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Office of Energy Infrastructure Safety
Natural Resources Agency

COMMENTS OF THE GREEN POWER INSTITUTE ON THE PG&E RESPONSE TO THE FINAL REVISION NOTICE FOR THEIR 2023 WMP

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The Green Power Institute (GPI), the renewable energy program of the Pacific Institute for Studies in Development, Environment, and Security, provides these *Comments of the Green Power Institute on the PG&E Response to the Final Revision Notice for their 2023 WMP*.

Introduction

We have reviewed and herein provide comments on PG&E's 2023 Wildfire Mitigation Plan (WMP) Revision Notice Responses to the following Critical Issues:

- RN- PG&E -23-01 Many of PG&E's 3- and 10-year initiative objectives do not meet Energy Safety requirements as outlined in the Technical Guidelines.
- RN- PG&E -23-02 PG&E does not provide sample sizes and target pass rates for certain asset and vegetation management quality assurance and control programs as required by the Technical Guidelines.
- RN- PG&E -23-03 PG&E has not adequately demonstrated workforce planning and resource allocation to address both EPSS risk and wildfire risk.
- RN- PG&E -23-04: PG&E does not demonstrate how it will address its growing backlog of asset repairs.
- RN- PG&E -23-05 PG&E's undergrounding plan may leave wildfire risk unaddressed in highest risk areas.
- RN- PG&E -23-07: PG&E does not adequately address its risk from hazard trees.

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

PG&E added new 3-year and 10-year initiatives objectives in response to the 2023 WMP Revision Notice Critical Issues RN-PG&E-23-01. GPI is concerned that PG&E's updated situational awareness and forecast objectives do not include concrete objectives to operationalize their situational awareness and forecasting activities. Without clearly defined objectives to

operationalize situational awareness tools, these investments could become stranded costs or their ability to actionably reduce wildfire risk could be delayed.

PG&E adds SA-07 and SA-08, a 3-year and 10-year objective, respectively, with respect to applying AI to enhance the wildfire camera network capabilities.[1] The original SA-01 objective includes enabling AI to provide more rapid wildfire notifications to internal PG&E monitoring and is cited as having the capacity to help reduce the impact of ignitions via awareness and rapid response. The new objectives, SA-07 (3-year) and SA-08 (10-year), include evaluating the AI performance and evaluating new functionalities/break-through technologies, respectively. These objectives focus on what the wildfire camera AI system is capable of, but do not include how the situational awareness tool will be operationalized by PG&E. The new 3-year objective also focuses on PG&E internal AI notifications and evaluation, while collaborations with other wildfire camera system sponsors are not scoped until the 10-year objective.

We recognize that the utilities are not first responders. However, wildfire mitigation tools, including situational awareness tools, should be directly tied to defined applications for mitigating wildfire risk (ignition or consequence), whether through a utility partnership or by the utility itself. The IOUs should consider and report on the operationalization opportunities and any developed applications based on, and in conjunction with, the anticipated wildfire camera AI evaluation results for both the 3-year and 10-year evaluation objectives. It would also be prudent for PG&E to include collaboration with other camera network sponsors during the 3-year objectives, while the AI is being tested. This is especially important because PG&E is not a first responder, and they have held that the timely relay of internally reported wildfire situational awareness information to responding agencies (i.e. operationalization) is not necessarily their primary concern in wildfire mitigation.

PG&E added new objectives SA-09, "EFD and DFA reporting" (3-year), and SA-12, "Evaluate the use and effectiveness of real-time monitoring tools" (10-year). SA-9 includes an objective to evaluate the ability for EDF/DFA to identify failures as a supplement to field inspections, with a conditional data-driven proposal for operationalizing the data. Verification for both objectives

[1] PG&E 2023 WMP Revision Notice Responses, p. 9-10

includes “feasibility proposal” deliverables to PG&E’s internal Wildfire Risk Governance Steering Committee (WRGSC). It’s not entirely clear if the one-time (SA-09) feasibility proposal specifically includes the conditional data driven proposal that would operationalize the EDF/DFA as an inspection supplement. PG&E’s feasibility proposal deliverables should include if and how the situational awareness tool outputs will be (or are) operationalized to reduce wildfire risk. Deliverables should include making the feasibility proposals publicly available and findings should be summarized in the respective WMP filing years.

In conjunction with the new SA-09 objective, PG&E revised their situational awareness targets to include two new targets, SA-10 and SA-11. DFA targets total 20 circuits by 2024 and 35 enabled circuits by 2025. EDF installations are slated for 4 circuits by 2024 and 8 circuits by 2025. Given installation and data collection time we anticipate that only the DFA and EDF installations in 2023 and 2024 may have sufficient operation time to collect data on sensor effectiveness for the purpose of informing a 2025 feasibility study and proposal with a proposed completion date of December 2025 (SA-09). Results should not be expected until the 2026 Base WMP filing. Given the drawn-out timeline for assessing the wildfire risk mitigation potential of these two situational awareness tools it is imperative that the pilot project size is adequate to provide statically significant findings by 2025 in order to report on technology feasibility and operationalization value. It’s not entirely clear whether these relatively small pilot programs will be able to deliver useful results that inform tool application by 2026. PG&E should be required to estimate the fault find rate based on project scope and the likelihood that the pilots will be able to achieve meaningful results within the proposed 3-year reporting timeline.

PG&E’s updated 3-year objectives regarding PSPS scale scope and frequency still do not include considering the impacts of interim risk-reduction measures (e.g. EPSS) or system hardening (e.g. undergrounding). PG&E scopes a 10-year objective to reduce PSPS impacts via Undergrounding (PS-09), with a proposed deliverable to use a static 2018-2022 back cast based on the 2022 PSPS protocol in order to evaluate the impact of the undergrounding plan. The deliverable is planned for December 2032. There is no reason to wait 10-years to reduce PSPS impacts via undergrounding and/or to conduct the 5-year back cast analysis based on the undergrounding plan. The proposed back-cast deliverable can be performed during the current 3-year WMP cycle. Note that PG&E has largely scoped the locations of their undergrounding mileage, has an

operational 2022 PSPS protocol, and has system-condition data from 2018-2022. Furthermore, as PG&E deploys undergrounding, they can and should immediately work towards changing the PSPS protocol for locations that have been hardened. It is imprudent for PG&E to slate PS-09 as a long-term 10-year objective and deliverable. The proposed update should be rejected and should be revised.

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

PG&E adds asset management and inspection QA program yearly target pass rates that achieve 95 percent by 2025. QA audit data was not collected in 2022, so it is not clear where the program currently stands in terms of achieving the 2023 QA target pass rate of 90 percent. PG&E plans for 500 Transmission locations and 1500 distribution QA locations.[2] They do not provide adequate justification for the selected sample size or how these samples sizes will ensure high quality work is completed by their contractors, which includes many individuals and may include multiple companies.

PG&E rejects the requirement to establish a formal QC program with transparent sample sizes and target pass rates for asset and vegetation management programs, stating:

> PG&E is currently working to integrate QC with our execution processes to drive quality during initial work execution. This approach will create real-time learnings to coach and guide workers through the work execution process so that work is completed correctly the first time.[3]

PG&E estimates the program update would cost $40M, and claims their alternate integrated QC approach as a superior and cost saving method for ratepayers.[4] The program PG&E describes in lieu of a formal QC program simply constitutes proper and adequate training, as well as job site oversight requirements. These are rudimentary expectations for asset and vegetation management and inspection programs. Well executed training and jobsite management determines whether these programs achieve the QC pass rate targets. Suggesting that these basic

[2] PG&E 2023 WMP Revision Notice Responses, p. 34-35
[3] PG&E 2023 WMP Revision Notice Responses, p. 35
[4] PG&E 2023 WMP Revision Notice Responses, p. 2-3

program elements somehow replace a QC assessment is unacceptable and may suggest that these foundational capabilities are severely lacking. PG&E's proposal for integrated QC inspections also includes internal reporting on gaps, root cause, challenges, trends, and solutions. We interpret this to mean that PG&E will not publicly report on their internal QC program results in the WMP and a quantitative QC pass rate. Relatively speaking, implementing a proper QC program is a small cost for ensuring Asset and Vegetation management and inspection programs are effective, especially compared to the approximately $18Bn price tag for PG&Es 3-year 2023-2025 wildfire mitigation plan.[5] PG&E's response to RN-PG&E-23-02 is unacceptable. GPI recommends rejecting PG&Es proposal to not include reportable QC sample sizes and results in their 2023-2025 Base WMP. PG&E's response should be deemed inadequate to address critical issue RN-PG&E-23-02.

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

In response to RN-PG&E-23-03 remedy (d) PG&E states they do not have an empirical data-informed mitigation effectiveness analysis for EPSS, and that the effectiveness value is currently based on SME assessment. The only scoped objective that clearly includes an EPSS mitigation effectiveness analysis is PS-08, a 10-year objective that generally evaluates emerging technologies, such as EPSS, that can reduce PSPS scale, scope, and frequency. Given the scale of PG&E's EPSS-enabled distribution circuit footprint, we suspect the data necessary to inform an objective EPSS wildfire risk mitigation effectiveness analysis could be available and analyzed in the current 3-year WMP cycle. PG&E should be required to update their objectives to include this analysis as a deliverable no later than 2025.

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

PG&E proposes to bundle tag work by location in order to improve efficiency. GPI is most concerned that the proposed execution plan results in a cumulative "new tag backlog" that peaks at 137,000 "new" backlogged tags by 2027. While their execution plan table ends in 2029, and

[5] PG&E Base 2023-2025 WMP, p. 67

they propose to close all backlogged tags by 2029, the table suggests otherwise.[6] PG&E plans to have the workforce necessary to close as many as 110,000 tags annually in 2028 and 2029. However, they project a total of 71,000 new tags in both 2028 and 2029, plus a "new" cumulative backlog of 98,000 and 59,000 tags, respectively, totaling 169,000 and 130,000 open tags in 2028 and 2029. Assuming PG&E closes 110,000 tags in 2029, this still creates a roll-over of 20,000 "new" backlogged tags in 2030. PG&E would not get a handle on their backlogged tags until the end of 2030 assuming they maintain a resolution rate of 110,000 tags per year. Consequently, their proposed HFTD/HFRA maintenance execution plan does not appear to resolve their backlogged and overdue tag issues appreciably faster than the original plan.

PG&E also anticipates its total annual tag closure rate to roughly double from 52,000 in 2023 to 103,000 in 2024. However, in PG&E's response to Remedy (d.i.4) "Resource Allocation Plans in order to timely close tags," they only provide a table of workforce hour and cost estimates and commit to seeking other ways to improve tag resolution efficiency.[7] GPI questions whether the proposed efficiency improvements and only a 42 percent increase in anticipated work hours from 1.4E6 to 2.0E6 in 2023 and 2024, respectively, is adequate to achieve the proposed doubling in annual closed tag rate from 2023 to 2024. If PG&E is unable to double their rate of tag closure from 2023 to 2024, and maintain a closure rate of over 100,000 tags per year, their tag backlog will extend beyond 2030. This is further corroborated by PG&Es estimate that the majority of new HFTD tags will include B and E tags, which are classified as Priority Level 2 and have a resolution time requirement of no longer than 12 or 6 months depending the HFTD tier.[8] Meaning that it is likely the forecasted backlog of 59,000 tags in 2029 would include overdue Level 2 tags in the HFTD.

The bottom line is that for years PG&E has failed to maintain an adequate workforce capable of preventing HFTD work tags from becoming overdue and accumulating into a backlog so large it will take nearly a decade to resolve. This is also despite previous ACIs (RN-PG&E-22-05) and numerous stakeholder comments highlighting the inability for PG&E to adequately address its

[6] PG&E 2023 WMP Revision Notice Responses, p. 48
[7] PG&E 2023 WMP Revision Notice Responses, p. 63
[8] PG&E 2023 WMP Revision Notice Responses, p. 61

open tag creation rate.[9] It is only now that PG&E's is planning to substantially increase their tag closure rate, which we add is still insufficient to address all new tags created in 2023 and prevent a new backlog from accumulating until 2030. The series of failures to timely address known wildfire risk associated with open HFTD work tags and in accordance with GO 95 Rule 18 resolution timelines should result in 2023-2025 WMP denial accompanied by regular updates to monitor whether PG&E is achieving its proposed overdue work tag execution plan.

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

PG&E's response to RN-PG&E-23-05 raises concern. PG&E's plan summary explains that 19 of the top 41 highest-risk circuit segments are planned for "2026 or later system hardening."[10] This statement is vague and could mean that a large portion of the circuits that comprise the top 5 percent of wildfire and PSPS risk are not mitigated with long-term system hardening until the end of the decade. Since we assume that these circuit segments include locations that are either more difficult for undergrounding, or are entirely infeasible for undergrounding, long-term risk mitigation solutions in these locations may be further delayed due to slow implementation times or lack of an alternate system hardening plan (e.g. covered conductor and/or non-wood pole replacement).

PG&E should not be permitted to punt long-term risk abatement efforts on the highest risk circuits to later dates simply because it is difficult or will take additional time to implement. That a strategy which focuses early deployment in easy to implement places will reduce more risk is a questionable argument, to say the least. Based on PG&E's wildfire consequence model, higher-risk circuit segments have experienced more FPI >= R4 days and/or are associated with more severe fires based on simulated rate of spread and flame length compared to other circuit segments. The probability of ignition in these locations may also be elevated compared to other locations. The fact of these locations being in the top 5 percent of total risk, which includes wildfire risk, suggests that the *likelihood* of a catastrophic wildfire originating from these locations in any given year is higher than the likelihood in each of the remaining circuit

[9] Revision Notice for PG&E's 2022 Wildfire Mitigation Plan Update, p. 2.
[10] PG&E 2023 WMP Revision Notice Responses, p. 65.

segments. While exposure footprint does matter, simply considering total risk as a static number to be bought down by front loading easy-to-implement undergrounding does not recognize that the *likelihood* of catastrophic wildfire occurrence is a function of location. For each year the risk is not mitigated, it is more probable that a catastrophic wildfire will start from one of the 19 circuit segments planned for 2026 or later system hardening than from any one of the other circuit segments not included in the top 5 percent of total risk. Since the difficulties associated with the proposed system hardening will not abate, delaying work on these very high-risk locations in exchange for working on lower risk, easier-to-implement locations is imprudent.

PG&E reports that the top 20 percent of risk-ranked circuit segments total 720 circuit segments. Of these 720 circuit segments, "79 are not included in an undergrounding work plan and have not been hardened." PG&E goes on the explain that they supplanted these 79 high risk circuit segments with plans to underground other more easy-to-implement circuit segments.[11] This plan affects 11 percent of the circuit segments in the top 20 percent riskiest circuit segments, though the actual risk exposure impact is not evident since PG&E does detail the individual or aggregate risk ranking, risk scores, or circuit miles of these 79 circuit segments. Risk on the 79 high-risk circuit segments is managed through monitoring, data collection and operational mitigations; they do not detail alternate system hardening mitigations for these locations. PG&E's plan indicates that it is overly focused on undergrounding as a bean counting exercise in order to meet its publicized goal of 10,000 miles. This approach should be rejected in hand for: (1) Its failure to propose alternate system hardening approaches for the 79 circuit segments, such as timely OH system rebuild with covered conductor (e.g. SCE's CC++/REFCL solutions); and (2) Its failure to justify why the alternate easier to implement circuit segments not included in the top 20 percent riskiest circuit segments warrant undergrounding as a cost-effective wildfire risk mitigation.

The total risk, wildfire plus PSPS, described as guiding undergrounding location and timing only includes baseline risk. It does not include any outstanding work tags in PG&E's unresolved work tag backlog. While this additional risk may not warrant selecting circuits for the total planned undergrounding scope, open Level 2 work tags or frequent work tag findings on these

[11] PG&E 2023 WMP Revision Notice Responses, p. 67-68

circuit segments could exacerbate the likelihood of a catastrophic wildfire originating for these locations. PG&E does not seem to take into account current asset health and open and overdue work tags in its undergrounding prioritization method, suggesting additional unaccounted for risk may be present in high-risk locations not scoped for work in the near term or for long-term system hardening.

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

PG&E describes a Field Quality Control Program that reviews employee and contractor work in real time.[12] This program appears to be related to PG&Es refusal to implement a QC program, pass rate target and reportable audit results. We address this issue in comments on RN-PG&E-23-02, but reiterate that failure to include a QC program with pass-rate targets and an audit report is unacceptable. However, PG&E should also be required to provide details on its FQC asset and VM programs, including whether the program is a temporary or long-term annual program, and whether it is envisioned as a training program, or more so constitutes an effort to require adequate jobsite oversight and management. If the program is a short-term (e.g. 1-3 years) training program for employees and jobsite managers, PG&E should be required to detail how it will maintain work quality through standard training and/or SOPs, and how it will report on work QC during and after the program is closed.

GPI is concerned with PG&E's timeline for evaluating and reporting on their proposed update to perform Level 2 inspections on all strike trees for their FTI Program.[13] Performing Level 2 inspections on strike trees is not new to PG&E, including at high annual inspection rates per EVM TAT 360-inspection practices. It's not entirely clear why they must evaluate the results of the universal Level 2 strike tree standard, or why sufficient data collection, evaluation, and reporting will take until 2026 to operationalize a Level 2 strike tree inspection standard across its VM programs. PG&E should be required to accelerate this plan and clarify why an evaluation is necessary.

[12] PG&E 2023 WMP Revision Notice Responses, p. 90
[13] PG&E 2023 WMP Revision Notice Responses, p. 102

PG&E has retained their plan to not digitize the TRAQ form and inspector responses used during FTI inspections, and instead to rely on hardcopies.[14] The only planned digitization is to take a photo of the TRAQ form if the inspector decides abatement is not necessary.[15] This regression in strike tree data collection and digitization is unacceptable. First, data on trees that are removed is, at worst, at risk of being lost or discarded if careful paper record keeping is not exercised. At best, paper copies of tens to hundreds of thousands of abated strike tree inspections is absolutely useless for the purpose of facilitating quantitative data analysis. While trees that are abated are no longer a risk, the data associated with strike tree abatements such as mortality cause (e.g. invasive species) could be critical to forecasting strike tree risk trends by location, or other useful wildfire risk and/or strike tree mitigation planning (e.g. forecasted workforce needs).

Taking a photo of paper inspection forms for strike trees that are not recommended for abatement is nearly as useless. Inspector handwriting quality may limit the usefulness of these paper copy photos. Not to mention that failure to digitize the thousands of forms will prevent the data from use in applications such as quantitative analyses, trend assessment, QA/QC purposes, or future potential risk-prioritization based on strike tree attribute. Given PG&E's computing power in terms of both human resources, hardware, and software access, regressing to paper forms is unacceptable in 2023. Off-the-shelf customizable data collection and digitization software that supports mobile device use, such as WildNote, is readily available and can fill the interim inspection form digitization need until/unless PG&E develops an internal tool. There is no excuse to not digitize the inspection forms, and only lost opportunities if they do not. PG&E should be required to digitize all VM strike tree abatement forms starting in 2023.

Conclusions

PG&E has successfully responded to some of the OEIS's final revision notices, but failed to adequately respond to some of the other notices. Our comments focus on areas in which PG&E still needs to improve their 2023 WMP before it is approved by the OEIS. We urge OEIS to

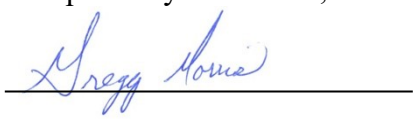
[14] PG&E 2023 WMP Revision Notice Responses, p. 106
[15] PG&E 2023 WMP Revision Notice Responses, p. 106

resolve these issues with the utility before moving forward with approval of their 2023-2025 WMP.

For the reasons stated above, we urge the OEIS to adopt our recommendations herein.

Dated August 22, 2023.

Respectfully Submitted,



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