

**PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigations Plans Discovery 2026-2028
Data Response**

PG&E Data Request No.:	OEIS_003-Q003
PG&E File Name:	WMP-Discovery2026-2028_DR_OEIS_003-Q003
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Requester DR No.:	OEIS-P-WMP_2025-PG&E-003
Requesting Party:	Office of Energy Infrastructure Safety
Requester:	Nathan Poon
Date Sent:	April 18, 2025

SUBJECT: REGARDING SYSTEM HARDENING DECISION-MAKING

QUESTION 003

Regarding Figure PG&E-8.2.1-2: PG&E's System Hardening Project Scoping Decision Tree and Process (PG&E's 2026-2028 Base WMP, pp. 183-185):

- a. Define "NB" as seen for "UG NB > OH NB."
 - i. How does PG&E calculate UG NB and OH NB for the purpose of determining these criteria?
 - ii. How does NB differ from the CBR in terms of how benefit is calculated?
 - iii. Does PG&E calculate benefit (for NB and CBR) based on overall effectiveness for mitigations (as seen in Table PG&E-6.1.3-1, PG&E's 2026-2028 Base WMP, p. 128), or based on location-specific effectiveness accounting for local risk drivers? Provide a brief explanation of this calculation in the response.
- b. Provide the spatial data (via KML or KMZ) for the tree strike potential throughout PG&E's service territory, showing a heat map across circuit segments for areas with no/low (0-5) versus high (6+) strike potential.
- c. How are areas of egress/ingress concern identified by the Public Safety Specialist (PSS) team (i.e. annually produce a list of areas of concern, review specific projects through this process to evaluate concerns once triggered)?
 - i. Provide a list of areas that have been identified by the PSS team for ingress/egress concerns. This should include the circuit protection zone.
- d. What criteria and threshold does PG&E use when determining whether a circuit protection zone (CPZ) is affected by PSPS?
- e. Provide a list of projects scheduled for 2026 to 2028 that have been triggered to be a hybrid solution (from strike tree potential, ingress/egress concerns, or PSPS impacts), as depicted by one of the three criteria listed in the decision tree. Provide the information via Excel following the table below for each project.

Project ID	Project Year	CPZ	Undergrounding Mileage	Total Hardening Project Mileage	Associated Trigger

- f. Provide a list of projects scheduled for 2026 to 2028 that are undergrounding projects where the UG CBR is greater than the OH+EPSS CBR, but due to the UG CBR being within 50% of the OH+EPSS CBR, the project is scoped to be undergrounded. This must also include hybrid projects that were triggered from the criteria discussed in Q03(e). Provide the information via Excel following the table below for each project.

Project ID	Project Year	CPZ	UG CBR	OH+EPSS CBR	Undergrounding Mileage	Total Hardening Project Mileage (if hybrid)	Associated Trigger (if hybrid)

Answer 003

- a. NB is defined as Net Benefit.

- i. Net Benefit is calculated as: $\text{Net Benefit} = \text{Benefits} - \text{Costs}$
- ii. Net benefit is the difference between total present value of benefits and total present value of costs (costs are subtracted from benefits) whereas a cost benefit ratio compares the total present value of benefits expected from a project to the total present value of its costs (the total project benefits are divided by the total project costs). The cost and benefit inputs used in both the CBR and net benefit calculations are the same.

PG&E considers multiple factors in selecting alternatives because an over-emphasis on CBR devalues high cost / high benefit projects. CBR does not consider the absolute benefits and holistic value of permanent risk mitigations, and when used as the sole criteria, results in situations where risk is permanently left on the system, including on circuit segments where undergrounding's benefits are greater than those of overhead hardening.

- iii. The CBR calculation in the WBCA starts with the overall effectiveness values as seen in Table PG&E-6.1.3-1 and then calculates a location-specific mitigation effectiveness value for each circuit-segment. This location-specific effectiveness value is then multiplied by the same location's initial risk value to calculate the risk reduction benefit of the mitigation. Effectiveness calculation details can be found in PG&E's response to WMP-Discovery2026-2028_DR_TURN_002-Q005, with follow-up information to be provided in WMP-Discovery 2026-2028_DR_SPD_001-Q010.

- b. PG&E does not have a single KMZ file that represents tree strike potential throughout PG&E's service territory. Instead, each circuit is associated with its own set of KMZ files based on the following conductor types:

- Not Hardened
- #2Cu TW
- 1/0ASR TW
- 397AAC TW
- 715AAC TW

For reference, please see the attachment folder "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch01.zip*," which contains example KMZ files for circuits Alto 1124 and Dobbins 1101.

- c. As part of scoping, the Public Safety Specialist (PSS) team evaluates specific projects to identify ingress/egress concerns and shares with the scoping team while discussing all identified dependencies and constraints. This evaluation also considers previous fire history, types of customers, fuel/weather/topography impact, and other relevant factors.

For reference, please see "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch02.kmz*," "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch03.kmz*," and "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch04CONF.pdf*," which provide examples for circuit protection zones Alleghany 1101804 and ALLEGHANY 1101SC 1101/2. This includes details on ingress/egress considerations within the circuit protection zone.

- d. During the scoping process, PG&E leverages a PSPS weather polygon that illustrates the impact of PSPS on our service territory, based on a five-year look-back starting in 2018. The criteria for determining whether a circuit protection zone is affected by PSPS is binary and PG&E considers the distinction of whether there is PSPS impact or not.
- e. The 2027 workplan is in the process of being scoped using the Decision Tree and 2028 has not yet started. Please reference "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch05.xlsx*" for examples of hybrid projects scheduled between 2026 and 2027 that align with the three criteria (tree strike potential, ingress/egress concerns, and PSPS impacts) listed in the decision tree. There is also an example of how hybrid projects can be created post scoping due to infeasible undergrounding locations. Project ID was not provided for projects currently in scoping that do not yet have subprojects.

For 2026 and 2027 projects that have been scoped or are in scoping, we can provide which projects are hybrid, however, there is not an existing database with associated drivers for each project. Instead, this information is in each project's scoping package, which would require a manual review.

- f. PG&E is providing those 2027 planned projects currently progressing through scoping where the UG/Hybrid CBR is less than the OH+EPSS CBR, but within the 50% threshold and PG&E is progressing with the UG/Hybrid solution. See Attachment "*WMP-Discovery2026-2028_DR_OEIS_003-Q003Atch06.xlsx*."

The project ID's included are the first order only and will have additional sub-project ID's once the projects proceed through scoping, and they are included in the workplan.

The associated triggers include tree strike potential, PSPS, and Ingress/Egress risk. It also includes triggers driven by feasibility, identified removals and making connections between already OH hardened facilities.