

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

PG&E Data Request No.:	TURN_002-Q006
PG&E File Name:	WMP-Discovery2026-2028_DR_TURN_002-Q006Supp01
Request Date:	April 7, 2025
Requester DR No.:	TURN-PG&E-2
Requesting Party:	The Utility Reform Network
Requester:	Reina L. Yanagiba; A. Mireille Fall-Fry
Date Sent:	April 10, 2025 Supp01: April 14, 2025

SUBJECT: 2026-2028 BASE WMP

QUESTION 006

Section 6.1.3.2, page 134, states: “Overhead system hardening combined with operations mitigations EPSS and PSPS has a high-risk reduction benefit that is roughly comparable to that of undergrounding without these operational mitigations. PG&E continues to prefer undergrounding on high-risk circuits where feasible for several reasons. Undergrounding is permanent risk reduction that does not have the negative reliability impacts from PSPS and EPSS. Underground facilities are less likely to be damaged during winter storms by high winds and vegetation falling into lines damaging the facilities or other contact with the lines from third parties. Over time, undergrounding also has lower operations and maintenance expenses.”

- a. Please provide any studies or reports in PG&E’s possession that compare the long-term or life cycle costs of undergrounding with the costs of overhead hardening combined with EPSS and PSPS.
- b. Please provide any studies or reports in PG&E’s possession that compare the long-term or life cycle costs of undergrounding with the costs of overhead hardening combined with EPSS, PSPS, and remote grids to reduce the reliability impacts of EPSS and PSPS.
- c. Please provide any studies or reports in PG&E’s possession that compare the operations and maintenance expenses of undergrounding with overhead hardening.
- d. Please provide any studies or reports in PG&E’s possession that compare the operations and maintenance expenses of undergrounding with overhead hardening, combined with EPSS and PSPS.
- e. Please provide any studies or reports in PG&E’s possession that compare the reliability (e.g., SAIDI, SAIFI, CAIDI, etc.) of undergrounded vs. overhead hardened facilities.

- f. Please provide any studies or reports in PG&E's possession that compare the reliability (e.g., SAIDI, SAIFI, CAIDI, etc.) of undergrounded vs. overhead hardened facilities — not including the reliability impacts of PSPS and EPSS.

Answer 006 Supplemental 01

- e. PG&E analyzed the reliability performance on sections of circuits where we performed undergrounding work in 2022 and 2023 to quantify overall improvements to service reliability and showed approximately a 90% reduction in faults that resulted in sustained outages after undergrounding work was completed. Please see Section 8.2.2 of our 2026-2028 WMP. Please note that this analysis did not compare undergrounding to overhead hardening.

Please refer to Section 6.2.1.2 for PG&E's explanation of risk impacts of mitigation activities including covered conductor and undergrounding. PG&E is not currently aware of any studies or reports in PG&E's possession that compare the reliability of undergrounded and overhead hardened facilities.

Ultimately, we expect undergrounded lines to be less susceptible to outage-causing conditions associated with exposed overhead lines such as damage and/or vegetation contact from severe winds, animal contact, line slap or wire down.

- f. PG&E analyzed the reliability performance on sections of circuits where we performed undergrounding work in 2022 and 2023 to quantify overall improvements to service reliability and showed approximately a 90% reduction in faults that resulted in sustained outages after undergrounding work was completed. Please see Section 8.2.2 of our 2026-2028 WMP. Please note that this analysis did not compare undergrounding to overhead hardening.

We are not aware of any studies or reports that are in our possession that compare the reliability of undergrounded vs. overhead hardened facilities—not including the reliability impacts of PSPS and EPSS; however, we expect undergrounded lines to be less susceptible to outage-causing conditions associated with exposed overhead lines such as damage and/or vegetation contact from severe winds, animal contact, line slap or wire down.

Answer 006

Please see PG&E's responses below. ^{1,2,3} PG&E has performed and will continue to perform a reasonably diligent search for any relevant studies or reports and will supplement this response if any are identified.

- a. As described in the 2023-2025 WMP (Revision Notice PG&E-23-05), PG&E is developing a tool that we anticipate using in future regulatory filings. The tool, referred to as the Wildfire Benefit Cost Analysis (WBCA) tool, will compare the long-term costs of undergrounding to the long-term costs for other mitigations including overhead hardening combined with EPSS and PSPS and line removal with remote grid. The tool will consider capital installation costs and several categories of O&M costs such as patrols and inspections, emergency response, and vegetation management. The output from the tool will be a comparison of the long-term costs and benefits for different mitigation alternatives.
- b. As described in the 2023-2025 WMP (Revision Notice PG&E-23-05), PG&E is developing a tool that we anticipate using in future regulatory filings. The tool, referred to as the Wildfire Benefit Cost Analysis (WBCA) tool, will compare the long-term costs of undergrounding to the long-term costs for other mitigations including overhead hardening combined with EPSS and PSPS and line removal with remote grid. The tool will consider capital installation costs and several categories of O&M costs such as patrols and inspections, emergency response, and vegetation management. The output from the tool will be a comparison of the long-term costs and benefits for different mitigation alternatives.
- c. As described in the 2023-2025 WMP (Revision Notice PG&E-23-05), PG&E is developing a tool that we anticipate using in future regulatory filings. The tool, referred to as the Wildfire Benefit Cost Analysis (WBCA) tool, will compare the long-term costs of undergrounding to the long-term costs for other mitigations including overhead hardening combined with EPSS and PSPS and line removal with remote

¹ PG&E is aware of various studies produced by academic institutions and third-parties that compare the costs and benefits of undergrounding to other mitigations. See, for example, Dynamic Grid Management Technologies Reduce Wildfire Adaptation Costs in the Electric Power Sector. PG&E has not reviewed and does not necessarily support the information or conclusions in these third-party and academic studies.

² Note, in the 2023 GRC PG&E prepared data response GRC-2023-PhI_DR_TURN_154_Q014Supp01 that included an analysis of long-term operations and maintenance costs associated with its 2023 GRC undergrounding proposal. The system hardening mileage assumptions and cost assumptions used in this analysis were based on information from the 2023 GRC and in many cases are no longer relevant. PG&E is identifying this study in order to be responsive to this data request but notes that the information in the study is outdated and is not representative of mileage and cost assumptions currently considered as part of our system hardening program.

³ In response to Area for Continuing Improvement (ACI) PG&E-25U-03, PG&E, SCE and SDG&E prepared a Joint IOU Grid Hardening Working Group Report: Update for 2026-2028 Wildfire Mitigation Plan (3/19/25) that is included with PG&E's 2026-2028 Base WMP. Certain sections of the ACI discuss system hardening costs though the report does not include a direct comparison of the life cycle costs of undergrounding to overhead hardening.

grid and several categories of O&M costs such as patrols and inspections, emergency response, and vegetation management. The output from the tool will be a comparison of the long-term costs and benefits for different mitigation alternatives.

- d. As described in the 2023-2025 WMP (Revision Notice PG&E-23-05), PG&E is developing a tool that we anticipate using in future regulatory filings. The tool, referred to as the Wildfire Benefit Cost Analysis (WBCA) tool, will compare the long-term costs of undergrounding to the long-term costs for other mitigations including overhead hardening combined with EPSS and PSPS and line removal with remote grid. The tool will consider capital installation costs and several categories of O&M costs such as patrols and inspections, emergency response, and vegetation management. The output from the tool will be a comparison of the long-term costs and benefits for different mitigation alternatives.
- e. Pursuant to agreement with TURN on April 10, 2025, we will supplement this response on or before Monday, April 14, 2025.
- f. Pursuant to agreement with TURN on April 10, 2025, we will supplement this response on or before Monday, April 14, 2025.