

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

PG&E Data Request No.:	SPD_004-Q005Supp04
PG&E File Name:	WMP-Discovery2026-2028_DR_SPD_004-Q005Supp04
Request Date:	May 1, 2025
Requester DR No.:	CONF-SPD-PGE-WMP2026-004
Requesting Party:	Safety Policy Division
Requester:	Edwin Schmitt
Date Sent:	May 13, 2025 (Original) Supp04: July 2, 2025

SUBJECT: MITIGATION COST EFFICIENCY ASSESSMENT (SPD-PGE-WMP2026-004)

QUESTION 005

Fill in the data requested in the attached workbook titled “Decision Tree Results by Circuit Segment.xlsx”. This workbook is modeled upon the *PGE_2023_WMP_R0_Section_642_Atch01.xlsx* workbook that was submitted with the PG&E 2023-2025 Base WMP and the PG&E response to a CalAdvocates Data Request that included the workbook titled *WMP-Discovery2023- 2025_DR_CalAdvocates_041-Q005Atch01.xlsx*.

- a. Follow the Field Descriptions in the “Instruction” spreadsheet to complete the corresponding cells in the “Primary”, “S&S” and “DistTotal” spreadsheets.
- b. Responses in the “Primary” spreadsheet must be limited to the primary lines found on the corresponding “Circuit Segment Name” listed in Column A.
- c. Responses in the “S&S” spreadsheet must be limited to the secondary and service lines found on the corresponding “Circuit Segment Name” listed in Column A.
- d. Responses in the “DistTotal” spreadsheet must include both the primary, secondary and service lines found on the corresponding “Circuit Segment Name” listed in Column A.
- e. If any of the data requested in this dataset workbook would be impacted by the Administrative Law Judge Ruling described in Questions 1 and 3, provide a second version of this dataset using a risk-neutral, linear scaling function and using the disaggregated approach to reliability cost calculation recommended in the SPD Evaluation Report.

ANSWER 005 SUPPLEMENTAL 04 – SENT JULY 2, 2025

PG&E is providing the following data in attachment “*WMP-Discovery2026-2028_DR_SPD_004-Q005Supp04Atch01.xlsx*,” in the worksheet labeled “Primary:”

- Risk Reduction Achieved by OH in Year;
- Risk Reduction Achieved by UG in Year;
- Risk Reduction Achieved by Line Removal in Year;

- Risk Reduction Achieved by System Hardening in Year.

Additionally, please note that PG&E has determined that 2025 values in the “Total Expenditure” fields for OH, UG, Line Removal, and System Hardening were inadvertently not represented in thousands. PG&E provides amended values with this response. All financial data is represented in thousands (\$000s).

ANSWER 005 SUPPLEMENTAL 03 – SENT JUNE 27, 2025

PG&E is providing the following data in attachment “*WMP-Discovery2026-2028_DR_SPD_004-Q005Supp03Atch01.xlsx*,” in the worksheet labeled “Primary:”

- WDRM v4 fields
- Tranches
- Decision Trees
- Miles of Expulsion Fuse Replacement
- Miles of Surge Arrestor Replacement
- Miles of Aerial inspection
- Miles of Ground Inspection
- Miles of Non-Pole Backlog
- Miles of DCD
- Miles of Line Sensors
- Miles of Pole Backlog
- Total Expenditure of Expulsion Fuse Replacement Completed in Year
- Total Expenditure of Surge Arrestor Replacement Completed in Year
- Total Expenditure of Aerial Inspections Completed in Year
- Total Expenditure of Ground Inspection Completed in Year
- Total Expenditure of Down Conductor Detection (DCD) Completed in Year
- Total Expenditure of Line Sensors Completed in Year
- Present Value Cost of OH Completed in Year
- Present Value Cost of UG Completed in Year
- Present Value Cost of Line Removal Completed in Year
- Present Value Cost of System Hardening Completed in Year
- Present Value Cost of Expulsion Fuse Replacement Completed in Year
- Present Value Cost of Surge Arrestor Replacement Completed in Year
- Present Value Cost of Aerial Inspections Completed in Year
- Present Value Cost of Ground Inspections Completed in Year
- Present Value Cost of Tree Removal Completed in Year
- Present Value Cost of DCD Completed in Year
- Present Value Cost of Line Sensors Completed in Year
- Present Value Cost of Pole Clearing Completed in Year
- Risk Reduction Achieved by Expulsion Fuse Replacement Completed in Year
- Risk Reduction Achieved by Surge Arrestor Replacement Completed in Year
- Risk Reduction Achieved by Aerial Inspections Completed in Year
- Risk Reduction Achieved by Ground Inspections Completed in Year
- Risk Reduction Achieved by Non-Pole Backlog Completed in Year

- Risk Reduction Achieved by Tree Removal Completed in Year
- Risk Reduction Achieved by DCD Completed in Year
- Risk Reduction Achieved by Line Sensors Completed in Year
- Risk Reduction Achieved by Pole Clearing Completed in Year
- Risk Reduction Achieved by Pole Backlog Completed in Year
- Mitigation Benefit of Expulsion Fuse Replacement Completed in Year
- Mitigation Benefit of Surge Arrestor Replacement Completed in Year
- Mitigation Benefit of Aerial Inspections Completed in Year
- Mitigation Benefit of Ground Inspections Completed in Year
- Mitigation Benefit of Non-Pole Backlog Completed in Year
- Mitigation Benefit of Tree Removal Completed in Year
- Mitigation Benefit of DCD Completed in Year
- Mitigation Benefit of Line Sensors Completed in Year
- Mitigation Benefit of Pole Clearing Completed in Year
- Mitigation Benefit of Pole Backlog Completed in Year.

Please note the following regarding the data provided:

- With regard to the “WDRM v4” fields, please note that PG&E has provided those subfields with the exception of those previously identified as not possible to produce.
- With regards to the “Tranche” fields:
 - 2023 GRC Tranche: Since the list of circuit segments provided in this template are exclusively WDRM v4 circuit segments, PG&E interprets the request here to be for quintile-based tranches based on WDRM v4.
 - In PG&E’s System Hardening Accountability Report tranches are reported at the sub-project level.
- With regard to the “Decision Trees” field, due to the time between the start of a project in scoping and its actual execution, it is common for multiple decision trees and multiple risk models to be in play in any given execution year. Furthermore, the 2023-2026 GRC decision in late 2023 forced not only new segments but also re-scope many projects to decrease the number of planned UG miles, increase the number of OH miles and hit a new risk target that previously was not planned for. This means some CPZ’s may have multiple decision trees applied.

To expedite the response, PG&E is providing the following data:

1. For the V2 CPZ’s planned in 2026 that were also scoped utilizing the referenced 2023-2025 Base WMP Decision Tree in Figures SRN-PG&E-23-05-06A, SRN-PG&E-23-05-06B, SRN-PG&E-23-05-06C from PG&E’s 2023-2025 Base WMP, PG&E provided a “yes” response. A “yes” response was provided if any part of that CPZ was rescope following the 2023-2026 GRC Decision to eliminate UG and produce more OH on high-risk segments.
 - a. These sub-projects were selected based on PSPS or a V2 risk rank and scoped in 2021 and 2022. The V2 geometries had to be compared to the V4 geometries to accurately assign the yes value to

the corresponding V4 CPZ.

2. For the 2027 projects scoped with or forecasted to be scoped with the 2026-2028 Base WMP Decision tree in Figures PG&E-8.2.1-1, PG&E-8.2.1-2, and PG&E-8.2.1-3 from PG&E's 2026-2028 Base WMP, PG&E provided a "yes" response.

For the 2028 projects forecasted to be scoped with the Updated 2026-2028 Base WMP Decision Tree (not finalized for use at this time) referenced in PG&E's 2026-2028 Base WMP.

- With regard to the "Miles of" fields provided with this response, please note that, consistent with PG&E's prior responses, PG&E is providing units, rather than miles. Further, please note that there are units associated with circuit segments that are not present in the requested list of circuit segments, therefore that data is not included in this response.
- With regard to the "Miles of Expulsion Fuse Replacements" field, please note that PG&E is currently expanding its 2025 workplan to include 1400 units pursuant to discussions with the Office of Energy Safety. PG&E has not yet identified the locations of the additional units, and includes here the originally planned 848 units to the extent they are located on circuit segments existing in the WDRM v4 circuit segment list.
- With regard to the "Miles of Surge Arrestor Replacements" field, please note that PG&E met its target for GH-08 in 2023. Units reported in 2024 represent remaining remediation work not included in the 2023-2025 Base WMP workplan.
- With regard to the "Miles of Aerial Inspections" field, please note that no aerial inspections were performed under AI-07 in 2023.
- With regard to the "Miles of Line Sensors" field, please note that, for the purpose of specifying the specific segment on which a sensor was installed, PG&E is including each location at which sensor units are installed. PG&E's standard unitization for sensors (e.g. as reported in the Annual Report on Compliance) is circuits. Please note that a sensor monitors the entire circuit downstream of its installation location, not just the segment on which it is installed.
- Please note that all financial data is represented in thousands (\$000).
- Please note that PG&E has identified values in the 'Total Expenditure' fields for OH, UG, Line Removal, and System Hardening that require additional validation and possible corrections. PG&E will provide the corrected values on July 2, 2025.
- With regard to the "Total Expenditure of Expulsion Fuse Replacement Completed in Year" and "Total Expenditure of Down Conductor Detection (DCD) Completed in Year" fields, PG&E has utilized the unit cost value provided in "WMP-Discovery2026-2028_DR_SPD_001-Q021Rev01Atch01.xlsx" to provide an estimated total expenditure per circuit segment.
- With regard to the "Total Expenditure of Surge Arrestor Replacement Completed in year" field, PG&E has utilized the unit cost value provided in "WMP-Discovery2026-2028_DR_SPD_001-Q021Rev01Atch01.xlsx" to provide an estimated total expenditure per circuit segment for 2023. For 2024, PG&E utilized a unit cost value of \$10,110.19.

- With regard to the “Total Expenditure of Aerial Inspections Completed in Year” and “Total Expenditure of Ground Inspections Completed in Year” fields, PG&E utilized the following unit cost values to provide estimated total expenditure per circuit segment values:
 - 2023:
 - Ground: \$129
 - 2024:
 - Ground: \$77.39
 - Aerial: \$131.69
 - 2024:
 - Ground: \$82
 - Aerial: \$139.04.
- With regard to the “Total Expenditure of Non-Pole Backlog Tags Completed in Year” and “Total Expenditure Pole Backlog Tags Completed in Year” fields, please note that PG&E's financial systems are not designed to capture costs associated specifically with backlog tags. In order to respond to this request, PG&E has estimated per-tag costs by summing the costs of the completed tags' associated orders and dividing by the number of completed tags. There may be instances in which multiple tags are associated with a single order. Further, the estimated per-tag cost associated with Non-Pole Backlog Tags may not be representative of work done at a specific location due to the wide variety of conditions addressed by “non-pole backlog tags.” The values provided here and the estimated per-tag costs used to generate them have been developed solely for the purposes of responding to this data request.
- With regard to the “Total Expenditure of Line Sensors Completed in Year” field, PG&E derived unit cost values utilizing sensor installation locations, rather than circuits, as units to provide an estimated total expenditure per circuit segment.
- With regard to the “Present Value Cost” fields, please note that PG&E generated these values solely for the purpose of responding to this request.
- With regard to the “Risk Reduction Achieved” and “Mitigation Benefit” fields, please note that risk reduction for certain mitigations (e.g. Sensors, DCD) is not confined to the segment on which it was installed. For the purpose of this request, PG&E has provided risk reduction values specific to the segment on which mitigation units are completed.
- With regard to the “Risk Reduction Achieved” and “Mitigation Benefit” fields, please note that PG&E's aerial and ground inspections and sensor programs provide “eyes on risk” rather than risk reduction.
- Please note that, for mitigations other than “OH,” “UG,” “Line Removal,” and “System Hardening,” PG&E is unable to generate CBR values because, as previously explained, it is unable to identify actual cost per mitigation per circuit segment.

We plan to provide two additional tranches to supplement this response until it is complete, as agreed upon by SPD and PG&E on June 26, 2025. The additional tranches will include:

- Risk Reduction values for OH, UG, Line Removal, and System Hardening;
- Mitigation Benefit values for OH, UG, Line Removal, and System Hardening;
- CBRs for OH, UG, Line Removal, and System Hardening;
- Cost Recovery Fields;
- Unscaled values responsive to subpart (e).

ANSWER 005 SUPPLEMENTAL 02 – JUNE 20, 2025

PG&E is providing the following data in attachment “*WMP-Discovery2026-2028_DR_SPD_004-Q005Supp02Atch01.xlsx*,” worksheet “Primary:”

- Miles of Tree Removal;
- Miles of Pole Clearing;¹
- Total Expenditure of Tree Removal Completed in Year; and
- Total Expenditure of Pole Clearing Completed in Year.

Please note the following regarding the data provided:

- As previously indicated, PG&E cannot unitize the “Tree Removal” or “Pole Clearing” mitigations by circuit mile. Instead, PG&E is providing the number of units mitigated per circuit segment per year.
- As previously indicated, PG&E cannot provide data for 2026-2028 for these mitigations. However, please note that PG&E is providing a forecast of units and total expenditure (subject to the note below) for “Pole Clearing” for these years. These forecasts represent estimates only.
- As previously indicated, PG&E cannot provide specific expenditures for these mitigations at a circuit segment level. Instead, PG&E has multiplied units completed per segment by average unit cost to populate the “Total Expenditure” fields.

ANSWER 005 SUPPLEMENTAL 01 – MAY 30, 2025

As indicated in the previous response to this question, PG&E is providing the following tranche-level data in attachment “*WMP-Discovery2026-2028_DR_SPD_004-Q005Supp01Atch01.xlsx*”, worksheet ‘EORM WLD FR Values’, ‘EORM EPSS Values’, ‘EORM PSPS Values’²:

- Pre-Mitigated Ignition LoRE
- Pre-Mitigated Ignition Safety CoRE (Natural Units)
- Unscaled Ignition Pre-Mitigated Safety CoRE (\$)
- Pre-Mitigated Ignition Reliability CoRE (Natural Units)
- Unscaled Pre-Mitigated Ignition Reliability CoRE (\$)

¹ Please note that the provided excel template lists “Miles of Pole Clearing Connectors” twice. PG&E interprets one field to mean “Miles of Pole Clearing” and the other to mean “Miles of Breakaway Connectors.”

² The provided values are from the February 2025 vintage.

- Pre-Mitigated Ignition Financial CoRE (Natural Units)
- Unscaled Pre-Mitigated Ignition Financial CoRE (\$)
- Unscaled Pre-Mitigated Ignition Risk (\$)
- Pre-Mitigated Outage Program LoRE
- Pre-Mitigated Outage Program Safety CoRE (Natural Units)
- Unscaled Outage Program Pre-Mitigated Safety CoRE (\$)
- Pre-Mitigated Outage Program Reliability CoRE (Natural Units)
- Unscaled Pre-Mitigated Outage Program Reliability CoRE (\$)
- Pre-Mitigated Outage Program Financial CoRE (Natural Units)
- Unscaled Pre-Mitigated Outage Program Financial CoRE (\$)
- Unscaled Pre-Mitigated Outage Program Risk (\$)
- Unscaled Pre-Mitigated Overall Risk (\$).

PG&E is also providing the mapping between circuit segments to tranches for WLDFR, EPSS, and PSPS in the respective 'EORM WLDFR Mapping', 'EORM EPSS Mapping', and 'EORM PSPS Mapping' tabs. The fields pertaining to "Ignition" would refer to the WLDFR mapping and WLDFR values. For the fields pertaining Outage Programs, refer to the EPSS and PSPS values and mapping.

As indicated in the previous response to this question, PG&E is providing the following data in attachment "*WMP-Discovery2026-2028_DR_SPD_004-Q005Supp01Atch01.xlsx*", worksheet 'Primary':

- Miles of OH (columns AN:AS)
- Miles of UG (columns AT:AY)
- Miles of Line Removal (columns AZ:BE)
- Total Miles of System Hardening (columns BF:BK)
- Total Expenditure of OH Completed in Year (columns EF:EH)
- Total Expenditure of UG Completed in Year (columns EL:EN)
- Total Expenditure of Line Removal Completed in Year (columns ER:ET)
- Total Expenditure of System Hardening Completed in Year (columns EX:EZ).

Please note the following regarding the data provided:

- The information provided includes PG&E's System Hardening and Community Rebuild work.
- The information reported in the provided template may not fully represent System Hardening and Rebuild work in its entirety because the provided circuit segment list is based on WDRM v4. There are miles and costs associated to circuit segments that are not present in the provided template, therefore that data is not included in this response.
- Regarding expenditures:
 - Expenditure values reported are represented in thousands (\$000).
 - The "Total Expenditure of System Hardening Completed in Year" field is not a direct sum of the preceding values of OH, UG, and Line Removal expenditure for that year. This value may include additional costs that are not part of the categories in the provided template, such as project

management costs.

- Forecasted 2026-2028 costs are currently not broken out into circuit segments. As an alternative, PG&E is providing program-level forecasts for these years. Values are represented as thousands (\$000).

Year	Total OH Forecasted Expenditure (\$000)	Total UG Forecasted Expenditure (\$000)	Total Line Removal Forecasted Expenditure (\$000)	Total System Hardening Forecasted Expenditure (\$000)
2026	\$284,906	\$1,153,619	\$22,418	\$1,460,943
2027	\$197,265	\$1,060,346	\$17,607	\$1,275,218
2028	\$197,501	\$1,184,019	\$17,645	\$1,399,165

- As a reminder, comparing the reported expenditures and the reported miles will not yield an accurate unit cost because a project's costs may be spread across multiple years.

Unit cost is calculated using total costs-since-inception (multi-year) and total miles completed (which can be multi-year) of the subprojects that are 100% complete in the associated year. Unit cost is not calculated by dividing the total program cost spent by the total miles completed in a given year because it would:

- Inaccurately include both the readiness/pre-construction costs for future subprojects that are not yet complete and the post-construction/closeout costs for previously completed subprojects; and
- Inaccurately include subprojects with partially completed miles at year-end.

ANSWER 005

Please see attachment "*WMP-Discovery2026-2028_DR_SPD_004-Q005Atch01.xlsx*." In this delivery, PG&E is providing the data fields in the table below, subject to the following clarifications. As discussed at PG&E's meeting with the SPD on May 9, 2025, PG&E is also providing its assessment of the fields that it has determined are not possible to provide as requested and what it proposes to provide in lieu of those fields. PG&E also provides a brief explanation of each field that PG&E has determined is not possible to provide. Please note that, as PG&E's subject matter experts continue to engage with this data request, further clarifications and challenges may emerge.

Please note that PG&E is still determining the dates by which those fields not provided with this delivery or identified below can be produced. PG&E is working diligently to respond to this request and will endeavor to provide as many fields as reasonably possible on May 30, 2025. PG&E will provide updates to SPD as timelines are determined, and appreciates SPD's patience.

PG&E will endeavor to respond to this data request to the fullest extent possible.

Data Fields Included in May 13, 2025 Delivery:

Field Topic	Field Name	Notes
Circuit Segment Description	<i>Circuit Segment Name</i>	N/A
Circuit Segment Description	<i>Circuit Name</i>	N/A
Circuit Segment Description	<i>Circuit ID</i>	N/A
Circuit Segment Description	<i>Nominal Voltage</i>	N/A
Circuit Segment Description	<i>Length of Circuit Segment</i>	N/A
Tranches	<i>2024 RAMP Tranche</i>	<p>PG&E has added a column in each of the Primary, S&S, and DistTotal tabs to delineate between HFRA and non-HFRA.</p> <p>Please note that there may be some circuit segments that do not match, noted with a “#N/A.” The 2024 RAMP uses WDRM v3 circuit segments (January 2022 vintage) whereas 2026-2028 WMP uses WDRM v4 circuit segments (January 2023 vintage), and there have been changes in circuit segments over time.</p>

Fields PG&E Will Provide on May 30, 2025

At this time, PG&E expects to provide the following fields on May 30, 2025:

- Miles of OH
- Miles of UG
- Miles of Line Removal
- Total Miles of System Hardening
- Total Expenditure of OH Completed in Year
- Total Expenditure of UG Completed in Year
- Total Expenditure of Line Removal Completed in Year
- Total Expenditure of system Hardening Completed in Year

PG&E is still determining the dates by which those fields not provided with this delivery or identified here can be produced.

Fields PG&E has Determined Cannot be Provided as Requested

In addition to the limitations described below, please note that the following mitigation programs are not unitized by circuit mile and cannot be provided as such. Unless

otherwise noted, PG&E will provide the total number of units mitigated per circuit segment:

- Expulsion Fuse Replacement
- Surge Arrestor Replacement
- Aerial Inspection
- Ground Inspection
- Non-Pole Backlog
- Tree Removal
- Down Conductor Detection (DCD)
- Line Sensors
- Pole Backlog
- Pole Clearing.

Further, in addition to the limitations described below, please note that the following mitigation programs do not forecast work at the circuit-segment level. As a result, PG&E cannot provide the Units/Miles, Total Expenditure, or Present Value Cost for 2026, 2027, or 2028 for these mitigation programs:

- Expulsion Fuse Replacement
- Surge Arrestor Replacement
- Aerial Inspection
- Ground Inspection
- Non-Pole Backlog
- Tree Removal
- Line Sensors
- Pole Backlog
- Pole Clearing.

Further, in addition to the limitations described below, please note that, for the following mitigation programs, PG&E is unable to determine actual expenditure and present value cost of specific work done on a circuit segment. For these mitigation programs, PG&E will provide estimates for these fields based on the average cost to complete one unit of the mitigation program.

- Expulsion Fuse Replacement
- Surge Arrestor Replacement
- Aerial Inspection
- Ground Inspection
- Non-Pole Backlog³
- Tree Removal
- Line Sensors

³ Due the wide variety of possible conditions addressed in a non-pole backlog corrective notification, PG&E is still determining the best means of approximating cost fields for this mitigation program.

- Pole Backlog
- Pole Clearing.

Further, in addition to the limitations described below, PG&E does not track breakaway connector installations and cannot provide any fields related to this mitigation program.

Finally, PG&E is still determining the feasibility of providing circuit-segment level CBR values.

Field Topic	Field Name	Reason Impossible as Requested	Proposed Alternative, if Any
Circuit Segment EORM Values	<i>All</i>	PG&E's EORM values are not calculated to the circuit segment level, but at the "tranche" level.	PG&E will provide tranche-level data for this field (i.e. the data will be identical for all segments in a given tranche) by May 30.
WDRM v4	<i>Unadjusted Pre-Mitigated CoRE</i>	Base consequence, suppression, and egress are computed as one model result and cannot be disaggregated.	N/A
WDRM v4	<i>Unadjusted Pre-Mitigated Risk</i>	Base consequence, suppression, and egress are computed as one model result and cannot be disaggregated.	N/A
WDRM v4	<i>Post-Mitigated LoRE</i>	WDRM v4 model was developed as a predictive model and cannot be used to quantify mitigation effectiveness.	N/A
WDRM v4	<i>Unadjusted Post-Mitigated CoRE</i>	WDRM v4 model was developed as a predictive model and cannot be used to quantify mitigation effectiveness.	N/A
WDRM v4	<i>Adjusted Post-Mitigated CoRE</i>	WDRM v4 model was developed as a predictive model and cannot be used to	N/A

		quantify mitigation effectiveness.	
WDRM v4	<i>Unadjusted Post-Mitigated Risk</i>	WDRM v4 model was developed as a predictive model and cannot be used to quantify mitigation effectiveness.	N/A
WDRM v4	<i>Adjusted Post-Mitigated Risk</i>	WDRM v4 model was developed as a predictive model and cannot be used to quantify mitigation effectiveness.	N/A