildfires Needs Improvement*; REPORT 2021-117; March 24, 2022 (State Auditor Report).

[6] *Id*. at p. 16.

[7] GPI Comments, p. 2.

[8] 2022 WMP, pp. 873-875.

A. Cal Advocates Comments

Cal Advocates expresses concern about the level of detail provided regarding our PSPS Consequence Model and customer impacts of PSPS events.[9] This concern is misplaced. Our PSPS Consequence Model is described in detail in the 2022 WMP including data elements, updates to data, verification of data accuracy, modeling considerations and methodology, and model development and application.[10] Moreover, the assessment of "impacts that PSPS has on customers"[11] is thoroughly addressed in Section 8.2.3.7 of the 2022 WMP.[12]

Cal Advocates also raises issues regarding the Multi-Attribute Value Function (MAVF) model's production of "unitless numbers" for estimating PSPS consequences.[13] However, as the 2022 WMP explains, MAVF is just one part of the calculation of PSPS consequences and it looks primarily at system level consequences.[14] PG&E's PSPS Consequence Model looks at circuit level and transmission consequences, as well as customer adjusted consequence scores, in the evaluation of PSPS event impacts.[15] In addition, PG&E's MAVF framework is consistent with the settlement in the Safety Model Assessment Proceeding (S-MAP) approved by the CPUC (S-MAP Settlement) in Decision (D.) 18-12-014 and has been reviewed by the CPUC through the Risk Assessment and Mitigation Phase (RAMP) proceedings.[16]

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[9] Cal Advocates Comments (General), p. 18. Cal Advocates filed two separate set of comments. The first set was general comments regarding the utilities' WMPs, which will be referred to in this reply brief as "Cal Advocates Comments (General)." The second set of comments was specific to each utility and will be referred to as "Cal Advocates Comments (Utility-Specific)."

[10] 2022 WMP, pp. 196-203, 361-363.

[11] Cal Advocates Comments (General), p. 18.

[12] 2022 WMP, pp. 911-914.

[13] Cal Advocates Comments (General), p. 18.

[14] 2022 WMP, pp. 199-200.

[15] *Id*. at pp. 196, 199.

[16] *Id*. at p. 199.

B. GPI Comments

GPI raises myriad issues related to risk modeling. Each of these issues is addressed below in the order presented in GPI's comments. In addition, we also address a GPI comment regarding the Cal Poly FIRE Institute.

First, GPI suggests that the utilities tie past utility-caused wildfires to future risk drivers and wildfire mitigation efforts.[17] This is something that PG&E is already doing in our risk evaluation and modeling. PG&E's risk and bow-tie analyses use past ignition data from 2015-2020 to evaluate wildfire risks and inform wildfire mitigation activities.[18] PG&E also evaluates this actual ignition data to consider the impact of Red-Flag Warnings (RFW) on ignitions.[19]

Second, GPI suggests that the utilities conduct a "more thorough assessment" of the impact of potential climate change on the probability of ignition and wildfire consequences.[20] PG&E addresses climate change through the integration of physical climate risk and climate change multipliers in our Enterprise Risk Model.[21] In addition, improvements to the existing RAMP risk methodology for climate change are the subject of an ongoing CPUC proceeding. In addition, the utilities are currently required to comprehensively review their climate risk as part of the Climate Vulnerability Assessments, which provides another view of physical climate risk. Finally, PG&E has iterated on its incorporation of physical climate risk in each RAMP and will continue to do so. In short, the "thorough assessment" requested by GPI is already being undertaken.

Third, GPI proposes that the utilities conduct model fit metrics and sensitivity testing but recognizes that PG&E is already conducting this kind of work on its models.[22]

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[17] GPI Comments, p. 3.

[18] 2022 WMP, p. 64 (ignition frequency data informed by 2015-2020 ignition data).

[19] *Id*. at p. 65.

[20] GPI Comments, p. 5.

[21] 2022 WMP, p. 125.

[22] *Id*. at pp. 6-7.

We plan to continue to improve and refine our risk modeling and look forward to working with the Energy Safety-led working group on these and other modeling issues.

Fourth, GPI asserts that the utilities "do not adequately explain the quantitative inputs into RSE calculations . . .."[23] However, for PG&E, this information is provided in detail in the RSE workpapers that were included with our WMP submission.

Fifth, GPI includes a number of detailed modeling suggestions for the future including the frequency of updating data, dataset imputation, model uncertainties, and outage and ignition input data filters.[24] Many of these issues, such as model uncertainties, were addressed in the detailed description of our models provided in Section 4.5.1 of the 2022 WMP. To the extent there are additional modeling issues, these are best addressed through the ongoing risk modeling working group.

Sixth, GPI asserts that the utilities have not been transparent regarding how risk modeling informs planning for wildfire mitigation.[25] With regard to PG&E, this is not correct. Our 2022 WMP includes a detailed discussion of how we have used risk modeling to inform system hardening, vegetation management, and inspections and repair prioritization.[26] Notably, GPI's comments do not refer to PG&E's WMP when making this point.

Seventh, GPI notes that the utilities have not yet integrated ingress and egress into their risk modeling.[27] The incorporation of ingress and egress into our Wildfire Consequence Model is one of PG&E's Initiative Targets for 2022.[28] Thus, with regard to PG&E, GPI's concerns will be addressed this year.

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[23] *Id*. at pp. 7-8.

[24] *Id*. at pp. 8-11.

[25] *Id*. at pp. 12-13.

[26] 2022 WMP, pp. 314-317.

[27] GPI Comments, pp. 13-14.

[28] 2022 WMP, pp. 167, 366

Finally, GPI states in its comments that the description of research projects with the California Polytechnic State University, San Luis Obispo (Cal Poly) WUI Fire Information, Research, and Education (FIRE) Institute "is too vague."[29] However, at the time our 2022 WMP was finalized, the research proposals under discussion were too preliminary to include in the WMP. There are currently two preliminary proposals: (1) the potential application of California Environmental Quality Act (CEQA) exemptions to investor-owned utility wildfire mitigation plans to accelerate fire prevention and mitigation efforts; and (2) examination of the effectiveness, durability, and ecological/health risks of the proactive, repetitive application of fire retardants. We will continue to report on the progress of these, and any other research proposals, in our quarterly updates, which is the appropriate place for updates on preliminary and evolving issues such as these. If these proposals make sufficient progress throughout the year, they will be included in our 2023 WMP.

C. MGRA Comments

MGRA's comments regarding risk modeling are extensive. We appreciate MGRA's active involvement in risk modeling issues and, as MGRA notes, we have made changes to our risk modeling in response to MGRA's feedback where appropriate.[30] Below, we summarize and address a number of the specific issues raised by MGRA regarding risk modeling. At a high level, however, we think these issues are best addressed in the Energy Safety led risk modeling working group, rather than through initial and reply comments. We look forward to discussing these issues further with MGRA in the working group. Finally, at the end of this section, we include a table with MGRA's risk modeling recommendations and our responses.

[29] GPI Comments, p. 11.

[30] MGRA Comments, pp. 36-37.

First, MGRA re-iterates comments that it made regarding PG&E's 2021 WMP and the influence of wind on ignition probabilities.[31] PG&E addressed these arguments during the 2021 WMP review process.[32] Moreover, in response to the Final Action Statement on the 2021 WMP, we further addressed this issue.[33] Finally, as MGRA explains, this is an issue that has been raised in the ongoing Energy Safety led risk modeling working group.[34] To the extent MGRA has concerns regarding the use of wind speeds in risk modeling, the working group is the best forum to address these issues. MGRA also states that although operational models "correctly account for wind effects," planning models do not.[35] While operational models which are used for decisions such as initiating PSPS events are heavily influenced by wind, planning models also consider wind through variables/covariates included in the planning models. For example, our 2022 Wildfire Distribution Risk Model (WDRM) v3, which will be used in the future for planning system hardening, vegetation management and other wildfire mitigation activities, incorporates data sets from the Fire Potential Index (FPI) that include fuel moisture, wind speed and direction, temperature and precipitation and also incorporates wind gust data.[36] Thus, wind data is included not only in our operational models, but is included in our planning models as well. In the 2021 WMP, PG&E explained in detail how wind data was incorporated into its modeling.[37]

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[31] MGRA Comments, pp. 17-31.

[32] *Reply Comments on the 2021 Wildfire Mitigation Plan of Pacific Gas and Electric Company*, submitted in R.18-10-007 on April 13, 2021, pp. 18-20.

[33] *See Progress Report Response to Energy Safety Remedies PG&E-21-01 through PG&E-21-28,* submitted November 1, 2021 (Progress Report), pp. 8-9; 2022 WMP, Attachment 4.6-Atch1, pp. 4-5.

[34] MGRA Comments, pp. 24-25.

[35] *Id*. at p. 38.

[36] 2022 WMP, p. 132, Table PG&E-4.5.1-4.

[37] *See* 2021 WMP, pp. 162-166.

Second, MGRA mistakenly concludes that PG&E's planning models do not capture "extreme weather dependency."[38] Extreme weather is part of the "worst weather day" assessment in Technosylva and FPI models used in the 2022 WDRM v3 which will be used for future planning purposes once finalized and approved.

Third, MGRA asserts that utility ignitions are weather dependent.[39] While weather certainly is an important factor in the potential for ignitions, it is not the only factor. For example, fuel moisture plays a critical factor in the potential for wildfire ignitions.[40] This is highlighted by the data presented in the 2022 WMP regarding the dramatic change in large wildfires caused by electrical facilities on non-RFW days during the drought (*i.e.,* conditions impacting fuel moisture).[41] We have incorporated numerous weather-related factors, including wind, precipitation, temperature, humidity, and fuel moisture data, into our risk modeling to comprehensively evaluate the potential for ignition.[42]

Fourth, MGRA suggests changes to the utilities' risk modeling including the addition of a conditional probability driver.[43] This kind of detailed modeling proposal is best addressed through the Energy Safety led risk model working group, rather than trying to address this issue in WMP comments. MGRA recognizes that "PG&E has made significant changes to both its consequence model and its risk calculation for planning purposes" and that "some of these changes may address issues MGRA has raised in the past . . .."[44] PG&E has been open to ongoing collaboration with and input

[38] MGRA Comments, p. 18.

[39] *Id*. at pp. 31-37.

[40] 2022 WMP, p. 81 (citing external sources for information regarding the impact of fuel density and moisture on ignition potential).

[41] *Id*. at p. 730.

[42] *Id*. at pp. 90-93 (data inputs for ignition models).

[43] MGRA Comments, p. 41.

[44] *Id*. at p. 43.

from MGRA, and, as MGRA recognizes, has made changes in response to MGRA feedback.[45] MGRA's most recent proposals should be carefully considered and reviewed by technical experts through the working group process.

Finally, MGRA makes a number of recommendations for PG&E and the utilities generally.[46] Our response to these recommendations is provided in Table 1 below:

Table 1: Response to MGRA Recommendations for PG&E and Utilities

MGRA Recommendation	PG&E Response
Utilities should adjust their enterprise risk modeling to correct for the bias introduced by using "worst case" weather days in their consequence model. This may be done by applying a RFW filter (as PG&E has done) or by other corrections.[47]	PG&E agrees with this recommendation
Utilities must adjust their per-circuit/per-segment risk modeling used for planning and prioritization to correct for the bias introduced by using the "worst case" weather days in their consequence models. This will require that risk drivers receive unique weightings. Utilities should attempt to apply this correctly over the landscape, since both drivers and weather conditions vary over the landscape.[48]	PG&E agrees with this recommendation and believes that we are already implementing this in our risk modeling
Utilities should investigate incorporating conditional probability per driver per consequence simulation, since this would allow current utility wind/outage models to be leveraged to provide the most accurate predictions.[49]	PG&E agrees with MGRA that these recommendations regarding conditional probability require further discussion and study. Whether these recommendations should be

[45] *See also id*. at pp. 36-37 (noting that PG&E made changes to its Enterprise Risk Model as a result of MGRA feedback).

[46] MGRA makes recommendations to the utilities generally, specific utilities, and to Energy Safety. PG&E is responding to the recommendations that are PG&E-specific or are directed to the utilities generally but is not responding to recommendations to Southern California Edison Company (SCE) or San Diego Gas & Electric (SDG&E) and is not responding to recommendations directed to Energy Safety.

[47] MGRA Comments, p. 43.

[48] *Id*. at p. 43.

[49] *Id*. at p. 43.

MGRA Recommendation	PG&E Response
	implemented would then be informed by the results of this further discussion and study.
Energy Safety should closely evaluate PG&E's 2022 WDRM v3 approach and ensure that it properly incorporates correlations between ignition probabilities and consequences for specific drivers during "worst case" weather days.[50]	PG&E agrees with this recommendation and would welcome Energy Safety's review of and feedback on the 2022 WDRM v3. However, MGRA also states that "[n]o major hardening programs should go forward without proper prioritization." PG&E understands this statement to be that no hardening program should proceed until Energy Safety has completed its review of the 2022 WDRM v3. Given the urgent need to conduct system hardening to mitigate catastrophic wildfire risks, and that the work occurs in HFTD areas which by definition are higher risk, a standstill of hardening efforts while Energy Safety conducts its review would not be appropriate.
Energy Safety should ask utilities to provide additional information regarding Technosylva's building loss and fire suppression models.[51]	PG&E supports Energy Safety working directly with Technosylva on modeling issues. We note that the CPUC has partnered with Technosylva recently to perform an assessment of the 2019 PSPS and simulate fires from all damages and hazards found. Their public reports can be found here: https://www.cpuc.ca.gov/consumer-support/psps/technosylva-2019-psps-event-wildfire-risk-analysis-reports. The CPUC reviewed Technosylva's technology at that time and may continue to partner with Technosylva.
Energy Safety should closely analyze PG&E's consequence model that incorporates VIIRS and Cal Fire data as well as Technosylva to determine whether it accurately predicts catastrophic wildfire consequences better than Technosylva alone.[52]	PG&E supports this request
Utilities should include the potential for wildfire smoke exposure when estimating risks and benefits from power shutoff.[53]	This issue was identified in Rulemaking (R.) 20-07-013 and should be further discussed there.. Generally, wildfire risk is already significantly higher than PSPS consequence, so the inclusion of

[50] *Id*. at p. 45.

[51] *Id*. at p. 47.

[52] *Id*.

[53] *Id*. at p. 52.

MGRA Recommendation	PG&E Response
	the potential for smoke exposure will generally not impact results.
Energy Safety should identify the installation of AQI sensors as a utility best practice and encourage utilities to initiate or expand programs.[54]	This recommendation appears to be unnecessary. PG&E understands that some government agencies already have air quality sensors throughout Northern and Central California that we can gather data from.
Energy Safety should require that all utilities demonstrate that their enterprise risk models correctly calculate extreme wildfire losses with mathematically correct functions, such as power law or Pareto distributions, and should note PG&E's approach as a best practice. In cases where utilities use an alternative function or method for calculating catastrophic wildfire losses, Energy Safety should require that the utility demonstrate that it is fully incorporating high end losses (of the magnitude of Camp fire and larger).[55]	PG&E does not oppose this proposal, but notes that, as MGRA indicates, we have already made these changes.
Energy Safety should also validate that all utility enterprise risk models incorporate weather effects not only into their consequence models but also into the ignition probability component. PG&E's approach of tying its Catastrophic tranche to Red Flag Warnings should be further evaluated, since it introduces a correct correlation between weather-dependent risk drivers and worst weather days used in Technosylva calculations.[56]	We believe our current approach is a good reflection of weather impacted drivers. We recognize the combination of various weather factors may impact results and that RFW is an industry-wide accepted filter that reflects elevated fire risk in relation to weather conditions. It should also be noted that RFWs are human decision at a county level so not without subjectivity.
All utilities should use outages with conditional ignition probabilities, and merge PSPS damage events into their risk event samples to avoid suppressing risk indicators from areas often subject to PSPS.[57]	PG&E agrees and has taken this approach in its 2022 WDRM v3.

[54] *Id*.

[55] *Id*. at p. 56.

[56] *Id*.

[57] *Id*. at p. 57.

V. INPUTS TO THE PLAN AND DIRECTIONAL VISION FOR WILDFIRE RISK EXPOSURE (SECTION 5)

Section 5 describes our directional vision, goals, objectives, and targets for the 2022 WMP, as well as planning for workforce and other limited resources. MGRA was the only party that commented on this section, asserting that Energy Safety should consider the costs of specific programs, such as undergrounding, and the impacts of rates of return.[58] While the utilities include cost information in their WMPs, cost recovery and impacts and cost-effectiveness are not within the scope of this review. Instead, as the Legislature has directed, the WMP is focused on "preventative strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks."[59] The Legislature and CPUC have also directed that cost-related and cost recovery issues be addressed in a utility's General Rate Case (GRC), not in review of the WMP.[60] Given this clear statutory and regulatory direction, MGRA's comments regarding a detailed evaluation of costs and rate impacts are outside the scope of this proceeding. Cost, cost recovery, and cost effectiveness issues should be addressed in the GRC, as explained in more detail in Section VI.A.12 below with regard to similar issues raised by TURN related to undergrounding.

VI. INITIATIVES (SECTION 7)

A. Grid Design and System Hardening (7.3.3)

Section 7.3.3 of the 2022 WMP addresses wildfire mitigation through Grid Design and System Hardening work. Cal Advocates, GPI, MGRA, RCRC, and TURN commented on this section of PG&E's 2022 WMP. The comments were primarily focused on PG&E's distribution system hardening work (Section 7.3.3.17.1), which

[58] *Id*. at pp. 57-61.

[59] Cal. Pub. Util. Code § 8386(c)(3).

[60] Cal. Pub. Util. Code § 8386.4(b)(1); D.19-05-036, pp. 23-25.

includes both undergrounding of electrical lines (also described in Section 7.3.3.16) and covered conductor installation and maintenance (also described Sections 7.3.3.3 and 7.3.3.4). PG&E's undergrounding work also includes the rebuilding efforts taking place in Butte County following the 2018 Camp Fire described in Section 7.3.3.17.6. The remaining initiatives in Section 7.3.3 of PG&E's 2022 WMP were not addressed by other parties in any significant detail. Below, we address the parties' comments regarding PG&E's distribution system hardening work described in the 2022 WMP.

1. System Hardening Project Categorization (Cal Advocates)

For 2022, PG&E's highest wildfire risk miles are separated into four categories:

(1) the top 20 percent of circuit segments as defined by PG&E's 2021 WDRM v2 for system hardening;

(2) fire and major emergency rebuild within HFTD areas;

(3) PSPS mitigation projects; and

(4) locations identified by PG&E's Public Safety Specialist (PSS) team as presenting elevated wildfire risk.[61]

Cal Advocates proposes that categories 1 and 4 be combined and that PG&E organize our system hardening program into these three separate categories for work planning and report the disaggregated data starting in Q2 2022.[62] Cal Advocates suggests that Energy Safety create three separate initiatives for the three different system hardening categories, each with separate mileage targets and forecasts, for reporting purposes as part of the 2023 WMP.[63]

As an initial matter, although the highest wildfire risk categories provide different system hardening opportunities, each strives to achieve the same goal: making our system

[61] 2022 WMP, p. 537.

[62] Cal Advocates Comments (Utility Specific), pp. 9-10.

[63] *Id*.

safer for our customers. Therefore, each of these categories is critical to the work that PG&E performs on our system.

PG&E tracks data for system hardening work by each of the highest wildfire risk mile categories identified in the 2022 WMP and can provide actual results (dollars and units) for each category. However, PG&E does not support consolidating system hardening work into the three categories identified by Cal Advocates and then disaggregating these three categories for reporting purposes. This change in reporting would require Energy Safety to modify its approved GIS Standard as well as the data tables used for quarterly reporting because they are not organized in this way. In addition, it is unclear whether Cal Advocates is suggesting that other utilities report undergrounding work in this manner. This has the potential to lead to confusion when comparing quarterly reports across utilities. Finally, forecasting budgets and units for each category can be problematic. The fire rebuild category is particularly difficult to forecast because it is responsive to external factors and may vary significantly.

For these reasons, PG&E recommends that system hardening progress reporting remain as is. If Energy Safety or others are interested in information regarding PG&E's progress in each of the highest wildfire risk categories, we can provide the information in response to a data request. PG&E recommends that any discussion regarding revising the 2023 WMP template regarding system hardening reporting be included in workshop discussions this summer with Energy Safety and other interested stakeholders.

2. Undergrounding Risk Prioritization (Cal Advocates)

Cal Advocates recommends that Energy Safety require PG&E to: (1) limit undergrounding efforts to the riskiest 10% of HFTD circuit segments; (2) perform at least 80% of undergrounding mileage in the riskiest 10% of the HFTD circuit segments each year; and (3) report on these metrics in each quarterly data report starting in Q3 2022.[64]

[64] *Id.* at pp. 18-19.

Cal Advocates suggests that this requirement continue until PG&E has hardened at least 80% of our riskiest miles, reduced the cost of undergrounding to $2.5 million per mile or less, and has demonstrated that it can execute undergrounding projects in less than two years.[65]

These suggestions oversimplify a complex issue that PG&E, and all utilities, face when planning system hardening projects. In general, risk models should inform our workplans, but they cannot not directly dictate the workplans. System configuration, environmental conditions, climate change, cost, and other drivers require the need to be more flexible with work planning. In addition, PG&E has a set of wildfire mitigation programs, including EPSS, PSPS, EVM and system inspections, to keep customers and communities safe, while allowing for the scaling and sequencing of the underground program.

PG&E can identify the top 10% of riskiest circuit segments based on current risk modeling, but these segments may lend themselves to different types of system hardening mitigations other than undergrounding. For example, in areas with more grass and fewer strike potential trees, PG&E may determine that overhead hardening work is faster, and more cost effective, than undergrounding.[66] Line removal may be possible in a high-risk area, or a remote grid may be feasible.[67] Having these options in our toolkit allows us to plan work in a way that balances cost with risk reduction across our service territory.

Cal Advocates' suggestions also fail to consider that risk may not be uniform across circuit segments. Once a circuit segment, or a portion thereof, is targeted for system hardening, PG&E's Distribution Planning Engineers develop three primary alternatives for construction: (1) all underground; (2) all overhead; or (3) a hybrid alternative utilizing the specific hardening alternative thought to be the best fit for each

[65] *Id*.

[66] 2022 WMP, p. 525.

[67] *Id.* at p. 538.

section in the project.[68] Requiring PG&E to perform all our undergrounding work in the top 10% riskiest circuit would potentially lead to cost and construction inefficiencies.

Finally, wildfire risk continues to exist outside of the top 10% riskiest circuits. PG&E has a target that 80% of our system hardening miles be highest risk miles and 10 percent be performed through undergrounding or asset removal over the 3-year period from 2021-2023.[69] PG&E has put significant time and energy into preparing our system hardening work plans.[70] Requiring PG&E to abandon these plans and pivot to only undergrounding in certain highest risk locations would significantly impact our progress towards the system hardening targets in the 2022 WMP. In addition, Cal Advocates ignores the fact that risk exists across the HFTD and HFRA areas and thus undergrounding even on circuits that are not in the highest 10% still reduces risk.

3. Undergrounding Metrics and Success Criteria for PG&E (Cal Advocates)

Cal Advocates suggests that Energy Safety state that PG&E's undergrounding targets are only approved contingent on PG&E meeting unidentified success metrics and performance criteria to be determined following workshops and public comment this summer.[71] Cal Advocates suggests that Energy Safety issue final metrics and criteria for the undergrounding program by October 1, 2022.[72] If the metrics are not met, Cal Advocates suggests that Energy Safety re-evaluate PG&E's undergrounding initiative.[73]

PG&E will continue to be transparent in our future undergrounding plans and objectives, and we welcome workshop collaboration to develop success metrics for

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[68] *Id.* at p. 540.

[69] *Id.* at p. 545.

[70] *See* attachment 2022-02-25_PGE_2022_WMP-Update_R0_Section 4.6_Remedy 21-14_Atch01-Redacted_R1.xlsx to the 2022 WMP.

[71] Cal Advocates Comments (Utility Specific), p. 21.

[72] *Id.*

[73] *Id.*

undergrounding work by the utilities. The annual WMP submission provides an opportunity for Energy Safety to review PG&E's progress on undergrounding work over the course of a calendar year. PG&E's 2022 undergrounding workplan is already in progress. Introducing new requirements that will be known only late in the year, and mid-year re-evaluations, while work is in progress, would make it very difficult to ramp up the undergrounding program in 2022 and may negatively impact our ability to mitigate wildfire risk and meet the 2022 WMP targets. Accordingly, any new criteria for evaluating the effectiveness of undergrounding work in 2022 should instead be considered by Energy Safety in creating the 2023 WMP template. In this way, all utilities will understand what performance metrics, if any, will apply to future undergrounding plans when creating initiative targets.

4. Undergrounding Execution and Scope (RCRC and Cal Advocates)

RCRC states that "PG&E has done little to identify more exacting areas where their ambitious undergrounding work would take place and begin necessary conversations with local officials (easements, permitting)."[74] RCRC notes that PG&E must start involving local officials earlier to better target optimal areas for undergrounding "if it wants to achieve the success it promises."[75]

PG&E disagrees with the stated criticisms of RCRC relating to undergrounding outreach. As stated in the 2022 WMP, PG&E has formed, and meets with an Undergrounding Advisory Group which is comprised of stakeholders representing the following sectors: environmental and land stewardship, social justice and policy, transportation, agriculture, labor, utilities and telecommunications, access and functional needs, public safety, and counties and tribes.[76] Moreover, PG&E's 2022 WMP includes an attachment detailing the 2022-2023 system hardening workplans broken down by

[74] RCRC Comments, p. 4.

[75] *Id.*

[76] 2022 WMP, p. 526.

undergrounding, covered conductor, and line removal.[77] The attachment identifies the cities, counties, and latitude and longitude of the work in scope as of the date the 2022 WMP was filed.[78] This provides significant insight into the areas where undergrounding work will be taking place. And as part of our undergrounding planning, we are regularly reaching out to local governments and other stakeholders to resolve issues relating to easements and permitting.

RCRC questions whether PG&E's undergrounding program is warranted, especially if it could result in long-term delays to safeguard high risk circuits in HFTD areas and leave many communities at the mercy of "last resort" PSPS and EPSS measures for years.[79] However, PG&E does not intend to perform less system hardening work overall as part of our commitment to undergrounding. PG&E performed 210 miles of system hardening work in 2021 and is proposing to harden 470 miles of distribution lines in 2022. This includes undergrounding work outside of the Butte County underground program, which is tracked separately. One of the areas of emphasis for the undergrounding program is to work miles that will remove customers from the PSPS scope.[80] Additionally, as outlined in the 2022 WMP, PG&E proposes to increase the number of underground miles over the coming years, significantly growing the program beyond historical amounts of system hardening work. All this work, along with our other wildfire mitigation programs, will continue to safeguard high risk circuits in the HFTD areas.

Cal Advocates argues that PG&E has not justified the scale of our proposed undergrounding plan and that it may not be feasible at the proposed pace.[81] RCRC also

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[77] *See* attachment 2022-02-25_PGE_2022_WMP-Update_R0_Section 4.6_Remedy 21-14_Atch01-Redacted_R1.xlsx to the 2022 WMP.

[78] *Id.*

[79] RCRC Comments, p. 5.

[80] 2022 WMP, p. 524.

[81] Cal Advocates Comments (Utility Specific), pp. 13-16

questions the probability of execution of our undergrounding plan.[82] PG&E recognizes that we have set aggressive targets relating to undergrounding work. However, we believe these targets are reasonable to respond to ongoing climate change issues as evidenced by the fact that California had its 5th and 2nd driest water years, respectively, in the last century in 2020 and 2021.[83]

PG&E explained how we intend to scale up our undergrounding work and accelerate our pace in our WMP. In Section 7.3.3.16, we explain our plans for successfully executing undergrounding work on a greater scale. We identified various plans to ensure undergrounding delivers on its full potential including, but not limited to: expanding the qualified workforce for future projects; implementing new planning strategies to more efficiently scope work; partnering with internal natural gas teams, as well as water, sewer, phone and internet providers and agencies to joint trench and share costs, where possible; and strategically packaging work, including longer sections of circuits, to take advantage of economies of scale in construction.[84] We also described plans to accelerate our undergrounding pace through: using skilled internal and external resources to complete the work in partnership with represented labor partners; looking at opportunities to update design and construction standards and implement work process improvements; and proactively managing supply chain issues and working to expand the supplier base for materials.[85]

5. The Cost and RSE of Undergrounding (MGRA, RCRC, TURN)

While parties generally agree that undergrounding is very effective at reducing ignition risks associated with overhead powerlines, several parties argue that PG&E should not expand the undergrounding program because it is cost prohibitive. MGRA

[82] RCRC Comments, p. 5.

[83] 2022 WMP, p. 730.

[84] *Id.* at p. 529.

[85] 2022 WMP, p. 532.

argues that PG&E's proposed 10,000 mile undergrounding program is not supported by cost efficiency estimates when compared to other mitigations.[86] RCRC states that undergrounding is not a "cost effective" pathway to expeditiously reduce risk on existing overhead assets.[87] And TURN argues that Risk Spend Efficiency ("RSE") values do not support PG&E's undergrounding proposals.[88]

PG&E disagrees with these assertions. Our comprehensive wildfire mitigation strategy, described in the 2022 WMP, focuses on increasing the number of miles and pace of undergrounding, expanding the EPSS program, and adjusting the scope of EVM. PG&E's program to underground 10,000 distribution circuit miles in and near HFTD areas will effectively reduce the ignition risk to zero for lines that have been converted from overhead to underground. The primary objective of the program is to target undergrounding in the areas where the wildfire threat and PSPS impacts have been the highest. Increasing the number of undergrounded miles in HFTD areas prevents ignition events on those lines. Over time, PG&E will rely less and less on EPSS and PSPS, which will become measures of last resort if wind and weather threaten the safety of the community being served. Undergrounding also makes the system more reliable in the long-term and leads to reductions in operations and maintenance costs in the areas of inspections, vegetation management, and weather-related repairs.[89]

This integrated wildfire mitigation strategy (involving undergrounding, EPSS, and EVM) will result in changes in the RSE for the system hardening program. As shown in Table 2 below, the RSE for system hardening overhead decreases and the RSE for system hardening underground increases year-over-year from 2022 to 2026 as PG&E realizes efficiencies in our undergrounding program:

[86] MGRA Comments, p. 10.

[87] RCRC Comments, p. 4.

[88] TURN Comments, pp. 6-14

[89] 2022 WMP, p. 535.

TABLE 2
CHANGES IN SYSTEM HARDENING RSE VALUES 2022-2026

Line No.	Mitigation No.	2022	2023	2024	2025	2026
1	WLDFR-M002 [Overhead]	7.5	6.1	5.9	5.8	5.6
2	WLDFR-M002 [Underground]	4.1	4.8	5.0	5.4	5.9

PG&E's RSE values support expanding our undergrounding work when one looks at the multi-year changes.

TURN raises a number of more detailed arguments regarding RSEs, cost effectiveness, and benefit-cost ratios which are addressed in more detail below in Section VI.A.12.

6. Undergrounding Progress Reporting (Cal Advocates)

Cal Advocates suggests that PG&E be required to file detailed quarterly data reports on our goal to underground 10,000 miles, beginning in the 2nd quarter of 2022 and that these reports include actual progress toward mileage targets, project timelines, project cost estimates, updates on research and cost reductions, design specifications, and construction plans.[90] Cal Advocates argues this is necessary because PG&E is allegedly "failing to report the extent of planned projects in an accurate and timely manner."[91]

As an initial matter, PG&E disputes that we have failed to provide accurate and timely reporting of our undergrounding progress. Cal Advocates has criticized PG&E for alleged discrepancies between the undergrounding data provided in quarterly data reports (based on GIS data) and as built construction documents obtained through discovery, as well as for certain projects moving from "in progress" to "planned" over time.[92] PG&E

[90] Cal Advocates Comments (Utility Specific), pp. 10-13.

[91] *Id.*

[92] Comments of the Public Advocates Office on Pacific Gas and Electric Company's Quarter Four (Q4) Quarterly Data Report, Docket #2021-SCs, February 15, 2022.

has informed Cal Advocates that these issues do not reflect inaccurate data.[93] Simply put, finalizing construction documents prior to their incorporation into GIS takes time, as explained below:

> Prior to being received by the GIS Mapping Department, completed job packages must undergo several processing steps including clerical review, processing, and paperwork scanning. Sometimes completed job packages require additional information from the field or post-estimating work. The processing steps take time to complete. Until a project is completed and mapped, detailed information remains in the design systems and paper job packages. Once data is mapped in PG&E's GIS systems, it can be formatted to meet the requirements of the Office of Energy Infrastructure Safety (OEIS) File Geodatabase schema and included in our GIS Data Standard submissions.[94]

In addition, projects in progress may require additional planning, so it is not uncommon for a project's status to change from "in progress" to "planned." These status changes are dynamic, and data provided in quarterly submissions reflect status at the time of source system extraction.[95]

PG&E will continue reporting our undergrounding progress on a quarterly basis as we strive to reach 175 miles of undergrounding in 2022. The Energy Safety templates do not require the additional information proposed by Cal Advocates and PG&E does not support expanding reporting requirements in this area. The WMP process already requires an unprecedented amount of detail to be reported on a frequent basis (quarterly or annually). Energy Safety should evaluate the necessity and efficacy of requiring substantially more reporting (including some of the details requested here like project cost estimates, design specifications and construction plans). Providing more detail

[93] See PG&E's response to Cal Advocates, Data Request #3, PGE-Sonoma County Undergrounding Follow-up, Question 1, Submitted on February 4, 2022.

[94] *Id.*

[95] *Id.*

quarterly will incur additional time and costs for all parties including PG&E, parties, regulators, and others.

7. Collaboration Proposals Relating to Undergrounding (Cal Advocates)

In 2021, the utilities coordinated to develop a consistent approach to evaluating the long-term risk reduction and cost-effectiveness of covered conductor deployment.[96] Cal Advocates suggests that Energy Safety expand the existing collaboration on system hardening methods to include programs beside covered conductor (*e.g.*, undergrounding).[97] PG&E agrees that collaboration between the utilities on items such as undergrounding, composite crossarms, and fire-resistant poles would be beneficial to develop shared understandings of the benefits and costs of various hardening methods.

Cal Advocates also suggests convening the utilities in the summer of 2022 to consider the risk reduction, cost, and variations in practices in undergrounding programs and requiring the utilities to produce a report like the joint covered conductor report as an attachment to their 2023 WMPs.[98] As indicated above, PG&E supports collaborating with other utilities and benchmarking. However, given the significant length and complexity of the WMP templates, which already require a thorough discussion of undergrounding programs, a separate joint utility report on undergrounding should not be included in the 2023 WMP template.

Finally, Cal Advocates suggests that the utilities develop plans to co-trench shared utilities and to submit those plans in their 2023 WMPs.[99] As indicated in the 2022 WMP, PG&E is already exploring opportunities to partner with telecommunications companies and other agencies on joint trench opportunities when we perform undergrounding

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[96] See 2022 WMP, Remedy PGE 21-09.

[97] Cal Advocates Comments (General), pp. 5-6

[98] *Id.*

[99] *Id.* at p. 7.

work.[100] However, we cannot require the other utilities to join us and share the costs. This is a complex issue that requires a thorough analysis and approach by all parties involved. For these reasons, we believe that a unilateral Energy Safety directive to submit plans for joint trenching may not be an effective long-term policy solution for this issue.

8. Covered Conductor Effectiveness Questions (MGRA, GPI)

MGRA agrees that the utilities completed a comprehensive covered conductor study that complied with Energy Safety's request, but it still has concerns regarding covered conductor effectiveness as a mitigation tool.[101] MGRA suggests that the utilities are "low-balling" the effectiveness of covered conductor and artificially repressing its RSE in favor of other work like undergrounding.[102] Inasmuch as SCE has deployed the most covered conductor date (approximately 2,500 miles), MGRA suggests that Energy Safety validate SCE's data regarding outages to see whether covered conductor is truly 60-70% effective at eliminating ignition risk, as indicated by SCE, SDG&E, and PG&E.[103]

PG&E strongly disagrees with any suggestions that we are artificially "low-balling" the effectiveness of covered conductor at reducing ignition risk. The Joint Utility report on covered conductor effectiveness submitted with the 2022 WMP in connection with Remedy PG&E-21-09 was a comprehensive study on the subject completed by the joint utilities. As noted by MGRA, PG&E and SDG&E found that covered conductor is 63% and 65% effective at reducing ignition risk, respectively.[104] SCE—whose covered conductor program is the most extensive— found that covered

[100] 2022 WMP, pp. 526, 529, 531.

[101] MGRA Comments, p. 68.

[102] *Id.* at p. 72.

[103] *Id.*

[104] *Id.* at p. 70.

conductor only prevents approximately 60% of ignitions.[105] The consistency of these findings do not support a conclusion that PG&E, or any other utility, is manipulating data to reduce RSE scores for covered conductor work. Moreover, PG&E has shared the methodology for calculating covered conductor ignition risk in many regulatory filings including the RAMP proceeding (Application (A.) 20-06-012), the 2023 GRC[106], and several WMPs. PG&E uses subject matter expert review and applies the potential benefits of covered conductor against historical events to estimate effectiveness. This is a sound methodology for evaluating covered conductor use for future projects.

On a related note, MGRA argues that Energy Safety should not approve any major roll out of undergrounding as a long-term solution until the effectiveness of alternatives to undergrounding like Rapid Earth Fault Current Limiter (REFCL), PSPS, and EPSS have been more fully evaluated.[107] PG&E disagrees that undergrounding should be postponed in favor of research on other mitigations. We must take aggressive steps to ensure the safety of our system and the public now. As indicated in PG&E's Supplemental 2023 GRC testimony submitted on February 25, 2022, and reiterated in these reply comments, PG&E has performed an RSE analysis of overhead hardening and undergrounding. The analysis shows that from 2022-2026, the RSE for system hardening overhead will decrease and the RSE for system hardening underground will increase year-over-year as PG&E realizes efficiencies in our undergrounding program.[108] For this reason, we believe that the 2022 WMP target of 175 miles of undergrounding is appropriate and that the miles targeted for undergrounding are the most economic and/or risk mitigating solution.

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[105] *Id.* at p. 69.

[106] PG&E filed its 2023 GRC in A.21-06-021.

[107] *Id.* at p. 76.

[108] PG&E's Supplemental 2023 GRC Testimony, Exhibit (PG&E-4), Chapter 3, pp. 3-6.

Finally, GPI noted the occurrence of more rapid covered conductor wear and tear associated with aeolian vibrations.[109] GPI suggests that all the utilities report on how they will address aeolian vibration wear and tear on covered conductor.[110] PG&E does not disagree with this suggestion, if Energy Safety would like the issue to be covered in future WMP submissions. PG&E continues to investigate how to mitigate this risk through design standards and equipment.

9. REFCL Collaboration (MGRA)

MGRA suggests that Energy Safety begin a REFCL working group with a goal of identifying design configurations that would be most appropriate for California utilities, expanding potential pilot sites and goals, and identifying and solving potential problems and pitfalls.[111] MGRA proposes that the group present bi-annually to stakeholders regarding progress.[112]

PG&E is collaborating with other utilities to share learnings and experiences with the REFCL technology. We plan to continue regular discussions and collaboration in the future. Therefore, PG&E supports reporting on the status of these learnings and sharing in the 2023 WMP. However, PG&E does not believe it is necessary to report out on the findings prior to the submission of the 2023 WMP in light of the significant amount of quarterly reporting already associated with the WMP and the limited REFCL work planned for 2022.

10. Microgrids for PSPS Events (RCRC)

RCRC argues that utilities must work to ensure that microgrids already developed and present in communities to mitigate PSPS events can be energized to provide crucial local power resiliency during other types of outages, such as EPSS, where it is safe to do

[109] GPI Comments, p. 15.

[110] *Id.*

[111] MGRA Comments, p. 80.

[112] *Id.*

so.[113] PG&E is working on various types of customer support strategies to support customers that could be affected by outages on EPSS-enabled circuits. This includes expansion of resources available to help our customers through our Generator Rebate Program[114] for customers who rely on well water, customers in our Medical Baseline Program, and certain small businesses. In 2022, funding and eligibility will expand for that program. In addition, in 2022 the Portable Battery Program[115] will be available for eligible customers affected by EPSS, and we will expand the Backup Power Transfer Meter[116] offering to all customers on EPSS-capable circuits, making it easier and safer for them to connect a generator.

When operationally feasible, microgrids developed to support customers with PSPS outages may be used during other types of outages, including longer duration EPSS events. To date, many of the microgrids developed for PSPS support are operated manually, leveraging temporary generation. The lead time required to energize these microgrids may exceed the total duration of an outage on an EPSS-enabled circuit, which PG&E seeks to restore within four hours. In these instances, these microgrids would not be effective tools to support customers. PG&E is also looking to innovate the existing microgrids to allow for semi-automatic and automatic operation under certain outage conditions with safe to operate distribution systems.

11. Executive Compensation (MGRA)

MGRA asserts that Energy Safety should review whether incentives to support and complete capital projects, like undergrounding, are part of utility executive compensation packages as a part of the WMP process. Executive compensation is not within the scope of the WMP review process, nor should it be added. However, Energy

[113] RCRC Comments, p. 3.

[114] 2022 WMP, p. 889.

[115] *Id*. at p. 483.

[116] *Id*. at p. 479.

Safety does review executive compensation, but it is as part of the statutory safety certification process, which includes specific requirements for executive compensation.[117] Therefore, this issue is more properly addressed in the safety certification forum.

12. Issues Raised by TURN

TURN raises issues regarding the cost effectiveness of PG&E's undergrounding program that require a further response. Below, we address at a high level the issues raised by TURN.

a. TURN's Comments Are Outside The Scope Of WMP Review, By TURN's Own Admission

TURN's proposal to limit the amount of undergrounding performed by PG&E in 2022 to 30 miles based on its flawed cost-effectiveness analysis is outside the scope of this proceeding. When the WMP process started in 2019, TURN had a very different view of the appropriate scope of the WMP proceeding:

> In light of the [Senate Bill 901's] deferral of the determination of whether costs are just and reasonable and may be recovered from ratepayers, the Commission should direct that the utility [wildfire mitigation] plans not propose and seek approval of new discretionary programs that have the potential to impose significant additional costs on ratepayers. This limitation should not prevent utilities from *describing* new discretionary programs that they intend to propose in a GRC or other proceeding, but subject to the caveat that such proposals have been or will be made in a different proceeding that provides the review necessary to ensure just and reasonable rates.[118]

In comments on the 2019 WMPs, TURN expressly addressed cost-effectiveness:

> In this first-in-time implementation of Senate Bill (SB) 901, the Commission faces an important threshold question – what is the significance of approval of a Wildfire Mitigation Plan (WMP). The utilities

[117] See Cal. Pub. Util. Code §§ 8389(e)(4), (6).

[118] *Opening Comments of The Utility Reform Network on the Order Instituting Rulemaking*, submitted November 5, 2018 in Rulemaking (R.) 18-10-007, p. 4 (emphasis in original).

> seek to attach major ratemaking consequences to Commission approval, which as discussed below are contrary to the plain words of Section 8386(g) and otherwise poor policy. In this proceeding, intervenors (i.e., non-utility parties) will be afforded only five weeks for review, analysis and comment on seven WMPs -- without adequate opportunity to probe in any detail the scope, pace and cost-effectiveness of the many new programs they propose and without any opportunity to test the veracity of utility statements through cross examination and evidentiary hearings.[119]

TURN went on to explain:

> Based on these SB 901 provisions and the conditions under which these first WMPs are being reviewed, Commission approval should focus on whether each WMP has adequately addressed each of the twenty elements specified in Section 8386(c) and, in that way, assess whether the approved WMP appears consistent with minimizing the risk of a catastrophic wildfire caused by the utility's electric system.[120]

The CPUC ultimately agreed with TURN and other parties concluding:

> The question remains: what does WMP approval mean? Here again the statute provides the answer: approval means that every WMP contains 19 elements that the SB 901 Legislature deemed essential to catastrophic wildfire mitigation. Those elements are aimed at ensuring an electrical corporation has plans in place to protect the public from catastrophic wildfire.[121]

TURN's new proposal that Energy Safety evaluate and require modifications to PG&E's WMP based on its flawed cost-effectiveness assertions is quite a reversal from TURN's earlier position. Notably, TURN has not argued or even suggested that PG&E's 2022 WMP fails to comply with the statutory requirements – which TURN earlier asserted should be the sole focus of WMP review. Instead, TURN has submitted lengthy comments and expert testimony focused on the costs and cost-effectiveness of PG&E's programs[122] – the very issues TURN said should not be included in a WMP review based

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[119] *Comments of The Utility Reform Network on Wildfire Mitigation Plans*, filed March 13, 2019 in R. 18-10-007, p. 1 (footnotes omitted, emphasis added).

[120] *Id*. at pp. 1-2.

[121] Decision (D.) 19-05-036, p. 25.

[122] TURN Comments, pp. iii (summary of TURN comments).

on the statutory language. In its 2019 comments, TURN argued that 5 weeks was not sufficient to review and probe the cost and cost-effectiveness of the utilities' WMPs. Now however, TURN is submitting a 19-page expert report and 23-page brief which PG&E has a week to review and respond to, and inadequate time to conduct discovery on, before this reply is due.

Finally, TURN is not without a venue to raise its concerns. The California Legislature has expressly directed that "[t]he [CPUC] consider whether the cost of implementing each electrical corporation's [WMP] is just and reasonable in its general rate case application."[123] TURN is actively involved in PG&E's 2023 GRC, having propounded voluminous discovery on issues such as undergrounding and vegetation management, and will be submitting intervenor testimony in that proceeding on June 13, 2022. PG&E expects that TURN can and likely will make identical arguments in the 2023 GRC. As TURN's own comments from earlier in the WMP process suggest – the appropriate place to address the cost-effectiveness of the undergrounding and EVM programs is in the GRC, not here. Moreover, given that PG&E only had a week to respond to TURN's lengthy comments and expert testimony, it would be prejudicial to expect PG&E to present a full response here to TURN's flawed cost-effectiveness claims. PG&E expects to address TURN's arguments in the 2023 GRC, consistent with TURN's earlier statements. TURN's comments are not, however, a basis for requiring PG&E to amend its 2022 WMP.

b. TURN's Cost-Effectiveness Analysis is Flawed

As explained above, PG&E had one week to review TURN's comments and expert testimony. Given this short amount of time on an issue that is clearly outside the scope of the WMP review, our comments on TURN's cost-effectiveness analysis are preliminary. We expect that TURN will raise identical arguments in its 2023 GRC

[123] Cal. Pub. Util. Code § 8386.4(b)(1).

testimony to be submitted on June 13, 2022. We expect to provide a more detailed review and analysis of TURN's proposal in our rebuttal testimony. However, we did want to flag some preliminary concerns regarding TURN's cost-effectiveness methodology.

First, TURN's entire argument appears to be premised on a conversion of RSE scores to a benefit-cost ratio and its assertion that scores below 1 on TURN's benefit-cost ratio are not cost-effective.[124] To support this argument, TURN's expert relies on his own mathematical formulas and concludes that dividing the RSE score by 5 gives you the benefit-cost ratio.[125] The "simple math" proposed by TURN's expert is untested. It has not been the subject of discovery or rigorous scrutiny, nor has this approach been adopted by the CPUC or approved in either the S-MAP proceeding[126] or the RAMP proceedings. In short, it is one person's hypothesis of how to determine a benefit-cost ratio for wildfire mitigation. This certainly is not sufficient to justify Energy Safety directing PG&E to reduce its 2022 undergrounding target by 83%.

Second, the method by which TURN translates RSEs into a benefit-cost ratio in order to assert that PG&E's programs are not cost effective is predicated on a linear relationship between dollars input to the risk calculation and risk units output. This conversion of natural units such as dollars into risk units is the function of the MAVF. TURN's methodology holds only if the MAVF encodes a risk neutral perspective (*i.e.*, linear scaling function over the entirety of each attribute range). This is a misunderstanding of PG&E's MAVF, which includes a concave scaling function (*i.e.*, non-linear; the risk score assigned to increasingly costly risk events escalates faster than cost increases of the risk event). It is therefore incorrect to apply this translation indiscriminately to risk units output from PG&E's risk modeling given PG&E's risk-

[124] TURN Comments, p. 10.

[125] *Id*. at Appendix A, p. 15.

[126] The S-MAP settlement was approved in D.18-12-014.

averse MAVF, and the selection of the upper bound ($5B) means that the translation of weighted risk units back to dollars as a measure of benefit is all but guaranteed to underestimate those benefits. The MAVF in its entirety (attribute upper bounds, weights, scaling function) must be considered if one wants to translate weighted risk units back into natural units. TURN does not appear to consider PG&E's scaling function and therefore oversimplifies this conversion such that the benefit-cost ratio is not reliably informative on the topic of cost effectiveness.

Finally, TURN uses RSE values as an absolute criteria to determine whether wildfire mitigation activities, such as undergrounding, are appropriate. PG&E is not aware of any determination in the RAMP or S-MAP proceedings that RSE values should be treated as values as an absolute criteria to determine the cost effectiveness (or benefit cost ratio). Instead, as the S-MAP Settlement provides:

> In the RAMP and GRC proceedings, the utility will clearly and transparently explain its rationale for selecting mitigations for each risk and for its selection of an overall portfolio of mitigations. The utility is not bound to select its mitigation strategy based solely on RSE ranking. Mitigation selection can be influenced by other factors including funding, labor resources, technology, planning and construction lead time, compliance requirements, and operational and execution considerations.[127]

c. TURN Mistakenly Uses RSE Scores From the 2023 GRC

TURN's analysis is premised on using RSE values from the GRC proceeding to evaluate the cost effectiveness of 2022 work.[128] However, the 2022 RSE values in the 2023 GRC risk modeling workpapers were not intended to be used in this manner. These values are derived by computing the risk reduction for 2023-2026 programs for GRC using test-year baseline risk scores. The 2022 programs are in the GRC workpapers to compute test-year baseline risk scores for evaluating 2023-2026 programs. Because the

[127] D.18-12-014, Attachment A, Appendix A, pp. A-5 to A-6.

[128] TURN Comments, p. 7.

RSE values for 2022 in the 2023 GRC risk modeling workpapers were using test-year baseline risk scores to compute risk reduction, this resulted in an underestimation of the potential risk reduction from these 2022 programs. Thus, TURN should not use 2022 RSEs from GRC workpapers to comment on the RSE for 2022 programs in WMP.

TURN also states that "PG&E has modeled its 2022 planned work in its RSE analysis for the GRC . . .."[129] However, PG&E's RSE analysis modeled total 2022 planned miles for each program but was not modeled based on planned location of the projects within the program. Thus, TURN's analysis of the benefit-cost ratio of specific projects is mistakenly premised on RSEs that are not project specific.

d. TURN's Tranche-Level Analysis Is Flawed

TURN's analysis largely rests on its use of tranche-level RSEs, rather than program level RSEs.[130] However, a tranche-level RSE analysis is not meant to be used to assess the cost-effectiveness of the planned project under the program at each location, because: (1) the tranche-level risk score per mile reflects the average risk score of all miles in tranche; (2) the project unit cost could vary by project; and (3) tranche-level allocation of 2022 proposed program miles for each program does not reflect the exact miles of 2022 planned work in each tranche. Moreover, tranche-level risk modeling is not used to prioritize and select the projects. When PG&E chooses a location to underground, we consider program-level RSEs for system hardening alternatives for individual projects based on the WDRM model results for specific location (not aggregated into the tranche-level) and specific cost and feasibility for each project, in addition to other factors. TURN's proposal that PG&E base its RSE analysis on tranches should also be rejected.[131]

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[129] *Id*. at p. 10.

[130] *Id*. at p. 7; Appendix, p. 16 (explaining program and tranche level RSEs)

[131] *Id*. at p. iv.

e. RSE Scores Are In Their Early Stages and Should Not Be Used as the Sole Criteria For Approval of Wildfire Mitigation Programs

Aside from the problems with TURN's conversion of RSEs to benefit-cost ratios, TURN also ignores the fact that RSEs are not sufficiently developed, nor are they sufficiently comprehensive, to be the only tool by which wildfire mitigations are measured. As we explained in our 2022 WMP:

> Although RSEs are useful in decision making, there are other considerations in determining the prioritization of programs and initiatives. PG&E views RSE as one tool to evaluate risk initiatives and uses it as one input into the overall decision-making process.[132]

In part this is because the development of robust RSEs is still relatively nascent and subject to variation. As Energy Safety noted in its Final Action Statement approving PG&E's 2021 WMP:

> Energy Safety raises a concern that there are stark variances in RSE estimates, sometimes on several orders of magnitude, for the same initiatives calculated by different utilities. For example, PG&E's RSE for covered conductor installation was 4.08, SDG&E's RSE was 76.73, and SCE's RSE was 4,192. These drastic differences reveal that there are significant discrepancies between the utilities' inputs and assumptions, which further support the need for exploration and alignment of these calculations.[133]

This variability in RSEs given their early stages of development is exactly why Energy Safety has established an RSE working group. TURN's arguments imply that we should be willing to effectively abandon wildfire mitigation measures that are proven effective at reducing risk simply because TURN's evaluation of the RSE scores tells us to do so. The drastic reductions in undergrounding and EVM proposed by TURN would have long lasting consequences slowing essential programs that can and do effectively mitigate wildfire risk.

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[132] 2022 WMP, pp. 783-784.

[133] OEIS, Final Evaluation of 2021 Wildfire Mitigation Plan Update, Pacific Gas and Electric (Final Action Statement), Docket #2021-WMPS, issued September 22, 2021, pp. 100-101.

f. TURN's Criticism of PG&E's MAVF Approach Is Not Well-Founded

TURN's expert asserts that there are flaws in PG&E's MAVF calculation[134] and TURN suggests that Energy Safety direct PG&E to make "improvements" in its MAVF calculation. The appropriate approach to MAVFs is a subject which will be addressed in the CPUC's new Risk Order Instituting Rulemaking (R.) 20-07-013. The Scoping Memo in that proceeding, issued on April 13, 2022, identified MAVF as one of the issues that will be addressed in that proceeding.[135] If TURN believes that PG&E's MAVF methodology is incorrect, it should raise those issues in R.20-07-013.

B. Asset Management and Inspections (7.3.4)

Section 7.3.4 of the 2022 WMP describes the work performed through PG&E's inspection programs including, detailed inspections, infrared inspections, pole inspections, Light Detection and Ranging (LiDAR) inspections, substation inspections, and quality assurance (QA)/quality control (QC) of inspections, among other items. Cal Advocates was the only party to comment on our work in this area and we address both Cal Advocates' support and criticism of our inspection programs below.

1. Establishing Programs to Examine the Links Between Ignitions and Maintenance (Cal Advocates)

Cal Advocates notes with approval PG&E's Asset Failure Analysis program, stating that this team has the ability to "help PG&E identify corrective actions that will mitigate similar problems in the future" and "is a positive step that can improve safety in the long run."[136] Cal Advocates points out that the other utilities do not have similar programs and urges Energy Safety to "require all [utilities] to establish a program to evaluate the root causes of equipment-caused ignitions, and to implement corrective

[134] TURN Comments, Appendix A, pp. 8-14.

[135] *Assigned Commissioner's Phase II Scoping Memo and Ruling Extending Statutory Deadline*, R.20-07-013, issued April 13, 2022, p. 4.

[136] Cal Advocates Comments (General), p. 8.

actions."[137] We appreciate the support of Cal Advocates for our program. Similarly, Cal Advocates states that "Energy Safety should require all IOUs to establish a program to evaluate the root causes of equipment-caused ignitions, and to implement corrective actions."[138] We note that we currently have such a program and began reporting this information to Energy Safety in 2022.

2. Examining the Effectiveness of Drone Inspections (Cal Advocates)

Cal Advocates next recommends that Energy Safety "convene a technical working group to seek consensus on the most effective approaches to aerial inspections."[139] PG&E would have no objection to such a working group. We note that we already utilize drone inspections for a significant portion of our assets and that, after a successful pilot program, we are conducting an expanded pilot program to determine additional areas where drone inspections can be helpful.[140] Cal Advocates further suggests that each utility submit a report in advance of the working group that analyzes the potential applications of drone inspections, including the effectiveness and limitations.[141] Again, PG&E has no objection to this recommendation.

3. PG&E's Asset Inspection Quality (Cal Advocates)

Cal Advocates states that "Energy Safety should require PG&E to submit a revision to its 2022 WMP, detailing near-term and long-term improvements to its asset inspection programs, with the goal of substantially reducing the inspection failure rate in 2022."[142] Energy Safety should reject this recommendation as it is unnecessary. PG&E is diligently working to continue to improve its inspection programs and provides a

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[137] *Id*. at p. 8.

[138] *Id*. at p. 9.

[139] *Id*. at p. 12.

[140] 2022 WMP, p. 234.

[141] Cal Advocates Comments (General), p. 12.

[142] Cal Advocates Comments (Utility Specific), p. 24.

significant description of the work being performed in this area in Section 7.3.4.14 of the WMP.[143] Specifically, our 2022 WMP explains how PG&E is taking the following steps in 2022 to improve its systems inspections work:

- Launching a pilot to expand the QC program for systems inspections;
- Integrating all systems inspections QC data for ease of access and use;
- Creating and focusing on a new category of activity in systems inspections called "Continuous Improvement" activities;
- Enhancing the continuous monitoring of performance trends in systems inspections to provide a better analysis of systemic issues;
- Performing real-time validation and correction of failed or non-conformance issues in systems inspections;
- Immediately escalating any non-adherence to systems inspections processes and procedures;
- Investigating systemic issues in systems inspections;
- Investigating and validating root causes of poor performance in systems inspections; and
- Monitoring systems inspections corrective actions for effectiveness.[144]

In addition, although not set out in detail in our WMP, we have already taken the following actions to improve our systems inspections work thus far in 2022:

- Issued a request for proposal (RFP) seeking a single contractor to perform the inspections work, as opposed to having multiple contractors as was done in previous years, which will result in more consistent personnel to perform the work;
- Provided the option for a three-year inspections contract, as opposed to an annual contract, which will result in less turnover and more knowledgeable inspectors;

[143] 2022 WMP, pp. 619-623.

[144] 2022 WMP, p. 621.

- Augmented the field assessment process for inspectors to be performed after their training to confirm they have the appropriate knowledge to perform inspections;
- Created internal metrics related to ignition risk to emphasize this aspect of inspection training;
- Added additional focus on ignition risk in the inspection training materials; and
- Adopted a hands-on approach to onboarding and training of inspection personnel by executives, including the Vice-President of Systems Inspection, Jason Regan.

Thus, Cal Advocates' statement urging that "PG&E investigate the root causes of its high inspection failure rate" is unnecessary.[145] As described above, we are already performing this work and describe it in our 2022 WMP. The appropriate place to further describe our specific and quantifiable progress throughout the year is in our quarterly reports, not in a revised WMP.[146] Furthermore, as we did in our 2022 WMP, we plan on reporting on our efforts to improve our inspections in our 2023 WMP and, therefore, agree with Cal Advocates' recommendation on this point.[147]

4. Addressing PG&E's Maintenance Notification Backlog (Cal Advocates)

Cal Advocates urges Energy Safety to "require PG&E to file a revision to its 2022 WMP, outlining its plan to remediate the existing maintenance notifications in its HFTD."[148] However, such a revision is not necessary because we address this issue throughout our 2022 WMP. In particular, we describe that we have taken the following specific and concrete steps to resolve this issue:

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[145] Cal Advocates Comments (Utility Specific), p. 24.

[146] *Id*. ("These improvements must be specific and quantifiable, and should be rolled out as soon as possible, throughout 2022.").

[147] *Id*. ("PG&E should additionally report on its efforts to improve inspection quality in its 2023 WMP.").

[148] *Id*. at p. 28.

- Implemented a program to proactively reduce the backlog of electric corrective (EC) tags from inspections;[149]
- Created a designation system to rank the tags based on priority of response so that the most severe tags are completed first;[150]
- Analyzed these tags and determined that the majority are low severity (E tags) that are not an immediate safety concern and that require corrective action within 36 months as set out by CPUC General Order (GO) 95;[151]
- Developed a new approach for risk modeling to better account for the risk of ignition from each tag and to help prioritize the most dangerous tags first;[152]
- Positioned ourselves to eliminate the entire backlog of open HFTD ignition-related tags for transmission assets by the end of 2022;[153]
- Prioritized our backlog of open tags on distribution assets so the highest risk tags, including in HFTD areas, will be resolved first;[154]
- Affirmatively stated that, in 2022, we will have a plan for resolving the entire backlog of open tags on our distribution assets;[155] and
- Increased the number of patrol inspections of our distribution assets to assist in resolving this backlog.[156]

Given this detailed description of our efforts to resolve the backlog of maintenance notifications, it is not necessary to require a revised WMP. First, this information was already included in our WMP and is also being publicly provided in the Quarterly Maintenance Report that is served in multiple Commission proceedings.[157] Second, if

[149] 2022 WMP, p. 316.

[150] *Id*.

[151] *Id*.

[152] *Id*. at pp. 316-317.

[153] *Id*. at pp. 505, 521.

[154] *Id*. at p. 508.

[155] *Id*. at p. 509.

[156] *Id*. at p. 611.

[157] These reports are served on all parties in three Commission service lists: R.18-10-007; R.18-12-005; and I.19-11-013.

needed, the best place for us to continue to address this issue would be in our quarterly updates where information on our annual progress is provided.

In the same vein, Cal Advocates argues that we "should describe a plan to ensure that no priority A or B notification will become overdue unless it does not present an ignition risk."[158] However, as set out above, PG&E has already articulated that it will resolve all high-priority tags (including A and B tags) in a timely manner and will not let them become overdue. Cal Advocates then urges Energy Safety to "require PG&E to report on open maintenance notifications in its quarterly reports, beginning in quarter 2 of 2022 and continuing indefinitely."[159] While we would be happy to provide this information as part of our quarterly reports to Energy Safety, PG&E notes that this information is already being provided publicly as part of our Quarterly Maintenance Report to all parties in three separate Commission service lists.

Cal Advocates also recommends that "PG&E should target the resolution of all overdue maintenance in its HFTD by the end of 2022."[160] As described above, and described in our WMP, we have already targeted the resolution of all outstanding maintenance tags relating to HFTD ignition-related transmission assets by the end of the year.[161] Targeting and expediting the resolution of the non-ignition related tags (*e.g.*, missing signage) would not be the best use of resources until these higher priority tags are completed. Similarly, for tags relating to distribution assets, we have prioritized the highest risk tags, confirmed that maintenance on these tags will be done timely, and increased the number of patrol inspections to help remediate this backlog.[162]

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[158] Cal Advocates Comments (Utility Specific), p. 4.

[159] *Id*.

[160] *Id*.

[161] 2022 WMP, pp. 505, 521.

[162] *Id*. at pp. 508, 611.

C. Vegetation Management and Inspection (7.3.5)

Section 7.3.5 of the 2022 WMP describes our vegetation management initiatives. Cal Advocates, GPI, CDFW, GPI, RCRC, and TURN submitted comments regarding this section of our WMP. These parties' comments are addressed below.

1. Cal Advocates Comments

Cal Advocates raises issues regarding projected decreases in vegetation management costs in 2023.[163] This is an issue that is outside the scope of review of the 2022 WMP and is being addressed in PG&E's 2023 GRC proceeding. Moreover, as PG&E explained in discovery and in the 2023 GRC, the reduction in costs will not adversely impact risk reduction from the vegetation management program:

> By transitioning the strengthened tree assessment from Enhanced VM to Routine VM program, it allows PG&E to target high risk trees across the entire HFTD, instead of only those high risk trees located within the ~1800 miles (7 percent) of HFTD targeted by EVM. This is why, despite the reduced cost in EVM and increased cost for Routine VM, PG&E expects to reduce more risk across the system.[164]

PG&E has provided detailed information regarding 2023 vegetation management costs and risk reduction in the GRC, where this issue is currently being addressed.

Cal Advocates also raises questions regarding use of the Tree Assessment Tool (TAT) in 2023.[165] Again, this is outside the scope of the 2022 WMP review. As PG&E explained in discovery:

> For 2023, PG&E will update its tree inspection standards, procedures and training which will outline how to identify the hazard trees. While an updated Tree Assessment Tool (TAT) will be available, how and if it will be used as part or Routine VM patrols has yet to be determined. For additional context, PG&E is currently in the process of updating the Tree

[163] Cal Advocates Comments (Utility Specific), p. 30.

[164] PG&E response to CalAdvocates_018-Q02(d).

[165] Cal Advocates Comments (Utility Specific), p. 30.

Assessment Tool to make improvements based on feedback received over the course of 2021.[166]

Proposed changes to the TAT, if any, will be shared with Energy Safety and described in more detail in future WMPs if applicable.

2. CDFW Comments

CDFW's comments discuss the need for early consultation with CDFW and completion of documents for permits necessary for some of PG&E's wildfire mitigation activities.[167] PG&E appreciates CDFW's comments and will continue to work with CDFW and other state and federal agencies to expeditiously obtain permits as needed for our wildfire mitigation work.

3. GPI and RCRC Comments

GPI expresses some concerns regarding PG&E's wood debris removal and residue management citing Section 7.5.3.1 in the 2022 WMP.[168] RCRC also comments on debris removal and clean-up.[169] Wood debris management is addressed in Section 7.3.5.5 which describes in detail our current programs, including increased efforts in 2021 and the positive customer response received to these efforts.[170]

GPI also requests that PG&E clarify the specific datasets and data collection used for its Targeted Tree Species Study.[171] The 2022 WMP already provides detailed information regarding this study, including data elements, methodology, and timing for results.[172] To the extent GPI has additional questions regarding the study, it can seek that information through discovery or reach out to us for further discussion.

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[166] PG&E response to CalAdvocates_018-Q01(b).

[167] CDFW Comments, pp. 3-4.

[168] GPI Comments, pp. 3-4.

[169] RCRC Comments, p. 5.

[170] 2022 WMP, pp. 647-649.

[171] GPI Comments, p. 11.

[172] 2022 WMP, pp. 105-107.

RCRC asks for clarification that PG&E will continue to comply with the CPUC's General Orders regarding vegetation management.[173] PG&E will fully comply with all regulatory and legal requirements related to our vegetation management program. Our statement that vegetation management needs will decrease in areas where facilities are undergrounded simply reflects the fact that when undergrounding is performed, vegetation management for overhead facilities will no longer be required because these facilities will have been undergrounded.

4. TURN Comments

TURN initially comments that PG&E "masked" its EVM spending.[174] However, as TURN notes, the EVM program was included with our vegetation management programs in Initiative 7.3.5.2 and thus, consistent with the direction for Table 12, the EVM program costs were included in with the other vegetation management programs in Initiative 7.3.5.2. Had TURN wanted a breakdown of EVM costs, it could have asked for this in discovery. This is exactly what Cal Advocates did and the information was provided within three business days, as well as being provided to all parties in PG&E's WMP data request tracker.[175] Had TURN simply reviewed the WMP discovery, it would have seen this information was readily available.

TURN then argues, using the same flawed logic that it used for the undergrounding program, that PG&E's EVM program is not cost-effective.[176] The flaws with TURN's approach are described above in Section VI.A.12 and apply equally to TURN's EVM analysis.

Finally, TURN's myopic focus on RSEs and its flawed cost-effectiveness analysis result in it ignoring other clear evidence about how PG&E's EVM program is effectively

[173] RCRC Comments, p. 5.

[174] TURN Comments, pp. 16-17.

[175] PG&E response to CalAdvocates_015-Q16.

[176] TURN Comments, pp. 19-21.

reducing the risk of catastrophic wildfires. In the Enhanced Oversight and Enforcement Process (EOEP) initiated by the CPUC regarding the EVM program, PG&E has been submitting 90-day reports documenting and describing in detail the risk ranking of circuit protection zones in HFTD areas and how PG&E's EVM workplan is being performed on a risk ranked basis to address the highest risk areas. This information is also described in the 2022 WMP, which includes links to or attaches the 90-day reports.[177] In 2021, PG&E completed 98% of its EVM work on the top 20% of highest risk ranked circuits. TURN ignores these risk reduction benefits, described in the WMP and documented in the EOEP process, and instead argues that EVM should be reduced in 2022 from 1,800 miles to 18 miles despite the significant risk reduction.[178]

D. Grid Operations and Protocols (7.3.6)

Section 7.3.6 of the 2022 WMP addresses wildfire mitigation through Grid Operations and Protocols. The only portion of this section that parties commented on was Section 7.3.6.8 regarding our EPSS program. These comments are addressed below.

1. Working Group to Align on Fast Recloser Settings (Cal Advocates, RCRC)

While it agrees that "fast recloser settings" are an effective and efficient way to prevent fire ignitions, Cal Advocates suggests that because the three utilities' (*i.e.*, PG&E, SCE, and SDG&E) implementation of their respective "fast recloser settings" programs vary, a working group should convene with the aim of bringing the three utilities into alignment and developing consistent best practices.[179] Similarly, RCRC comments that since all utilities are capable of programming these "fast trip" settings to mitigate against fire ignitions, there should be an effort to standardize the terminology in

[177] 2022 WMP, pp. 53-54.

[178] TURN Comments, p. 22.

[179] Cal Advocates Comments (General) at pp. 13-15.

order to make better comparison of these initiatives, including how they mature over time.[180]

Given the proven effectiveness of the EPSS program, we regularly meet and partner with the other utilities as well as the CPUC to report on metrics, EPSS performance, and to share best practices and strategies related to "fast recloser settings" engineering and operations. The outcome of these meetings has led to reliability and operational improvements to minimize customer impacts from EPSS-associated outages which include a more surgical approach to enable EPSS. We value stakeholder collaboration and support participation in working groups that lead to improvements on the effectiveness and impacts of EPSS.

In addition to joint utility working groups, we conduct public webinars to foster discussions on how we can better serve our communities, while allowing customers to learn more about the new wildfire safety settings on distribution line protection devices and the steps we are taking to improve reliability. As updates and improvements are made to these settings throughout the year, we will also continue to communicate those to customers and stakeholders as they are rolled out.

2. EPSS Customer Outreach and Support (RCRC, MGRA, Cal Advocates)

RCRC expresses concerns regarding customer solutions for programmed outages such as EPSS and states that PG&E "appears to be shifting away from surgical, deliberative Public Safety Power Shutoffs in favor of generating smaller, automatic and frequent unplanned outages and in doing so is steering away from mitigation measures such as microgrids even though both PSPS and EPSS outages are a result of wildfire ignition prevention measures."[181] Similarly, MGRA comments that while EPSS will significantly reduce ignitions, it has also impacted numerous customers in the same

[180] RCRC Comments, pp. 2-3

[181] RCRC Comments, p. 2

manner as PSPS but without the mitigation that advanced notifications provides.[182] Cal Advocates also comments that on frequently impacted circuits, the utilities should describe measures taken or planned to be taken to reduce the number, duration and scope of fast-trip outages.[183]

As wildfire risk has continued to grow over the past several years, PG&E has taken action to address drought-intensified conditions and extremely dry vegetation across our state that greatly increase the potential for catastrophic wildfire. As discussed in our 2022 WMP, EPSS is a new wildfire prevention tool that reflects our continuous evolution, not to replace PSPS, but to supplement it as an additional and effective wildfire prevention measure to reduce ignitions on hot, dry days where winds are elevated but not to the extreme levels that require PSPS.[184]

PSPS and EPSS are two very different and distinct wildfire mitigation tools. Each is designed to be implemented under different wildfire risk criteria and thresholds to prevent wildfires. As explained in our 2022 WMP, we are not shifting away from PSPS in favor of EPSS but rather adding EPSS as an additional and effective wildfire prevention tool to mitigate wildfire risk. We have seen the devastating wildfires, such as the Dixie Fire and the Caldor Fire, that our state experienced last year outside of typical wind-driven fire thresholds that may trigger a PSPS. Severe drought conditions are driving an increased potential for wildfires as extremely dry vegetation can rapidly fuel fires from human ignitions or even a lightning strike. Given these environmental conditions, a tree contacting a single powerline can lead to overwhelming damage and destruction. Wildfires from vegetation debris falling into powerlines have the potential to become catastrophic, even outside of the wind-driven (*i.e.,* RFW or PSPS) weather conditions that are typically associated with major wildfires. Unlike PSPS events (*i.e.*,

[182] MGRA Comments, p. 10.

[183] Cal Advocates Comments (General), at pp. 16-17.

[184] 2022 WMP, pp. 730-739.

larger scale planned outages) which are a measure of last resort when severe fire weather is forecasted; under EPSS, power will only be disrupted if powerlines are struck by foreign objects or if there is an issue with the equipment. Therefore, crews must patrol the circuit – and perform any necessary repairs – prior to restoring power. This will ensure no issues exist that could spark an ignition while also helping to restore power for customers as quickly as possible.

EPSS is already protecting our customers. On September 7, 2021, at 2:36 p.m., our EPSS adjusted Coarsegold 2104 circuit successfully shut off power after a healthy tree fell onto the distribution line, breaking two poles and taking a primary wire down. This could have caused a major wildfire if these settings were not in place. The community where the fault occurred is at a high risk for wildfire with large amounts of vegetation that could fuel a fire and tight roads which make exiting the area in an emergency difficult. We are grateful these adjusted settings helped prevent what could have been a catastrophic wildfire and that our crews worked diligently to restore power as quickly as possible. This successful de-energization and restoration is what we strive for in the areas of our service territory with these adjusted settings. By utilizing all the wildfire mitigation tools at our disposal, we are building the state-of-the-art electric system our customers deserve and making it safter every day.

While EPSS helps to prevent wildfires, we understand these settings can also result in outages for customers. We know how difficult it is to be without power, which is why we are taking steps to reduce the burden of outages on customers and communities. However, MGRA quotes the State Auditor's Report, which erroneously states that the average EPSS outage in 2021 was 17.5 hours.[185] This is incorrect. The average duration of all EPSS outages was 6.7 hours. Further, we adjusted settings during the late summer of 2021 and continue to fine-tune the sensitivity of these safety settings

[185] MGRA Comments, p. 89.

in 2022, so outages only occur when there is a potential wildfire threat. That means power outages will be less likely when wildfire risk is lower. The average duration of outages from optimized settings in 2021 was 4.8 hours, and we are working to further reduce that average in 2022. We have further optimized our device settings and patrolling methods to help decrease the size of the outage area and the length of outages while ensuring safety.[186] After optimizing the safety device settings and improving our restoration processes last year, there was a 40% reduction in the average customer outage duration on EPSS-enabled circuits. Based on analysis of historical data, we estimate approximately two-thirds of the approximately 1.8 million customers who receive power from an EPSS-capable circuit will experience less than one of these outages during the wildfire season.

Additionally, we have resources available to help our customers prepare for outages and stay safe, including:

- Generator Rebate Program for customers who rely on well water, customers in our Medical Baseline Program and certain small businesses. For 2022, funding and eligibility will expand.
- Portable Battery Program for eligible customers in our Medical Baseline Program who live in high fire-threat areas or have experienced two or more Public Safety Power Shutoffs (PSPS) outages since 2020. For 2022, we have removed the low-income requirement.
- Expansion of the Backup Power Transfer Meter offering to all customers on EPSS-capable circuits, making it easier and safer for customers to connect a generator.
- A reduced cost on energy bills and extra alerts for customers in the Medical Baseline Program.

We are also focused on several long-term solutions, such as undergrounding powerlines, and are actively conducting this work in parallel with the expansion of these safety settings. To help keep public safety partners and customers informed, we have

[186] 2022 WMP, Section 7.3.6.8.

also enhanced our notification process and coordination with critical customers (*e.g.* hospitals, schools, Medical Baseline customers and first responders), telecommunications carriers and local agencies. We are committed to proactively communicating with customers, businesses, and communities we serve to help them prepare for outages and stay safe this wildfire season.

In February of this year, we sent potentially impacted customers an email informing them of these safety settings. In early April of this year, we sent an email regarding safety settings, our ongoing wildfire safety efforts, and outage preparedness resources. A letter version will be sent to customers later in April. Other steps we are taking to improve our communications before, during and after outages include:

- Increasing our outreach and communications to impacted customers via email, and direct mail.
- Increasing our social media and local media outreach efforts to raise awareness, including posts on social media sites Nextdoor and Facebook.
- Customers will be notified when an outage has occurred and when they can expect power to be restored by text, email or phone.
- Utilizing paid advertising on local radio and social feeds.
- Creating an EPSS-dedicated web page with key information and resources that will post outage updates to our online outage map on the PG&E website.
- Holding public webinars to foster discussions on how we can better serve our communities, while allowing customers to learn more about the new wildfire safety device settings and the steps we are taking to improve reliability.

3. EPSS Reporting (Cal Advocates, MGRA)

Cal Advocates[187] and MGRA[188] recommend the utilities report information on data pertaining to fast-trip trip outages, the number of circuits affected, total customer-minutes of such outages, customers affected and frequently impacted circuits (to evaluate circuit vulnerabilities due to weather conditions or state of circuit health). We currently provide monthly reporting to CPUC's Safety and Enforcement Division on the various data points suggested by Cal Advocates and MGRA. For tracking and reporting purposes, PG&E's standard "Basic and Supplemental Cause Codes" are designed and utilized to document the reason for an outage e.g., vegetation or bird contract, and records the weather conditions at the time of the outage. Based on this tracking and documentation of "causes", PG&E will be able to identify any recurring patterns on its EPSS circuit segments which will aid in identifying and assessing any needed improvements to help prevent future outages. We are also establishing an outage review process to identify trends in known outage causes, as well as a process to conduct investigations into outages with an unknown cause. This analysis will drive follow-up mitigation activities on the circuit.

Through continuous data tracking and analysis, we will continue to take action to study and further adjust protective device settings to allow for better coordination, and to fine-tune the sensitivity of these safety devices. These device optimization changes should reduce the size of the outages and allow for quicker restoration times.

VII. PUBLIC SAFETY POWER SHUTOFFS

Sections 7.3.6.5 and 8 in PG&E's 2022 WMP address PSPS issues. In these sections we described our protocols for PSPS events, our vision for PSPS going forward, anticipated changes in PSPS impacts, how we engage vulnerable communities, and PSPS

[187] Cal Advocates Comment (General), pp. 16-17.

[188] MGRA Comments, p. 67.

metrics. Several parties addressed our PSPS program in their comments. These comments are discussed below.

A. Incorporating Consequence Into PSPS Decision-Making (MGRA)

MGRA questions PG&E's and other utilities' methodologies for determining PSPS consequences and notes that numerous potential harms from power shutoffs are not taken into account by the utility consequence models.[189] As discussed in our 2022 WMP, the use of PSPS events serves to minimize the risk of potential catastrophic wildfire during peak fire conditions.

PG&E understands the negative impact of PSPS events, and the risks associated with these events. For this reason, we have developed a detailed decision-making process used before a PSPS event is called[190] and protocols for mitigating the public safety impacts during PSPS events.[191] As part of our PSPS decision-making protocols, we incorporate a consequence model which takes into account the potential risks and harms to the public from de-energization versus the benefits of mitigating catastrophic wildfires by assessing the safety, reliability and financial consequence through MAVF risk-benefit tool, consistent with the Commission's defined risk methodology through S-MAP settlement.[192] The risk-benefit tool assesses the potential consequence of a PSPS event on impacted customers and compares that to the potential risk of wildfires that could occur on the circuits being considered for PSPS. Key inputs in the analysis include results from Technosylva wildfire simulations specific to the distribution and transmission circuits in scope for a potential de-energization and the number of customer hours across each identified circuit in scope for a potential de-energization.[193]

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[189] MGRA Comments, at pp. 8, 85-87.

[190] 2022 WMP, pp. 893.

[191] *Id*. at pp. 900-906.

[192] 2022 WMP, pp. 879-880.

[193] *Id*. at p. 187.

As further detailed in our 2022 WMP, the MAVF based risk-benefit tool is a utility industry-wide standard with a non-linear scaling of consequences reflecting our focus on low-frequency/high consequence risk events without neglecting high-probability/low consequence risk events.[194] The PSPS Risk-Benefit Tool utilizes multiple inputs to estimate the potential PSPS de-energization and Wildfire Risk Scores. The following inputs are used in calculations to build MAVF risk scores for PSPS events and wildfires, which are ultimately weighed against one another:

- **Forecasted Circuits** – The list of the distribution and transmission circuits identified to be in-scope for a potential PSPS event.
- **Customers Impacted** – Forecasted number of customers anticipated to be impacted by the potential PSPS event.
- **Customer Minutes** – Forecasted outage duration the customers will face by the potential PSPS event.
- **Technosylva Wildfire Simulation Data** – Fire simulation forecasts on the consequence of a potential wildfire's impacts on population and buildings on each circuit for every three hours. These values are based on Technosylva's sophisticated wildfire modeling, using real-time weather models, state-of-the-art fuel, and 8-hour fire spread modeling.

We are continuing to make improvements to the risk benefit tool to improve its utility in decision making. These improvements would better align PG&E's risk benefit calculations with meteorology data used in the decision to de-energize and therefore improve upon the results of the risk benefit tool. PG&E welcomes further guidance and input from the CPUC and industry experts on improvements to the MAVF risk model for incorporation into PSPS decision-making.

[194] 2022 WMP, pp. 911-912 and PG&E's published technical paper https://www.pge.com/pge_global/common/pdfs/outages/public-safety-power-shutoff/PSPS-Decision-Making-Technical-Fact-Sheet.pdf.

B. Evaluation of PSPS Costs and Mitigation (MGRA)

With regard to the evaluation of PSPS costs and mitigation, MGRA has three recommendations. First, MGRA suggests that "Energy Safety should drive a review of current utility methodologies for determining PSPS consequences and should invite stakeholders to provide input. Energy Safety should then provide guidelines for consequence modeling in collaboration with the CPUC."[195] PG&E would welcome defined guidance and support from Energy Safety.

Second, MGRA proposes that Energy Safety request the utilities to "provide RSE justification for their choice of mitigation programs as compared to continued dependence on power shutoff."[196] PG&E does not oppose this request and has historically provided an RSE for the PSPS program as well as other wildfire mitigation initiatives. The PSPS RSE has been relatively high due to its ability to mitigate wildfires during peak fire weather conditions. However, this is a mitigation of last resort, which is why other mitigation programs are introduced to limit the usage of PSPS.

Third, MGRA recommends "as part of the cost/benefit RSE effort to quantify PSPS harm in a way that can be used for comparison with other mitigations, EPSS harms should be quantified and compared with PSPS. It may be that EPSS has a larger cost to the public because of its sudden onset, and this needs to be balance quantitatively against potential wildfire reduction benefits."[197] PG&E already factors in both the benefit and consequence of EPSS in its RSE calculation. This approach is consistent with the methodologies established as part of the S-MAP settlement.

C. Impact of WMP Mitigations On Future PSPS Events (RCRC)

RCRC comments that it would be useful to analyze the suite of mitigation efforts completed on high-risk circuits to demonstrate the reduction of PSPS as a measure of last

[195] MGRA Comments, p. 87.

[196] *Id*.

[197] *Id*. at p. 91.

resort.[198] While we continue to build on and improve our WMP mitigation efforts, PG&E cannot forecast a reduction in the number of PSPS events in the coming years because long-term climate models point to a higher probability of more frequent fire weather conditions. The actual number of PSPS events in any given year is dependent on the weather patterns and severe weather events experienced in that year. However, based on a lookback analysis of weather data and our suite of WMP mitigations efforts we can forecast a reduction on the impacts of a PSPS event. By analyzing the impacts of our WMP mitigations on PSPS events, PG&E utilizes a 10-year lookback analysis to provide historical context regarding which lines and segments may be most prone to future PSPS events based on our most current PSPS scoping criteria. This lookback analysis helps us prioritize the most frequently impacted areas for PSPS mitigations, where appropriate.

In Table 8.6.1 of our 2022 WMP, we identified circuits that have frequently been de-energized along with the mitigation work completed to reduce the impact of future de-energization.[199] As discussed in our 2022 WMP, to calculate the effects of WMP mitigations planned for 2022, 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 impacts the mitigations may have on our customers looking forward.

Based on our analysis, the planned 2022 WMP mitigations would have resulted in the 2018 to 2021 PSPS scope being reduced by 3.3% and duration by 2.4% when compared to the 2018 to 2021 PSPS scope without WMP mitigations.[200] As our PSPS protocols and criteria including mitigations continue to evolve, we will continue to

[198] RCRC Comments, p. 6.

[199] 2022 WMP, Table 8.6.1

[200] *Id*. at p. 933.

analyze our most current PSPS modeling with look-back data to assess trends and evaluate the effectiveness of our mitigations on future PSPS events.

VIII. ADDITIONAL ISSUES RAISED BY THE PARTIES

A. Issues Raised by William Abrams

William Abrams asserts that the utilities' WMPs have been "primarily leveraged" to "avoid financial liabilities . . .."[201] This assertion, which unsupported by any evidence, is simply wrong. Our 2022 WMP provides a detailed discussion and roadmap of the wildfire mitigation activities that we are undertaking in 2022 consistent with our stand that catastrophic wildfires shall stop.

Mr. Abrams also addresses the Kincade and Dixie Fires acknowledging that PG&E recently entered into stipulated judgments with the Sonoma County District Attorney (DA) for the Kincade Fire and the DAs for Plumas, Lassen, Tehama, Shasta and Butte Counties for the Dixie Fire.[202] While PG&E strongly believes that these stipulated judgments are reasonable and in the best interests of all parties, the review of the 2022 WMP is not the appropriate venue for addressing the merits of these stipulated judgments.

Finally, Mr. Abrams includes lengthy excerpts from pre-trial transcripts related to the Kincade fire.[203] However, Mr. Abrams does not explain how these excerpts specifically relate to the initiatives and programs outlined in the 2022 WMP. More importantly, these excerpts are from pre-trial proceedings of a matter that will be resolved by the stipulated judgment described above.

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[201] Abrams Comments, p. 2.

[202] *Id*. at pp. 2-4.

[203] *Id*. at pp. 4-16.

B. Confidentiality Issues Raised by MGRA

After a dispute with SCE over the confidentiality of certain information, MGRA makes a number of recommendations related to Energy Safety's confidentiality procedures which are worth addressing. Table 3 addresses these recommendations.

Table 3: MGRA Confidentiality Recommendations

MGRA PROPOSAL	PG&E RESPONSE
"Energy Safety should find that wildfire risk geographic data cannot be considered critical infrastructure under federal law and should not be classified as confidential based on California Government Code 6255" (MGRA Comments, p. 63).	While we do not agree that such a blanket determination would be appropriate, we believe that data would not be confidential simply because it shows geographic wildfire risk. For this information to be confidential, other elements would need to be present.
"Energy Safety should require that in addition to posting all data requests that utilities also be required to post all confidentiality declarations as part of the WMP review process" (MGRA Comments, p. 64).	We are not opposed to this recommendation.
"Energy Safety should create and publish an administrative process by which stakeholders can challenge and litigate confidentiality claims" (MGRA Comments, p. 64).	We would not be opposed to this recommendation provided the challenge procedure is limited to the party requesting the data and not to other third parties. While parties should generally be able to resolve these disputes amongst themselves, there may be occasions where one party is being unreasonable, and a neutral third-party determination is necessary.
"Energy Safety should accelerate development of a public portal for GIS data, so that stakeholders do not have to request this data from utilities, so that utilities do not have to take extra effort to prepare special versions for stakeholders, and so that appropriate access restrictions can be automatically enforced" (MGRA Comments, p. 64).	We agree that a public portal showing GIS data would be beneficial. We have had discussion about creating our own public-facing GIS portal to prevent parties from using substantially outdated system data.

IX. ADDITIONAL PROPOSALS FOR THE 2023 WMP

With regard to future WMPs, several parties propose new topics or information that should be included in the utilities' 2023 WMPs.

As a preliminary matter, Energy Safety has indicated that it is in the process of developing the 2023 WMP Guidelines and is hosting a workshop on these guidelines on April 22, 2022, as well as receiving written comments after the workshop on May 6, 2022. Parties' comments on the 2023 WMP are more appropriately addressed at Energy Safety's workshop and subsequent comments rather than in comments on the 2022 WMP.

In Table 4 below, we briefly address parties' proposals for the 2023 WMP and expect these proposals will be raised and addressed in more detail at the workshop and in subsequent comments.

Table 4: Proposals Regarding The 2023 WMP

Topic	Party/Proposal	Response
Vegetation Management	Cal Advocates: Require utilities to provide details regarding in-house and contract labor for vegetation management[204]	This proposal is generally reasonable as long as the reporting requirements are not overly burdensome.
Vegetation Management	Cal Advocates: Energy Safety should require PG&E to explain in its 2023 WMP how its reduced vegetation management budget will still allow PG&E to effectively mitigate tree strike risk in its HFTD.[205]	PG&E will describe its vegetation management program in the 2023 WMP consistent with the guidelines to be provided by Energy Safety.
2023 WMP Guidelines	Cal Advocates: Energy Safety should meet with stakeholders to discuss the 2023-2025 WMP Guidelines and schedule.[206]	PG&E agrees and notes that Energy Safety has scheduled a workshop and indicated that it will be receiving post-workshop written comments. Cal Advocates' comments also include timing proposals for WMP submission and stakeholder review. PG&E will address issues related to timing in the workshop and written comments.

[204] Cal Advocates Comments (General), p. 13.

[205] Cal Advocates Comments (Utility Specific), pp. 4, 31.

[206] Cal Advocates Comments (General), pp. 23-25.

Topic	Party/Proposal	Response
WMP Format	Cal Advocates: Energy Safety should require that any documentation cited by the utilities in support of their statements in the WMPs be included as an appendix to the IOUs' WMP filings.[207]	We support this recommendation. PG&E already post all documents referenced in our 2022 WMP to our website for the public and interested parties to access.
New Build Standards	GPI: Energy Safety should require the utilities to propose a new build standard for locations in HFTD.[208]	PG&E has standards for constructing in the HFTD and can provide those, if needed. However, that is something that seems more appropriate to provide in response to a data request rather than in a wildfire mitigation plan, which is meant to be tracked throughout the year. In addition, general build standards do not necessarily relate to the requirement that a WMP contain a utility's "preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires…."[209]
Standardized Language	RCRC: Energy Safety should consider standardizing the terminology for outages produced by sectionalizing devices across all utilities in order to make better comparisons of these initiatives, including how they mature over time.[210]	PG&E supports discussions for improvements to PSPS and EPSS related outage coding if deemed necessary by Energy Safety. PG&E designates PSPS related outages as "Wildfire Mitigation, Public Safety Power Shut-off" for the Basic Cause and Supplemental Cause in our outage database. For EPSS related outages, PG&E's standard Basic and Supplemental Cause codes are utilized to document the reason for the outage, and separately an "FTS" (Fast Trip Setting) designation is recorded to track the protective device opened via the special EPSS settings.

[207] *Id*. at p. 22.

[208] GPI Comments, p. 12.

[209] Pub. Util. Code, §8386(c)(3).

[210] RCRC Comments, p. 3.

X. CONCLUSION

For the reasons explained above, PG&E's 2022 WMP fully satisfies the statutory requirements enacted by the California Legislature and put forward a bold and comprehensive set of programs and initiatives to achieve our stand that catastrophic wildfires shall stop. PG&E's 2022 WMP should be approved by Energy Safety.

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