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**Via Electronic Filing**

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**Subject: Public Advocates Office Comments on PG&E's Revised 2022 WMP**

**Docket: 2022-WMPs**

Dear Director Thomas Jacobs,

The Public Advocates Office (Cal Advocates) at the California Public Utilities Commission (CPUC) respectfully submits the following comments on the revised 2022 Wildfire Mitigation Plan Update of Pacific Gas and Electric Company (PG&E). Please contact Henry Burton ([Henry.Burton@cpuc.ca.gov](mailto:Henry.Burton@cpuc.ca.gov)) or Holly Wehrman ([Holly.Wehrman@cpuc.ca.gov](mailto:Holly.Wehrman@cpuc.ca.gov)) with any questions relating to these comments.

We urge the Office of Energy Infrastructure Safety to adopt the recommendations discussed herein.

Sincerely,

/s/ Carolyn Chen

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## TABLE OF CONTENTS

	<u>PAGES</u>
I. INTRODUCTION .....	1
II. TABLE OF RECOMMENDATIONS.....	2
III. RISK ASSESSMENT AND MAPPING .....	4
A. Issue RN-PG&E-22-01: Identifying and learning from the causes of PG&E-ignited catastrophic wildfires.....	4
1. PG&E’s root cause investigations and corrective actions do not adequately address the causes of past catastrophic wildfires. ....	4
a) Railroad Fire, August 29, 2017.....	5
b) Lonoak Fire, June 25, 2019.....	6
c) Zogg Fire, September 27, 2020.....	7
2. Energy Safety should require PG&E to improve its root cause analysis process.....	8
3. Energy Safety should incorporate the remedies required in Critical Issue RN-PG&E-22-01 into future WMP guidelines. ....	9
4. Energy Safety should treat effective root cause analysis as a safety culture issue.....	10
IV. GRID DESIGN AND SYSTEM HARDENING.....	10
A. Issue RN-PG&E-22-03: Focusing grid hardening work on highest- risk areas. ....	10
1. Energy Safety should require PG&E to file quarterly data reporting on its initiative to underground 10,000 miles, beginning in the 4th quarter of 2022.....	10
B. Issue RN-PG&E-22-04: Planned undergrounding beyond 2023.....	12
1. Energy Safety should require PG&E further justify its estimate of 99 percent effectiveness for undergrounding .....	12
C. Issue RN-PG&E-22-05: PG&E has a significant backlog of repairs.....	14
1. Energy Safety should require PG&E to develop an accelerated program to address its backlog of ignition risk tags. ....	14

2.	Energy Safety should monitor PG&E’s compliance with General Order 95 maintenance timelines, and issue notices of defect or violation if PG&E fails to maintain compliance. ....	17
V.	ASSET MANAGEMENT AND INSPECTIONS .....	17
A.	Issue RN-PG&E-22-08: High find and failure rates in asset inspection QA/QC.....	17
1.	Energy Safety should require PG&E to develop a clear protocol for addressing poorly performing inspectors.....	17
VI.	CONCLUSION.....	19

## I. INTRODUCTION

Pursuant to the Office of Energy Infrastructure Safety’s (Energy Safety) *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines* (2022 WMP Guidelines)<sup>1</sup> and *Revision Notice for Pacific Gas and Electric Company’s 2022 Wildfire Mitigation Plan Update* (PG&E Revision Notice),<sup>2</sup> the Public Advocates Office at the California Public Utilities Commission<sup>3</sup> (Cal Advocates) submits these comments on Pacific Gas and Electric Company’s (PG&E) *2022 Wildfire Mitigation Plan Update - Revised* (Revised WMP) and accompanying Revision Notice Responses.<sup>4</sup>

The 2022 WMP Guidelines established templates, direction, and a schedule for the utilities’ 2022 WMP submissions. Pursuant to the 2022 WMP Guidelines, PG&E filed its 2022 WMP Update on February 25, 2022 and Cal Advocates filed comments on PG&E’s 2022 WMP Update on April 11, 2022. On May 26, 2022, Energy Safety issued the Revision Notice to PG&E. PG&E filed Revision Notice Responses on June 27, July 11, and July 27, 2022. PG&E also filed a revised 2022 WMP Update on July 27, 2022.

The PG&E Revision Notice permits interested persons to file opening comments by August 10, 2022 and reply comments by August 20, 2022. In these comments, Cal Advocates addresses PG&E’s Revision Notice Responses and revised WMP, focusing on the new or revised elements.

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<sup>1</sup> Energy Safety, *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines*, December 15, 2021. See Attachment 5: Guidelines for Submission and Review of 2022 Wildfire Mitigation Plan Updates, pp. 5-6 and 9.

<sup>2</sup> Energy Safety, *Office of Energy Infrastructure Safety Issuance of Revision Notice for Pacific Gas and Electric Company’s 2022 Wildfire Mitigation Plan Update and Notice of Extension of Office of Energy Infrastructure Safety’s Determination Per Public Utilities Code 8389.3(a)* (Revision Notice), May 26, 2022, pp. 35-36 and page 2 of the cover letter.

<sup>3</sup> Hereafter, we refer to the California Public Utilities Commission as “the CPUC” in these comments.

<sup>4</sup> Many of the Public Utilities Code requirements relating to wildfires apply to “electrical corporations.” See, e.g., Public Utilities Code Section 8386. These comments use the more common terms “utilities” or “IOUs” and the phrase “electrical corporations” interchangeably to refer to the entities that must comply with the wildfire safety provisions of the Public Utilities Code.

## II. TABLE OF RECOMMENDATIONS

Item	Utility	Recommendation	Section of these Comments
1	PG&E	Energy Safety should require PG&E’s 2023 WMP to explain how its Enhanced Ignition Analysis program adheres to industry best standards regarding root cause analysis and effective corrective action implementation.	III.A.2
2	All	Energy Safety should incorporate the remedies required in Critical Issue RN-PG&E-22-01 into future WMP guidelines for all utilities.	III.A.3
3	All	Energy Safety should include the topic of root cause analysis in all future safety culture assessments for all utilities.	III.A.4
4	PG&E	Energy Safety should require PG&E’s 2023 WMP to include sufficient miles in its system hardening workplan to ensure that it can meet its targeted undergrounding mileage in the top 20 percent of risk-ranked circuit segments if external factors continue to impede work.	IV.A.1
5	PG&E	Energy Safety should require PG&E to file quarterly data reporting on its initiative to underground 10,000 miles.	IV.A.1
6	PG&E	PG&E should limit its near-term undergrounding efforts to the riskiest 10 percent of its HFTD circuit segments to maximize the benefit to Californians and PG&E’s customers.	IV.A.1
7	PG&E	Energy Safety should, prior to the 2023 WMP filings, develop criteria that would trigger a reevaluation of PG&E’s undergrounding initiative.	IV.A.1
8	PG&E	Energy Safety should direct PG&E to provide data in its 2023 WMP to justify its use of 99 percent effectiveness for undergrounding.	IV.B.1
9	PG&E	Energy Safety should require PG&E to immediately submit a revised plan to address its open maintenance tags.	V.A.1

Item	Utility	Recommendation	Section of these Comments
10	PG&E	PG&E should make an “all hands on deck” effort to resolve all “ignition risk tags” in the HFTD by the end of 2022.	V.A.1
11	PG&E	PG&E should remediate its full maintenance backlog no later than the end of the next three-year WMP cycle (2023-2025).	V.A.1
12	PG&E	PG&E should take no longer to address currently open maintenance tags than would be required if the same tag were opened today.	V.A.1
13	PG&E	PG&E must comply with CPUC General Order requirements for all new maintenance tags, effective immediately.	V.A.1
14	PG&E	Energy Safety should require PG&E to file quarterly reports on its progress toward addressing its maintenance backlog.	V.A.1
15	PG&E	If PG&E falls more than 10 percent behind its targets regarding its maintenance backlog in a given quarter, it should be required to develop and file a remedial plan within 30 days.	V.A.1
16	PG&E	Energy Safety should require PG&E to include in its 2023 WMP a probabilistic wildfire risk analysis to estimate the number of ignitions and wildfires that are likely to occur due to PG&E's failure to correct maintenance problems by the deadlines prescribed in General Orders.	V.A.1
17	PG&E	Energy Safety should declare in its action statement on PG&E’s 2022 WMP Update that it will issue a notice of violation in the future each time PG&E fails to address its maintenance tags in compliance with General Order timelines. Energy Safety should refer any such notices of violation to the CPUC’s Safety and Enforcement Division.	V.A.2

Item	Utility	Recommendation	Section of these Comments
18	PG&E	Energy Safety should require PG&E to include in its 2023 WMP a process to sample and re-inspect assets that have been recently inspected by underperforming and fraudulent inspectors.	VI.A.1

**III. Risk Assessment and Mapping**

**A. Issue RN-PG&E-22-01: Identifying and learning from the causes of PG&E-ignited catastrophic wildfires.**

**1. PG&E’s root cause investigations and corrective actions do not adequately address the causes of past catastrophic wildfires.**

In response to critical issue RN-PG&E-22-01, PG&E identified ten catastrophic wildfires that occurred between 2017 and 2021 and that were attributed to PG&E equipment by an external agency.<sup>5</sup> For each catastrophic fire, PG&E listed the cause based on available information, lessons learned, and the steps PG&E took to mitigate the cause, if applicable.

PG&E’s response to this critical issue is not satisfactory. A review of PG&E’s cause determinations and lessons learned demonstrates only a surface-level cause analysis in several cases, and a correspondingly inadequate corrective action. For several fires, PG&E appears to have identified and attempted to mitigate the *apparent* cause, without necessarily identifying and mitigating the *root* cause. In this context, the apparent cause (sometimes described as the proximate cause) is the immediate event that led to the fire, such as vegetation contacting an energized distribution line. A root cause analysis should look beyond this apparent cause to identify all contributing factors. This may be achieved by asking a series of connected “why” questions, such as:

- Why did that vegetation contact the conductor?
- Why was the vegetation not previously identified as a risk?
- Once the vegetation did contact the conductor, why did that contact lead to an ignition?
- Once the ignition did occur, why was the fire able to grow to catastrophic status?

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<sup>5</sup> *Pacific Gas and Electric Company 2022 Wildfire Mitigation Plan Response to Revision Notice*, June 27, 2022 (PG&E’s 30-day Response), critical issue RN-PG&E-22-01, p. 1.

The answers to these questions could identify a number of contributing factors, such as flawed vegetation inspections, inadequate vegetation management, slow recloser settings, failure to activate de-energization protocols during dangerous conditions, a lack of system hardening, an abundance of dry fuel, inadequate quality assurance or quality control, etc. A root cause analysis following best practices should seek to identify *all* contributing factors to the ignition and growth of a wildfire, rather than stopping at the apparent cause.

Cal Advocates has identified deficiencies in PG&E’s root cause analysis and corrective action implementation. Three of the ten fires PG&E responded to in this critical issue are discussed below.<sup>6</sup>

**a) Railroad Fire, August 29, 2017.**

PG&E states that the Railroad Fire was caused by a PG&E tree contractor dropping a dead tree onto PG&E’s distribution line.<sup>7</sup> While PG&E did not perform a specific lessons learned analysis for this fire, PG&E says it has “significantly improved” its training with regard to vegetation management.<sup>8</sup>

However, between January 1, 2018 and July 1, 2022, five more ignitions occurred when a person performing tree work for PG&E dropped vegetation onto PG&E’s line.<sup>9</sup> These ongoing failures demonstrate that PG&E’s “significantly improved” vegetation management training has not adequately mitigated the root cause of the Railroad Fire.

To fully mitigate the cause of events such as the Railroad Fire, PG&E must look beyond the apparent cause (a tree worker dropping vegetation onto the line) to understand how and why the vegetation was able to contact the energized line, and why that contact led to an ignition. Had PG&E done so, it could have more effectively modified its vegetation management procedures. For example, it could have employed equipment that would rigidly hold vegetation being trimmed, such that the vegetation could not fall onto the line through carelessness, or updated its procedures to temporarily enable hot-line tag settings<sup>10</sup> during work on vegetation

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<sup>6</sup> Cal Advocates has chosen these three fires as examples. Cal Advocates does not take a position at this time on PG&E’s root cause analyses and corrective action implementation for the other seven fires.

<sup>7</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 2.

<sup>8</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 2.

<sup>9</sup> PG&E’s response to data request CalAdvocates-PGE-2022WMP-25, July 13, 2022, question 1.

<sup>10</sup> PG&E’s response to data request CalAdvocates-PGE-NonCase-AWM-10012021A, November 2, 2021, question 1 describes hot-line tag settings as being “designed to trip the protective device with no intentional time delay once the minimum trip has been exceeded for an overcurrent condition, like a fault on the line. The typical tripping time from



directly above distribution lines. For especially dangerous vegetation jobs (such as removing a tree that leans over the lines), it might even be appropriate to proactively de-energize the conductors during the job.

**b) Lonoak Fire, June 25, 2019.**

PG&E states that the Alcoa Stockbridge vibration dampers installed on the line that started the Lonoak Fire may have contributed to the failure of the conductor.<sup>11</sup> Under “measures to mitigate cause,” PG&E states that its “team evaluated extent of risk between 2 ACSR and Alcoa Stockbridge dampers” (2 ACSR is a type of conductor: size 2 aluminum conductor with steel reinforcement).<sup>12</sup>

However, in response to Cal Advocates’ discovery, PG&E retracted this statement, stating that, “based on the final report, PG&E did not determine that Alcoa Stockbridge dampers present a wildfire risk, and hence have not conducted any extent of risk evaluation between 2 ACSR and Alcoa Stockbridge dampers.” According to PG&E, its prior claim, “that an evaluation was performed was made in error.”

While it may be true that the Alcoa Stockbridge vibration dampers do not present a wildfire risk, it is concerning that PG&E’s response to Energy Safety inaccurately stated that this potential risk was “specifically” evaluated. It is reasonable to conclude one of two things from this:

- PG&E’s root cause investigation into the Lonoak Fire was deficient by failing to evaluate the potential wildfire risk associated with the Alcoa Stockbridge vibration dampers used in conjunction with #2 ACSR, *or*
- PG&E’s documentation of its root cause investigation into the Lonoak Fire was deficient, leading PG&E to misstate which risks it had evaluated.<sup>13</sup>

These possibilities raise doubts about the completeness and validity of PG&E’s root cause evaluations. Energy Safety and the public rely on PG&E to perform effective root cause analyses, and to deliver accurate information on its investigations and findings.

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an HLT initiated trip is 0.05 to 0.08 seconds. The HLT setting has been used for many years across the industry for lineworker protection while working equipment ‘hot.’”

<sup>11</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 8.

<sup>12</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 8.

<sup>13</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 8.

**c) Zogg Fire, September 27, 2020.**

PG&E states that the Zogg Fire was caused by vegetation contact occurring during a red flag warning.<sup>14</sup> Under “measures to mitigate cause,” PG&E states that it modified its PSPS protocols to include locations where the tree overstrike potential is estimated to be in the 70<sup>th</sup> percentile or above.<sup>15</sup> PG&E also references the October 2017 fires for a discussion of mitigations implemented regarding vegetation contact, however this discussion is misplaced. The Zogg Fire occurred three years after the October 2017 fires; mitigations put in place to address the October 2017 fires were already in place at the time of the Zogg Fire and, therefore, are not responsive to the specific conditions that caused the Zogg Fire.

Therefore, the only new mitigation PG&E listed in response to the Zogg Fire was its modification of PSPS protocols. PG&E has previously stated that these modified protocols (as of August 2021) would have resulted in de-energization of the circuit segment where the Zogg Fire originated.<sup>16</sup> However, PG&E’s chosen mitigation, which expands the PSPS scope, is a blunt approach that does not address the root causes of the fire.

One of the “why” questions PG&E would have asked in a proper root cause investigation is why PG&E had not trimmed or removed the hazardous gray pine tree<sup>17</sup> that fell on the conductor,<sup>18</sup> even though PG&E had performed vegetation patrols repeatedly on that circuit in the previous three years.<sup>19</sup>

More importantly, a crucial root cause of the Zogg Fire was PG&E’s lack of fast-trip recloser settings at the time. In our comments on the 2021 WMP Updates of the large electric utilities, Cal Advocates noted that PG&E used slow and insensitive settings on its reclosers in

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<sup>14</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 11.

<sup>15</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 11.

<sup>16</sup> PG&E’s response to data request CalAdvocates-PGE-NonCase-AWM-08272021, September 13, 2021, question 3.

<sup>17</sup> *U.S.A. v. Pacific Gas & Electric Co.*, Case No. 14-CR-00175-WHA, Doc. No. 1265, October 26, 2020, pp. 22-25: “PG&E currently believes the Gray Pine of interest may have been identified for removal (but not removed) during restoration efforts following the Carr Fire in 2018.” See also Document No. 1250, October 26, 2020, pp. 8-10 regarding vegetation management.

<sup>18</sup> *U.S.A. v. Pacific Gas & Electric Co.*, Case No. 14-CR-00175-WHA, Doc. No. 1250, October 26, 2020, p. 6; CAL FIRE news release, March 22, 2021, <https://www.fire.ca.gov/media/u2kh4nyd/zogg-fire-press-release.pdf>

<sup>19</sup> Routine vegetation management patrols occurred in the area in 2018, 2019, and 2020. Based on review of those records, PG&E states that none of these patrols identified the gray pine as needing remediation. PG&E’s response to Data Request CalAdvocates-PGE-NonCase-Zogg-02, Question 3, October 29, 2021.

2020. At the time of the Zogg Fire, PG&E’s reclosers would have taken 20 to 25 seconds to de-energize the line after detecting a 20 to 25-amp fault.<sup>20</sup> Based on these facts, the line would have remained energized for several seconds after the tree fell, increasing the fault energy and potentially contributing to the ignition of the Zogg Fire.

At the time, PG&E was the only large electric utility that did not have a program in place to use fast recloser settings in places or during time periods with severe wildfire hazards.<sup>21</sup> Unfortunately, PG&E chose not to implement fast recloser settings until ten months after the Zogg Fire, initiating its Enhanced Powerline Safety Settings program only after trees fell into PG&E equipment and caused the ignition of the July 2021 Dixie and Fly Fires.<sup>22, 23, 24</sup>

The above examples illustrate how a thorough root cause evaluation would have looked beyond the apparent cause of “vegetation contact,” identified the risk with PG&E’s delayed recloser settings, and identified measures to mitigate that risk. Had PG&E performed a more complete root cause analysis into the Zogg Fire and implemented a broad suite of measures to mitigate the multiple contributing factors, it is possible the Dixie and Fly Fires might have been prevented.

## **2. Energy Safety should require PG&E to improve its root cause analysis process.**

Root cause analysis is a critical tool to identify why an event (in this case, a catastrophic wildfire) occurred and what measures can be taken to prevent a future event stemming from the same root cause. A thorough root cause analysis should investigate beyond the *apparent* cause to identify the *root* cause (or causes) that contributed to the event.

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<sup>20</sup> See *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities*, March 29, 2021, pp. 35-38. Cal Advocates recommended that all utilities examine how to optimize fast recloser settings in an attempt to mitigate the fault current in similar future scenarios.

<sup>21</sup> See *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities*, March 29, 2021, p. 37.

<sup>22</sup> Per PG&E’s response to data request CalAdvocates-PGE-NonCase-AWM-10012021A, November 2, 2021, question 2, PG&E first implemented EPSS on July 28, 2021. The Dixie Fire ignited on July 13, 2021, and the Fly Fire ignited on July 22, 2021.

<sup>23</sup> Cal Fire News Release: *CAL FIRE Investigators Determine Cause of the Dixie Fire*, January 4, 2022, [https://www.fire.ca.gov/media/edwez51p/dixie\\_fire\\_release.pdf](https://www.fire.ca.gov/media/edwez51p/dixie_fire_release.pdf)

<sup>24</sup> PG&E’s Incident Report for Fly Fire, August 2, 2021, <https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/wildfire/staff-investigations/pge-incident-report-210802-14927.pdf>

PG&E’s Incident Report for Dixie Fire, July 18, 2021, <https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/wildfire/staff-investigations/pge-incident-report-20210713.pdf>

PG&E is making incremental progress but has not yet addressed the core issues. PG&E states that it established an Enhanced Ignition Analysis program in 2021.<sup>25</sup> This team is tasked with “expanding upon PG&E’s legacy ignition investigation process to more fully understand ignition events,”<sup>26</sup> which is a promising step toward more detailed investigations into the causes of wildfires. Unfortunately, the list of tasks assigned to this program includes “apparent cause(s)” but conspicuously lacks a mention of “root cause(s).” As discussed in detail above, addressing only the apparent cause of a wildfire is insufficient to prevent similar events in the future. As an analogy, if a person fell off a bike and injured their head, treating the head wound might address the apparent cause (head contacted pavement), but without addressing the root causes (e.g., failure to wear a helmet, malfunctioning brakes, or a vehicle accident), it is a matter of time before a similar event occurs again.

Energy Safety should require PG&E’s 2023 WMP to explain how its Enhanced Ignition Analysis program adheres to industry best standards regarding root cause analysis and effective corrective action implementation. PG&E’s response should clearly differentiate between its practices to identify the apparent causes and its practices to identify root causes of catastrophic wildfires. PG&E should also explain its practices regarding corrective actions to address each cause.

**3. Energy Safety should incorporate the remedies required in Critical Issue RN-PG&E-22-01 into future WMP guidelines.**

The remedies in critical issue RN-PG&E-22-01 required PG&E to do the following:<sup>27</sup>

- List the cause(s) of each catastrophic wildfire and any associated lessons learned,
- Detail the specific measures PG&E is taking to i) directly mitigate the causes of past PG&E-ignited catastrophic wildfires, and ii) integrate lessons learned from past PG&E-ignited wildfires into its wildfire mitigation strategy.

While PG&E’s analysis of the causes of past fires and its implementation of effective mitigations are insufficient in several cases (as discussed extensively in section III.A.1), Energy Safety’s requirement that PG&E provide the analysis is extremely useful. Through its analysis

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<sup>25</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 20.

<sup>26</sup> PG&E’s 30-day Response, critical issue RN-PG&E-22-01, p. 20.

<sup>27</sup> Revision Notice, pp. 5.

of past fires, PG&E states that it has improved its vegetation management capabilities, improved its inspection checklists, enhanced its PSPS protocols, and initiated fast-recloser settings to rapidly de-energize distribution lines in the event of a fault.<sup>28</sup> It would be prudent for all utilities, not just PG&E, to engage in similar analyses of past catastrophic wildfires.

Energy Safety should incorporate the remedies required in Critical Issue RN-PG&E-22-01 into future WMP guidelines for all utilities. Beginning with its forthcoming 2023 WMP guidelines, Energy Safety should require all utilities to investigate and document the root causes of past utility-ignited catastrophic wildfires, document any lessons from the cause analyses, and document the specific corrective actions the utility has implemented or plans to implement to mitigate the identified root cause(s).

**4. Energy Safety should treat effective root cause analysis as a safety culture issue.**

Lastly, Energy Safety should include the topic of root cause analysis in all future safety culture assessments for all utilities. The utilities should be evaluated as to whether their company culture values thorough investigations into failures. Energy Safety should examine whether employees are incentivized to identify root causes and propose targeted and effective mitigations even if they may be costly or nontrivial to implement. To the extent possible, Energy Safety should coordinate with the CPUC on the CPUC's safety culture studies.

**IV. Grid Design and System Hardening**

**A. Issue RN-PG&E-22-03: Focusing grid hardening work on highest-risk areas.**

**1. Energy Safety should require PG&E to file quarterly data reporting on its initiative to underground 10,000 miles, beginning in the 4th quarter of 2022.**

As previously pointed out by Cal Advocates, PG&E's undergrounding initiative does not sufficiently focus on high-risk locations.<sup>29</sup> Instead of solving this problem, PG&E's latest submission makes it worse. PG&E now states that only 29 percent (59 miles) of its 2022 undergrounding work will be performed in the top 20 percent of risk-ranked circuit segments.<sup>30</sup>

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<sup>28</sup> PG&E's 30-day Response, critical issue RN-PG&E-22-01, p. 2.

<sup>29</sup> See *Comments of the Public Advocate's Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, pp. 15-16.

<sup>30</sup> *Pacific Gas and Electric Company 2022 Wildfire Mitigation Plan Response to Revision Notice*, July 11, 2022 (PG&E's 45-day Response), critical issue RN-PG&E-22-03, p. 38.

This is substantially lower than the 46 percent (92 miles)<sup>31</sup> shown in the system hardening workplan submitted with PG&E’s original 2022 WMP Update, and lower still than the 80 percent that PG&E originally reported would be performed in “Top Risk” miles.<sup>32</sup>

PG&E states that the decrease in undergrounding work to be performed in the top 20 percent of risk-ranked circuit segments is due to delays caused by “external factors.”<sup>33</sup> Notably, the external factors that PG&E names are *all* predictable issues for infrastructure projects (such as permitting delays), which PG&E should have planned and been prepared for, given the announcement in mid-2021 about the program.

PG&E’s failure to plan for foreseeable obstacles cannot excuse its ineffective use of resources. While it is understandable that projects can be affected by factors outside the utility’s control, it is highly concerning that PG&E is gradually, yet drastically diminishing its mitigation work in the riskiest locations – from the 80 percent in “Top Risk” locations PG&E claimed in February, to less than 30 percent in its July filing.

While PG&E now claims that 88 percent of its undergrounding work through 2026 will be performed in the top 20 percent of risk-ranked circuit segments,<sup>34</sup> external factors can significantly affect this planned work – as PG&E has asserted is happening this year. The obstacles that contributed to delays in 2022 are very likely to arise again and delay PG&E’s work in future years.<sup>35</sup> A proper, careful workplan should take into account foreseeable delays. California can accept nothing less.

For the 2023 WMP, Energy Safety should require PG&E to submit a workplan that identifies the number of miles in the top 20 percent of risk-ranked circuit segments that it can

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<sup>31</sup> 92 miles comes from PG&E’s response to data request CalAdvocates-PGE-2022WMP-27, July 25, 2022, question 2. The same methodology used in PG&E’s response to this question was employed to determine that PG&E’s 2022 system hardening workplan filed with its 2022 WMP Update included a total of approximately 198 miles of undergrounding. 92 miles is approximately 46 percent of 198 miles.

<sup>32</sup> PG&E’s 2022 WMP Update, February 25, 2022, p. 165.

<sup>33</sup> PG&E’s 2022 WMP Update, February 25, 2022, p. 1034 states, “External Factors include, but are not limited to, physical conditions, landholder refusals, environmental delays, customer refusals or non-contacts, permitting delays/restrictions or operational holds, weather conditions, removed or destroyed assets, and active wildfire.”

PG&E also claims that any project included in the 2022 workplan that is delayed will be completed in subsequent years once the external factors are resolved. PG&E’s response to data request CalAdvocates-PGE-2022WMP-27, July 25, 2022, question 2.

<sup>34</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-03, p. 38.

<sup>35</sup> Issues such as permitting delays, landowner refusals, adverse weather, and active wildfires should be expected as recurring challenges.

actually achieve, even if external factors impede that work. PG&E should plan extra projects in high-risk areas as back-up options so that when delays inevitably occur, PG&E will still be able to mitigate high-risk locations.

Additionally, Cal Advocates previously made recommendations regarding PG&E's undergrounding initiatives.<sup>36</sup> For brevity, not all these comments are repeated in this filing.

Cal Advocates urges Energy Safety to review and adopt the following recommendations:

- Energy Safety should require PG&E to file quarterly data reporting on its initiative to underground 10,000 miles.
- PG&E should limit its near-term undergrounding efforts to the riskiest 10 percent of its HFTD circuit segments to maximize the benefit to Californians and PG&E's customers.
- Energy Safety should, prior to the 2023 WMP filings, develop criteria that would trigger a reevaluation of PG&E's undergrounding initiative.

**B. Issue RN-PG&E-22-04: Planned undergrounding beyond 2023.**

**1. Energy Safety should require PG&E further justify its estimate of 99 percent effectiveness for undergrounding.**

PG&E has placed undergrounding as a key aspect of its wildfire risk reduction program. Based on PG&E's limited data set, the actual effectiveness of undergrounding<sup>37</sup>, <sup>38</sup> may be very similar to the effectiveness of other methods or combinations of methods (such as covered conductor or rapid earth fault current limiters). Properly measuring and assessing the effectiveness of undergrounding versus other methods is critical because these other methods can be deployed much more quickly and cost-effectively than undergrounding. Energy Safety

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<sup>36</sup> See *Comments of the Public Advocate's Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, pp. 10-13.

<sup>37</sup> Critical issue RN-PG&E-22-04 required PG&E to, among other remedies, list the *measured* effectiveness of undergrounding projects. Revision Notice, p. 10. In its response, PG&E states, "PG&E's subject matter experts estimate that placing overhead lines underground reduces ignition risk by approximately 99% in that location. Accordingly, in Column X we have provided 99% as the measured effectiveness for the undergrounding projects identified." *Pacific Gas and Electric Company 2022 Wildfire Mitigation Plan Response to Revision Notice*, July 26, 2022 (PG&E's 60-day Response), p. 2, emphasis added.

<sup>38</sup> Per PG&E's response to data request Cal Advocates-PGE-2022WMP-28, August 1, 2022, question 4, PG&E experienced 5 ignitions on approximately 2,895 miles of underground lines in its HFTD from 2015 through 2021, for an annual ignition rate of 0.25 ignitions per 1,000 underground miles. In the same time period, PG&E experienced 921 ignitions on approximately 25,219 miles of overhead lines in its HFTD, for an annual ignition rate of 5.22 ignitions per 1,000 overhead miles.  $(5.22-0.25)/5.22 = 95$  percent reduction in ignitions.

PG&E provided supporting data in response to question 2 of the same data request, and Cal Advocates' analysis confirms this estimate.

should direct PG&E to provide more detailed information in PG&E's 2023 WMP that compares and contrasts the effectiveness of undergrounding to other mitigation measures or combinations of measures, including drawing information from other operators in California and elsewhere.

While the difference between 95 percent (measured) and 99 percent (assumed) effectiveness is not large, it is concerning that PG&E's assumptions are different from the facts available to it. PG&E justified its assumption of 99 percent effectiveness based on an assumption of lower risk of catastrophic fire from an underground ignition and on a dataset of reportable ignitions from 2015 to 2021.<sup>39</sup> PG&E has experienced five ignitions in the HFTD associated with underground lines during the 2015 to 2021 period, or an annual ignition rate of 0.25 ignitions per 1,000 underground miles.<sup>40</sup> A dataset of only five ignitions in the HFTD is insufficient to conclude that the effectiveness of undergrounding is higher than the measured apparent effectiveness based on actual ignition data. PG&E also clarifies that the ignition risk associated with underground lines "stems from failure risks associated with vaults and pad mounted equipment,"<sup>41</sup> but fails to explain why ignitions of this kind are less likely to grow into a catastrophic wildfire.<sup>42</sup> This type of detailed explanation and assessment is critical to ensure and understand how the different types of fire ignition sources will change as PG&E hardens its system with undergrounding, covered conductor, and other measures. Asset Management and Inspections

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<sup>39</sup> PG&E's response to data request Cal Advocates-PGE-2022WMP-28, August 1, 2022, question 4:

Based on 2015-2021 historical CPUC-reportable ignitions and the system circuit miles, the effectiveness of undergrounding is approximately 95-96% from an ignition rate perspective as indicated in Table 1 below. However, Table 1 does not fully represent wildfire risk reduction as an ignition is different than wildfire frequency or consequences. Based on the 2015-2021 dataset, no underground ignition resulted in a fire greater than 10 acres, further substantiating underground represents an even lower wildfire risk than overhead facilities. As such, we determined that the CPUC-reportable ignition data information is consistent with subject matter expert estimations of 99%.

<sup>40</sup> PG&E's response to data request Cal Advocates-PGE-2022WMP-28, August 1, 2022, question 2.

<sup>41</sup> PG&E's 60-day Response, critical issue RN-PG&E-22-04, p. 2.

<sup>42</sup> Each fire resulted in less than 10 acres burned.



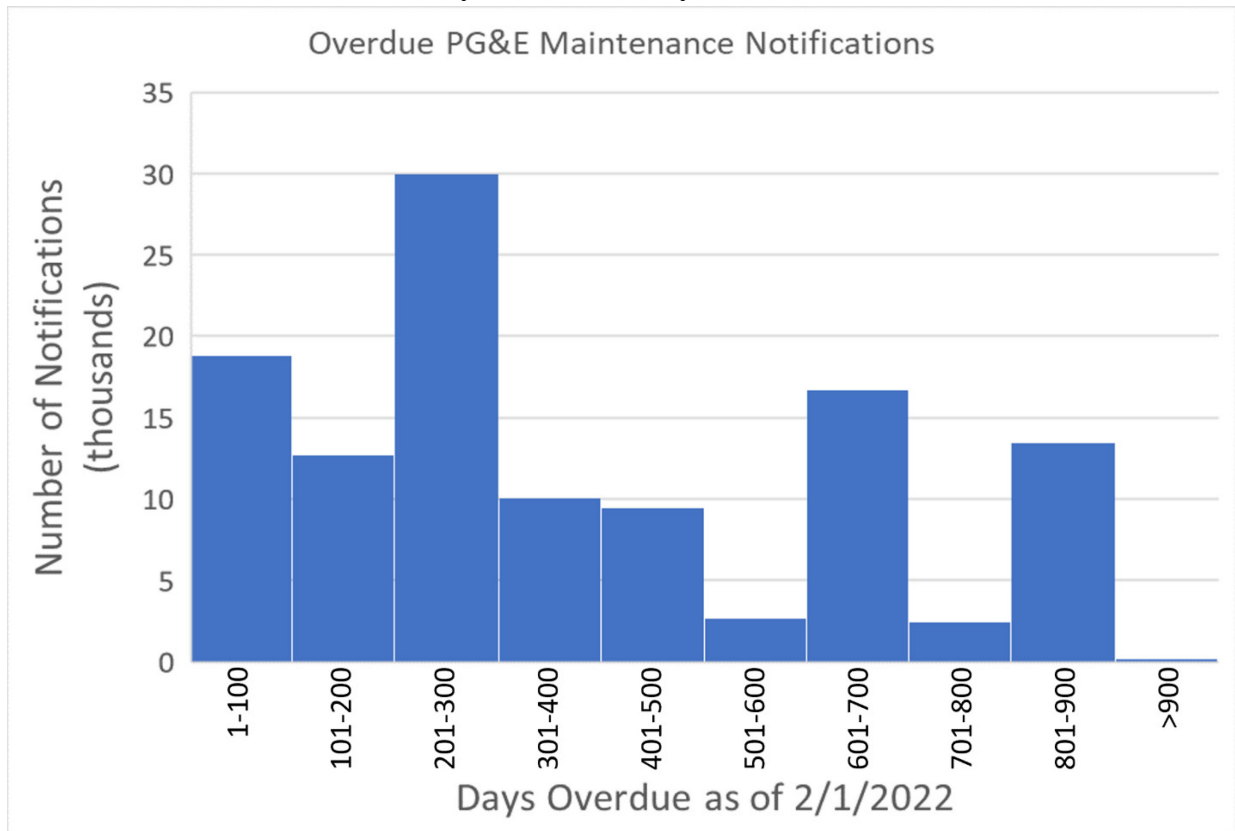
**C. Issue RN-PG&E-22-05: PG&E has a significant backlog of repairs.**

**1. Energy Safety should require PG&E to develop an accelerated program to address its backlog of ignition risk tags.**

PG&E’s latest filing presents an unacceptable plan to deal with overdue asset maintenance in HFTD areas. Energy Safety should summarily reject PG&E’s proposed overdue maintenance plan.

At the beginning of 2022, PG&E had opened nearly 200,000 more tags than it had closed since January 1, 2019.<sup>43</sup> As Cal Advocates commented previously, over half of PG&E’s open maintenance tags in the HFTD as of February 1, 2022 were overdue.<sup>44</sup>

**Histogram Showing PG&E’s Overdue Maintenance Tags in the HFTD, by Number of Days Late<sup>45</sup>**



<sup>43</sup> Per PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 41, at the beginning of 2022, PG&E had opened a cumulative 514,934 HFTD tags and had closed a cumulative 317,939 HFTD tags since January 1, 2019.

<sup>44</sup> See *Comments of the Public Advocate’s Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, p. 25.

<sup>45</sup> This histogram was originally included in *Comments of the Public Advocate’s Office on the 2022 Wildfire*

To remediate its substantial maintenance backlog, PG&E asserts that in 2023, it will “begin repairing more tags than created to keep up with new tags as they are found and address the backlog.”<sup>46</sup> PG&E proposes to resolve all “ignition risk tags”<sup>47</sup> by the end of 2029, and all “non-ignition risk tags”<sup>48</sup> by the end of 2032.<sup>49</sup> In a nutshell, PG&E allowed its HFTD maintenance backlog to grow largely unchecked for three years (2019-2021), and now seeks approval from Energy Safety to let the resulting problem persist for the next decade (2023-2032).

As Cal Advocates discussed in its comments on PG&E’s original 2022 WMP, deferred maintenance can and has caused ignitions within the HFTD.<sup>50</sup> Allowing the backlog of maintenance to persist until 2032 increases the likelihood of future ignitions caused by equipment that was flagged for maintenance but never addressed.

PG&E further states that, beginning in 2023, all new “ignition risk tags” on distribution assets in the HFTD will be completed in compliance with California General Order (GO) timelines.<sup>51</sup> While it is unclear whether here PG&E is tacitly admitting its prior indifference to General Order timelines or merely promises nothing that is not already required, PG&E’s intention to continue ignoring regulatory requirements is clear. Moreover, PG&E makes no similar representation for ignition risk tags outside of HFTD, nor for non-ignition risk tags, nor for tags created in 2022. PG&E’s plan ignores the fact that all maintenance tags are subject to General Order timelines, regardless of how the utility self-categorizes them. Thus, PG&E

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*Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, p. 26. As explained in that filing, the histogram excludes Priority A notifications, which sometimes do not have specified due dates because they should be repaired or made safe immediately. The data is drawn from PG&E’s responses to data request CalAdvocates-PGE-2022WMP-09, March 2, 2022, questions 1-3, and is accurate as of February 1, 2022.

<sup>46</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 41.

<sup>47</sup> Per PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 49, “Ignition Risk” tags are maintenance tags that have been determined to have some form of ignition risk as a result of the non-conformance identified on the tag (e.g., conductor or structural support deficiency).

<sup>48</sup> Per PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 50, “Non-Ignition Risk” tags are defined as maintenance tags where the non-conformance would not result in a failure that could produce an ignition (e.g., missing high sign or visibility strip).

<sup>49</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-05, pp. 42-43.

<sup>50</sup> See *Comments of the Public Advocate’s Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, pp. 25-29.

<sup>51</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 43.

appears to be offering to partially comply with regulations it is already obligated to comply with in full.

General Order 95 Rule 18 requires all maintenance tags to be addressed within a maximum of 60 months.<sup>52</sup> To remain in compliance, any low-risk (Level 3) tags that PG&E opens in 2023 must be resolved by 2028. PG&E's maintenance plan will lead to an absurd scenario in which, at the end of 2028, all HFTD maintenance tags opened in 2023 will have been resolved, but PG&E will still have unresolved tags that were opened prior to 2023.

Energy Safety should require PG&E to immediately submit a revised plan to address its open maintenance tags. At a minimum, Energy Safety should require that:

- PG&E make an “all hands on deck” effort to resolve all overdue “ignition risk tags” in the HFTD by the end of 2022.
- PG&E remediate its full maintenance backlog no later than the end of the next three-year WMP cycle (2023-2025).
- PG&E not be allowed to extend the GO 95 timelines for currently open maintenance tags.
- PG&E comply with CPUC General Order requirements for *all* new maintenance tags, effective immediately.

If PG&E does not meet these requirements, Energy Safety should reject PG&E's 2022 WMP.

Energy Safety should also require PG&E to file quarterly reports that show:

- The total remaining number of overdue maintenance tickets by level and HFTD tier,
- PG&E's quarterly remediation targets with the number of tags per level, and
- PG&E's progress on meeting those targets.

If PG&E falls more than 10 percent behind its targets in a given quarter, it should be required to develop and file a remedial plan within 30 days.

Finally, Energy Safety should require PG&E to include in its 2023 WMP a probabilistic wildfire risk analysis to estimate the number of ignitions and wildfires that are likely to occur due to PG&E's failure to correct maintenance problems by the deadlines prescribed in General Orders.

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<sup>52</sup> Per GO 95 Rule 18, level 1 issues must be addressed immediately. Level 2 issues must be addressed within six to 36 months depending on location and severity. Level 3 issues must be addressed within 60 months.

**2. Energy Safety should monitor PG&E’s compliance with General Order 95 maintenance timelines, and issue notices of defect or violation if PG&E fails to maintain compliance.**

PG&E states that, “After January 1, 2023, all new HFTD and HFRA Ignition Risk distribution tags will be completed in compliance with [General Order] timelines.”<sup>53</sup> As Cal Advocates has previously noted, PG&E has a significant backlog of overdue maintenance tags in HFTD,<sup>54</sup> which demonstrates that PG&E has not historically been able to comply with General Order 95 maintenance timelines. Unresolved maintenance tags, especially in the HFTD, put the public at risk.

Due to PG&E’s history of failing to comply with required maintenance timelines, Energy Safety should declare in its action statement on PG&E’s 2022 WMP Update that it will issue a notice of violation in the future each time PG&E fails to address its maintenance tags (whether existing or new) in compliance with General Order timelines. Energy Safety should refer any such notices of violation to the CPUC’s Safety and Enforcement Division for possible penalties for failing to comply with General Orders.

**V. Asset Management and Inspections**

**A. Issue RN-PG&E-22-08: High find and failure rates in asset inspection QA/QC.**

**1. Energy Safety should require PG&E to develop a clear protocol for addressing poorly performing inspectors.**

PG&E does not yet have a thorough and prudent approach to identifying and correcting mistakes by underperforming asset inspectors. As part of PG&E’s efforts to improve the quality of its asset inspections, PG&E states that it will hold “poor performing personnel inspectors accountable” by “coaching, retraining and/or ultimately removing them from performing work when they are unable to maintain required quality levels.”<sup>55</sup> While these are prudent measures, PG&E does not commit to re-inspecting the work of inspectors who have consistently performed poorly.

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<sup>53</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-05, p. 43.

<sup>54</sup> See *Comments of the Public Advocate’s Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities Docket 2022-WMPs*, April 11, 2022, pp. 25-29.

<sup>55</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-08, p. 32.

PG&E also states that, “Confirmed incidents of fraudulent activity (timecards, inspections) will result in discipline and up to termination,”<sup>56</sup> but again, PG&E does not commit to re-inspecting the work of inspectors who commit fraud. Between January 1, 2021 and July 1, 2022, PG&E determined that eight inspectors had committed fraudulent activity.<sup>57</sup> Two of those inspectors had filled out inspection checklists for assets while not located at the asset (e.g. while at home, or in Chicago).<sup>58</sup> While all eight of these inspectors have since been terminated,<sup>59</sup> PG&E did not re-inspect other assets that had been inspected by these two individuals.<sup>60</sup>

Re-inspecting assets that have been inspected by poorly performing or fraudulent inspectors is a prudent measure to ensure that critical safety issues do not go undiscovered. At a minimum, PG&E should re-inspect a substantial and random sample of all inspections within the prior six months by underperforming inspectors. If this review reveals critical safety issues (or additional fraud), PG&E should expand the scope of the re-inspection to cover all inspections within the prior twelve months by that inspector.

Energy Safety should require PG&E to include in its 2023 WMP a process to sample and re-inspect assets that have been recently inspected by underperforming and fraudulent inspectors.

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<sup>56</sup> PG&E’s 45-day Response, critical issue RN-PG&E-22-08, p. 37.

<sup>57</sup> PG&E’s response to data request CalAdvocates-PGE-2022WMP-25, July 13, 2022, question 9.

<sup>58</sup> PG&E’s response to data request CalAdvocates-PGE-2022WMP-27, July 25, 2022, question 5.

<sup>59</sup> PG&E’s response to data request CalAdvocates-PGE-2022WMP-25, July 13, 2022, question 9.

<sup>60</sup> “PG&E Supervisor did not find issues with quality of completed inspections; did not perform re-inspections.” PG&E’s response to data request CalAdvocates-PGE-2022WMP-27, July 25, 2022, question 5.

**VI. CONCLUSION**

Cal Advocates respectfully requests that Energy Safety adopt the recommendations discussed herein.

Respectfully submitted,

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