PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q001
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q001
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
Responsible Person(s)	Andrea Brown

SUBJECT: WDRM V4 CONSEQUENCE MODEL

PG&E provided an updated version of the WDRM v4 Consequence Model

(Attachment B, WP025, p. 971). This is shown as Revision 2, issued July 2, 2026.

QUESTION 001

Please provide a redline version of the updates made compared to Revision 0.

ANSWER 001

Please see "*EUP-PhI_DR_MGRA_001-Q001Atch01.pdf*" for a redline of the Wildfire Consequence Model v4 Documentation Rev 2 against the baseline of Rev 0.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q002
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q002
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
Responsible Person(s)	Andrea Brown

SUBJECT: WDRM V4 CONSEQUENCE MODEL

PG&E provided an updated version of the WDRM v4 Consequence Model

(Attachment B, WP025, p. 971). This is shown as Revision 2, issued July 2, 2026.

QUESTION 002

Figure 11 of this document is identical to Figure 10 of the previous version, purportedly showing “TDI Predicted Wildfire Outcomes”. PG&E acknowledged the data used in this figure was erroneous in a data request response to MGRA. (WMP-Discovery2026-2028_DR_MGRA_006-Q005Supp01), well in advance of the release of the updated documentation. Why was the correction not included in the update?

ANSWER 002

In WMP-Discovery2026-2028_DR_MGRA_006-Q005Supp01, our response states:

> *The calculations in the section of documentation that includes **Figures 9 and 10 were included as examples from a development version of the model**, notably before weights were added to emphasize model fit against fires with more buildings in their footprints compared to those with fewer buildings, and fit using an earlier version of the fires data set.*

The primary purpose of the revised Wildfire Consequence Version 4 document was to provide an easier to follow explanation of the modeling process. To support this objective, additional explanatory text and visualizations were added to improve the clarity of the methodology and enhance understanding of each step. Updating or revising specific examples was outside the scope of this document update.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q003
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q003
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Witness(es):	Megan Ardell

SUBJECT: MARSH THIRD PARTY IMPACT ANALYSIS

QUESTION 003

PG&E states that it "*currently faces an estimated average annual loss of $512 million due to damage to our distribution infrastructure caused by wildfires*" and cites to the Marsh Impact Analysis paper (WP005). Provide the calculations underlying and supporting this estimate,

a. From Marsh, if the calculations are available, and/or

b. From PG&E's own data.

ANSWER 003

a. Marsh's approach, including data sources, modeling, and calculations, is described in the Methodology Overview sections of WP005. That approach includes Marsh's proprietary modeling and calculations. Further detail on Marsh's calculations underlying the estimated AAL of $512 million due to damage to distribution infrastructure is confidential and/or proprietary, and can only be provided upon the execution of a non-disclosure agreement (NDA). Please send an email to EUPinfo@pge.com to obtain an NDA that may be used for this proceeding. Once the NDA is fully executed, PG&E will provide the requested information.

b. As stated in WP005, Methodology Overview sections, Marsh's analysis is based on a combination of several data sources, including from PG&E. PG&E does not possess that combined, processed data.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q004
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q004
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Witness(es):	Megan Ardell

SUBJECT: MARSH THIRD PARTY IMPACT ANALYSIS

QUESTION 004

PG&E also states that: "*All else being equal, it is estimated that during the 10-year EUP period, the wildfire risk reduction achieved from undergrounding could facilitate a reduction in homeowner insurance premiums for commercially available insurance plans in our service territory of 18 percent*," also based on a citation from the Marsh Analysis (WP005, p. 12) Provide the assumptions and calculations on which this assertion is based.

a. From Marsh, if the calculations are available, and/or

b. From PG&E's own understanding of the Marsh Analysis.

ANSWER 004

a. Marsh's approach, including data sources, modeling, assumptions, and calculations, is described in the Methodology Overview sections of WP005. That approach includes Marsh's proprietary modeling and calculations. Further detail on Marsh's calculations underlying the estimated reduction in homeowner insurance premiums for commercially available insurance is confidential and/or proprietary, and can only be provided upon the execution of a non-disclosure agreement (NDA). Please send an email to EUPinfo@pge.com to obtain an NDA that may be used for this proceeding. Once the NDA is fully executed, PG&E will provide the requested information.

b. The WP005, Methodology Overview sections describe Marsh's analysis of the potential effect of PG&E's EUP on homeowner insurance premiums for commercially available insurance plans. This document and the EUP speak for themselves, and PG&E does not have a separate or different understanding of Marsh's assumptions and calculations. As stated above, further detail on Marsh's calculations underlying the estimated reduction in homeowner insurance premiums for commercially available insurance is confidential and/or proprietary, and can only be provided upon

the execution of an NDA. Please send an email to EUPinfo@pge.com to obtain an NDA that may be used for this proceeding. Once the NDA is fully executed, PG&E will provide the requested information.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q005
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q005
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Witness(es):	Justin Sadler, Andrea Brown

SUBJECT: PSPS AND EPSS

QUESTION 005

PG&E states that it *"assumes that undergrounding eliminates PSPS and EPSS events on the underground portions of a Circuit Segment, resulting in 100 percent effectiveness for those risk categories." (p. 67).*

a. Explain how PG&E's model and assumption take upstream above ground circuit segments that may be subject to PSPS into account.

b. What fraction of circuit segments in the proposed portfolio have above-ground circuit segments upstream that have been subject to PSPS and EPSS at the beginning of the project?

c. Does PG&E's EUP project sequencing prioritize circuit segments that have downstream circuit segments that have been undergrounded? If so, where and how was this incorporated into PG&E's planning process?

ANSWER 005

a. PG&E's PSPS risk methodology accounts for risks associated with upstream overhead lines and equipment through its PSPS risk calculation. Under this methodology, customer-experienced PSPS risk is allocated to upstream circuit segments located within the historical PSPS event polygon based on the relative mileage exposure of those circuit segments within the polygon. As a result, PSPS risk experienced by downstream customers is apportioned among the upstream circuit segments that contribute to the PSPS exposure. Please refer to EUP-PhI_DR_MGRA_001-Q005Atch01.pdf for an illustration of how PSPS risk is allocated among upstream circuit segments within a PSPS event polygon.

   To calculate PSPS risk reduction benefits, mitigation effectiveness is applied after PSPS risk has been allocated. For undergrounding projects, PG&E assumes that undergrounded facilities are 100% effective against PSPS, while overhead facilities are assumed to be 0% effective against PSPS. For hybrid projects, the reduction in

circuit-observed PSPS risk is proportional to the percentage of the circuit segment that is undergrounded.

Because the PSPS risk calculation already allocates risk among upstream circuit segments based on mileage exposure within the PSPS event polygon, the PSPS risk attributed to a given downstream circuit segment has already been reduced through the allocation process to account for upstream impacts. For example, if an entire circuit segment is undergrounded, the project receives the benefit associated only with the portion of circuit-observed PSPS risk allocated to that circuit segment; the remaining risk is allocated to upstream circuit segments. Applying an effectiveness value of less than 100 percent to the risk allocated to the undergrounded facilities would therefore account for the upstream impacts a second time. Accordingly, PG&E applies 100 percent effectiveness to the undergrounded portion of a circuit segment after the PSPS risk has been calculated and allocated.

In other words, residual PSPS risk associated with upstream overhead facilities is represented through the risk allocation methodology itself, rather than through a reduction in the effectiveness assigned to undergrounded facilities.

b. PG&E interprets “proposed portfolio” as the estimated EUP Plan (i.e., the underlying projects that constitute the Plan Mitigation Objective). Of the 360 circuit segments included in the estimated EUP Plan, 332 have experienced an upstream Enhanced Powerline Safety Settings (EPSS) activation, and 206 have experienced an upstream Public Safety Power Shutoff (PSPS) activation in the seven-year lookback period used for the PSPS Outage Program Risk Model, which combines PSPS Lookback Study (2018–2022) with SCADA-captured PSPS events from 2023–2024.

c. No. PG&E does not incorporate the existence of previously undergrounded downstream circuit segments as an explicit input, weighting factor, or ranking criterion in EUP project sequencing.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q006
PG&E File Name:	EUP-Phl_DR_MGRA_001-Q006
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Responsible Person(s)	Megan Ardell

SUBJECT: GEODATABASE FILES

QUESTION 006

Regarding Spatial Data Submissions (p. 254),

a. provide non-confidential versions of Project-Level Data.

b. provide a detailed explanation for the confidentiality of data files that cannot be provided in a non-confidential version.

ANSWER 006

a. PG&E reviewed the requested project-level GIS data provided to Energy Safety to determine whether a non-confidential version could be produced. However, the confidential information is inherent to the datasets and cannot be reasonably segregated from the non-confidential information. Because the data contains detailed geographic and infrastructure-specific information regarding the electric system, including locations of switches, transformers, fuses, capacitors, and poles, redaction or aggregation of the GIS file sent to Energy Safety would either fail to adequately protect confidential information or materially diminish the usefulness and responsiveness of the data. Accordingly, PG&E is unable to provide non-confidential versions of these files and has produced them on a confidential basis pursuant to Public Utilities Code Section 15475(c); Government Code Sections 6254(k), (ab) and 6255(a); 6 U.S.C. Section 131; and 6 Code of Federal Regulations Section 29.2. Please send an email to EUPinfo@pge.com to obtain an NDA that may be used for this proceeding. Once the NDA is fully executed, PG&E can provide the requested information.

b. Please see the response to subpart (a). The confidential GIS file sent to Energy Safety is inherent to the datasets and cannot be reasonably segregated from the responsive data.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q007
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q007
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Witness(es):	Justin Sadler

SUBJECT: EXCEL FILES

QUESTION 007

Please provide Excel files for PG&E tables in the EUP containing numerical data, specifically including:

a. Table 3-4 (p. 104)

b. Table 3-11 (p. 145)

c. WP010 CORE CAPABILITY 3: SUPPORTING FORM

d. Tables on pp. 581-584.

e. WP012 CORE CAPABILITY 5: SUPPORTING FORMULAS

f. WP013 CORE CAPABILITY 6: SUPPORTING FORMULAS

g. WP014 CORE CAPABILITY 7: SUPPORTING FORMULAS

h. The supplemental Excel file, EPSS Toy Problem Calculations (Attach. B, WP016B)

i. The supplemental excel file, PSPS Toy Problem Calculations (Attach. B, WP017B).

ANSWER 007

Please see "*EUP-PhI_DR_MGRA_001-Q007Atch01.zip*" for the requested files. Please note, the tables requested in subpart (d) are part of Workpaper 011, which has been added to the attachment folder.

PACIFIC GAS AND ELECTRIC COMPANY
10 Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_001-Q008
PG&E File Name:	EUP-PhI_DR_MGRA_001-Q008
Request Date:	October 9, 2026
Requester DR No.:	MGRA-DR-PGE-EUP-26-01
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 14, 2026
PG&E Witness(es):	Justin Sadler

SUBJECT: TECHNICAL

QUESTION 008

Regarding the flowchart in Figure 3-1 PROJECT ACCEPTANCE FRAMEWORK – SCREEN 1:

All decision paths appear to lead to Eligible CPZs. It would appear the horizontal arrow joining the “Ignition Tail Risk Threshold Ineligible” and the Eligible CPZ box is in error. Confirm, or provide explanation of why this is a valid decision path.

ANSWER 008

The horizontal arrow is not an error. Screen 1 assigns an eligibility determination (e.g., High Risk Threshold Eligible, High Frequency Outage Threshold Eligible, Ignition Tail Risk Threshold Eligible, or EUP Ineligible) to each circuit segment but does not end the workflow at the point where designation is assigned. All segments continue beyond the designation boxes shown in Figure 3-1, with the resulting eligibility determination retained for use in subsequent steps of the Project Acceptance Framework. The rectangular "Mark as" boxes record the outcome of a threshold evaluation, while the diamond-shaped nodes represent workflow decision points. The horizontal arrow ensures that all circuit segments receive and retain a recorded Screen 1 designation before the workflow proceeds. It does not indicate that a circuit segment designated as ineligible becomes eligible or advances to Screen 2.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q001
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q001
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Responsible Person(s):	Scott Strenfel

Wind

QUESTION 001

Please provide an Excel spreadsheet containing an entry for every active PG&E weather station. For each weather station provide the following fields:

a. Weather Station ID
b. Mesonet ID
c. Date in service
d. Link to Mesonet weather station data
e. HFTD Class
f. Maximum wind gust speed measured at station
g. Number of wind gust measurements over the life of the weather station:
    a) > 50 mph
    b) > 55 mph
    c) > 60 mph
    d) > 65 mph
    e) > 70 mph

ANSWER 001

As stated in PG&E's October 13, 2026 extension request to MGRA, PG&E is unable to provide the requested weather station in the format requested by the October 15, 2026 due date. The subject matter experts necessary to compile, validate and produce the requested information are currently engaged in a Public Safety Power Shutoff (PSPS) event and are also compiling information for a previous PSPS event for the 10-day report.

All data collected by PG&E's weather station network is available to the public through multiple channels provided below. The entire historical data can be acquired from Synoptic by any entity to perform analyses to support regulatory filings.

Information relevant to this request is available through the following public resources:

- PG&E Weather & Fire Detection: Provides links to the external interactive weather maps identified below and describes the weather information available through those tools, including humidity, precipitation, temperature, wind speeds and gusts, and red flag warnings.
    - **Subpart (b)**, the PG&E mesonet ID is 229 and a summary of all stations with their first report date (in service) and end date can be found in Synoptic's network viewer. See column "Station ID" for the station ID **(subpart a).**
    - **Subpart (c)**, see Synoptic's network viewer; See column "First Date" for date in service.
    - **Subpart (d), Link to Mesonet weather station data:** Follow the link to the Synoptic Weather Viewer and select a station to access its data.
    - **Subpart (f), Maximum wind gust speed:** Follow the linked weather tools and select a station to view available wind-gust observations.
    - **Subpart (g), Wind-gust threshold counts:** Historical wind-gust observations may be accessed through the linked tools, but the number of measurements above 50, 55, 60, 65, and 70 mph is not provided as a pre-calculated value.
        - As the PG&E weather station is available through Synoptic, the historical data can be downloaded and processed by any entity.
- Once the PG&E weather stations are located on the Synoptic Weather Viewer, the public may cross reference the weather station locations with the CPUC's High Fire-Threat District map **(subpart e)** at this website: Fire-Threat Maps and Fire-Safety Rulemaking.

Consistent with PG&E's October 13, 2026 extension request, PG&E will supplement this response with the requested spreadsheet by October 30, 2026, time permitting as we are in the peak of PSPS season.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q001
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q001Supp01
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026 (Original) October 26, 2026 (Supplemental 01)
PG&E Responsible Person(s):	Scott Strenfel

Wind

QUESTION 001

Please provide an Excel spreadsheet containing an entry for every active PG&E weather station. For each weather station provide the following fields:

a. Weather Station ID
b. Mesonet ID
c. Date in service
d. Link to Mesonet weather station data
e. HFTD Class
f. Maximum wind gust speed measured at station
g. Number of wind gust measurements over the life of the weather station:
    a) > 50 mph
    b) > 55 mph
    c) > 60 mph
    d) > 65 mph
    e) > 70 mph

ANSWER 001

As stated in PG&E's October 13, 2026 extension request to MGRA, PG&E is unable to provide the requested weather station in the format requested by the October 15, 2026 due date. The subject matter experts necessary to compile, validate and produce the requested information are currently engaged in a Public Safety Power Shutoff (PSPS) event and are also compiling information for a previous PSPS event for the 10-day report.

All data collected by PG&E's weather station network is available to the public through multiple channels provided below. The entire historical data can be acquired from Synoptic by any entity to perform analyses to support regulatory filings.

Information relevant to this request is available through the following public resources:

- PG&E Weather & Fire Detection: Provides links to the external interactive weather maps identified below and describes the weather information available through those tools, including humidity, precipitation, temperature, wind speeds and gusts, and red flag warnings.
    - **Subpart (b)**, the PG&E mesonet ID is 229 and a summary of all stations with their first report date (in service) and end date can be found in Synoptic's network viewer. See column "Station ID" for the station ID **(subpart a).**
    - **Subpart (c)**, see Synoptic's network viewer; See column "First Date" for date in service.
    - **Subpart (d), Link to Mesonet weather station data:** Follow the link to the Synoptic Weather Viewer and select a station to access its data.
    - **Subpart (f), Maximum wind gust speed:** Follow the linked weather tools and select a station to view available wind-gust observations.
    - **Subpart (g), Wind-gust threshold counts:** Historical wind-gust observations may be accessed through the linked tools, but the number of measurements above 50, 55, 60, 65, and 70 mph is not provided as a pre-calculated value.
        - As the PG&E weather station is available through Synoptic, the historical data can be downloaded and processed by any entity.
- Once the PG&E weather stations are located on the Synoptic Weather Viewer, the public may cross reference the weather station locations with the CPUC's High Fire-Threat District map **(subpart e)** at this website: Fire-Threat Maps and Fire-Safety Rulemaking.

Consistent with PG&E's October 13, 2026 extension request, PG&E will supplement this response with the requested spreadsheet by October 30, 2026, time permitting as we are in the peak of PSPS season.

ANSWER 001 SUPPLEMENTAL 01

Please see *"EUP-PhI_DR_MGRA_002-Q001Supp01Atch01.xlsx"* for the requested information.

Attachment includes the following fields:

Requested Data	Report Field	Column	Description/Notes
Weather Station ID	Station ID	A	PG&E is also providing the Weather Station Name in Column C "Station Name".

Mesonet ID	Mesonet ID	B	229 is the Mesonet ID for all stations.
Date in service	Date in Service (utc)	E	
Link to Mesonet weather station data	N/A	N/A	All station data is available via weather.gov. Replace the bold station ID in the following URL with the weather station ID: https://www.weather.gov/wrh/timeseries?site=**PG002**. All data can also be accessed by visiting the Synoptic Weather Viewer.
HFTD Class	HFTD Class	D	
Maximum wind gust speed measured at station	Max Wind Gust (MPH)	F	
Number of wind gust measurements over the life of the weather station a) > 50 mph b) > 55 mph c) > 60 mph d) > 65	a) Gust > 50 mph b) Gust > 55 mph c) Gust > 60 mph d) Gust > 65 mph e) Gust > 70 mph	a) G b) H c) I d) J e) K	

mph e) > 70 mph			

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q002
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q002
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Responsible Person(s):	Scott Strenfel

QUESTION 002

Please provide an Excel spreadsheet containing an entry for every circuit segment included in Plan EUP-01 (i.e. those listed in PGE_Initial_2026_09_30_T6_R0.csv).

For each circuit segment provide:

a. Circuit segment ID
b. Nearest weather station distance < 3.0 miles? (Y/N)
c. If nearest weather station distance < 3.0 miles, provide Weather Station ID.

ANSWER 002

Please see PG&E's response to MGRA-2-1 for publicly available information responsive to **subpart b and subpart c** of this request.

PG&E will supplement this response with the requested spreadsheet by October 30, 2026, consistent with its October 13, 2026 extension request.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q002
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q002Supp01
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026 (Original) October 26, 2026 (Supplemental 01)
PG&E Responsible Person(s):	Scott Strenfel

QUESTION 002

Please provide an Excel spreadsheet containing an entry for every circuit segment included in Plan EUP-01 (i.e. those listed in PGE_Initial_2026_09_30_T6_R0.csv).

For each circuit segment provide:

a. Circuit segment ID
b. Nearest weather station distance < 3.0 miles? (Y/N)
c. If nearest weather station distance < 3.0 miles, provide Weather Station ID.

ANSWER 002

Please see PG&E's response to MGRA-2-1 for publicly available information responsive to **subpart b and subpart c** of this request.

PG&E will supplement this response with the requested spreadsheet by October 30, 2026, consistent with its October 13, 2026 extension request.

ANSWER 002 SUPPLEMENTAL 01

Please see attachment *"EUP-PhI_DR_MGRA_002-Q002Supp01Atch01.xlsx"* for the requested information for all circuit segments included in PG&E's PGE_Initial_2026_09_30_T6_R0.csv.

The attachment includes the following fields:

Requested Data	Report Field	Column	Description/Notes

Circuit Segment ID	Circuit Segment	B	Unique identifier of the circuit segment
Nearest weather station distance < 3.0 miles? (Y/N)	Weather Station <3 miles	C	Indicates if there is a PG&E weather station within three miles of the circuit segment.
If nearest weather station distance < 3.0 miles, provide Weather Station ID.	Weather Station ID(s)	D	The identifier of the weather station, or weather stations, that are within three miles of the circuit segment. Notes: - values are comma delimited - a single weather station can be within three miles of multiple circuit segments
--	Weather Station Count	E	Count of weather stations within three miles of the circuit segment

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q003
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q003
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Witness(es):	Justin Sadler

QUESTION 003

In PG&E's Project Variable Modifier (PVM) analysis (p. 350), SME's assessed the effectiveness of mitigation alternatives against 2,700 failure modes that occurred in the HFTD.

a. Does this failure mode analysis include damage caused during PSPS events that were detected during post-PSPS patrols?

b. If "no", how otherwise does PG&E incorporate damage that is induced by high winds?

ANSWER 003

a. No, the mitigation effectiveness analysis that informs the Project Variable Modifiers (PVMs) is based on sustained outage events from 2015 through 2024 and the documented causes associated with those events. Company-initiated outages, including Public Safety Power Shutoff (PSPS) events, are not incorporated into the PVM mitigation effectiveness values.

b. Damage associated with high winds is incorporated into the mitigation effectiveness analysis when it results in a documented failure event captured in the historical outage dataset and attributed to a recorded cause or supplemental cause. As such, many wind-related failures are reflected in the effectiveness calculations through outage events that occurred under normal operating conditions. However, damage identified during post-PSPS patrols that did not result in a sustained outage event is not separately included in the PVM mitigation effectiveness analysis.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q004
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q004
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Witness(es):	Andrea Brown, Justin Sadler

Mitigation Effectiveness Analysis

QUESTION 004

PG&E's Tail Risk Project-Level Standard states that in order for a project to demonstrate substantial Wildfire Risk reduction of at least 90%.

a. What is the origin of the 90% threshold?

b. Is this 90% threshold in comparison to completely unmitigated, or with respect to existing mitigations in place (i.e. EPSS and PSPS)?

ANSWER 004

a. The EUP Guidelines, Section 2.7.9.2, Project-Level Standards, Subsection (c), Tail Risk Project-Level Standard, states that the *"Tail Risk Project-Level Standard is the minimum decrease in wildfire likelihood that any Undergrounding Project considered under the Ignition Tail Risk Threshold must achieve to meet the required substantial reduction of the risk of wildfire."*

   As described in PG&E's EUP, Chapter 6: Model Report, Section M, Project-Level Thresholds and Standards, 2(c), Tail Risk Project-Level Standard: *"PG&E selected 90 percent as a conservative Standard to distinguish substantial mitigation from incremental improvement. Under this Standard, a Project must reduce at least 90 percent of pre-mitigation Ignition Likelihood or Outage Program Likelihood, leaving no more than 10 percent of the original likelihood remaining. PG&E considers this requires the Project to materially reduce the underlying ignition likelihood, rather than merely produce a marginal or measurable change"*.

b. The Ignition Tail Risk Project-Level Standard uses a Wildfire Likelihood baseline that is already mitigated by Enhanced Powerline Safety Settings (EPSS) and Public Safety Power Shutoff (PSPS) as the basis for determining whether the standard is satisfied. Specifically, satisfaction of the 90% Ignition Tail Risk Project-Level Standard requires a 90% reduction relative to this already operationally mitigated Wildfire Likelihood baseline.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q005
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q005
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 16, 2026
PG&E Responsible Person(s):	Justin Sadler; Yumi Oum

Mitigation Effectiveness Analysis

QUESTION 005

Repeat the 2024 analysis performed for Data Request RAMP 2024_DR_TURN_006-Q004, in particular Table 1, showing the amount of covered conductor deployed and facility ignitions, updating this data to the end of September 2024. Likewise repeat the effectiveness calculation for covered conductor performed in DR_TURN_006-Q004 showing details.

ANSWER 005

PG&E interprets this request to ask for updated data as of September 2026.

Please see the table below for the requested updated analysis:

Metric	2018	2019	2020	2021	2022	2023	2024	2025	2026 YTD	Total
Deployed Covered Conductor miles*	15.8	145	334.5	146.8	334.6	144.8	108.1	206.9	265	1,701.05
Deployed Covered Conductor cumulative miles*	15.8	160.7	495.2	642.0	976.7	1,121.5	1,229.6	1,436.5	1,701.5	1,701.5
All facility Ignitions associated with Distribution lines in HFTD / HFRA**	247	176	194	200	123	108	145	85	84	879

All CPUC RFIs associated with Distribution lines in HFTD / HFRA**	146	114	138	130	85	58	94	55	59	1362
Facility Ignitions associated with Overhead Covered Conductor Distribution lines in HFTD / HFRA **	0	0	0	1	1	2	1	0	0	5
CPUC RFI associated with Overhead Covered Conductor Distribution lines in HFTD / HFRA **	0	0	0	1	1	0	0	0	0	2

*minor variations in previously reported values from the original RAMP 2024_DR_TURN_006-Q004 Table 1 are due to final validations during project closure and rounding during calculations
** The results presented above were generated using data as of 10/15/2026. Some differences may exist between these results and previously reported figures. These variances may be attributable to historical updates to the underlying data, differences in reporting methodology, or changes to HFTD/HFRA boundaries over time.

Based on the above data, PG&E has estimated a covered conductor mitigation effectiveness of 87.9 percent. This is done by comparing ignitions observed on bare vs. covered conductor during the 2018 to 2026 YTD period as set forth below.**1**

Effectiveness = 1 - $(\hat{p}_{\text{Covered}})/(\hat{p}_{\text{Bare}})$ = 1 - 0.077%/0.629%= 87.8%**1**
The details of the effectiveness calculation are provided in Appendix A.

PG&E reiterates that it is inappropriate to use the above calculation for the reasons stated in response to subparts (a) and (b) of the referenced RAMP response, provided for reference here as "*EUP-PhI_DR_MGRA_002-Q005Atch01.pdf.*"

In addition to the reasons stated in "*EUP-PhI_DR_MGRA_002-Q005Atch01.pdf*," a simple count of observed ignitions on covered conductor circuits is not an appropriate way to estimate covered conductor effectiveness because it does not account for PG&E's other wildfire mitigations that operate on the same facilities, particularly Public

1 PG&E participates in the Joint CC Effectiveness Study to better understand the advantages, operative failures modes, and current state of knowledge regarding covered conductors. Based on the latest update, using data through 2022, the estimated effectiveness is 64 percent. This is consistent with the previous results that were completed using data through 2020. See Joint IOU Covered Conductor Working Group Report. A copy of the report is provided as Attachment 2023-03-27 to PG&E's 2023 WMP. (Attachment 2023-03-27_PGE_2023_WMP_R0_Appendix D ACI PG&E-22-11_Atch01.)

Safety Power Shutoff (PSPS) and Enhanced Powerline Safety Settings (EPSS). On the highest-risk days that meet PSPS criteria, PG&E de-energizes facilities in the affected areas, including covered conductor. Accordingly, ignitions involving those facilities that might have occurred under the most severe conditions are not reflected in the observed ignition counts. Similarly, EPSS quickly de-energizes a line when a fault is detected, which reduces the likelihood that a fault results in an ignition. Because these mitigations work together, their individual effects cannot be separated in a simplified count of observed ignitions like the one requested, and this significantly impacts the results of this calculation.

Appendix A

Details of the effectiveness calculation

Defining the key variables for the calculation:

- $\boldsymbol{F_{\text{Covered}}}$ – Facility Ignitions on Covered Conductors
  - $\boldsymbol{F_{\text{Bare}}}$ – Facility Ignitions on Bare Conductors
  - $\boldsymbol{M_{\text{Total}}}$ – Total Distribution miles (includes covered, bare and undergrounded that were operational through the sample period of 8.75 years in HFTD / HFRA from 2018 through 2026 year-to-date)
  - $\boldsymbol{T}$ –Time period in years between 2018 and YTD 2026
  - $\boldsymbol{n_{\text{Covered}}}$ – Number of Covered Conductor mile-years over the 8.75 years
  - $\boldsymbol{n_{\text{Bare}}}$ – Number of Bare Conductor mile-years over the 8.75 years
  - $\boldsymbol{n_{\text{Undergrounded}}}$ – Number of Undergrounded mile-years over the 8.75 years
  - $\boldsymbol{n_{\text{Total}}}$ – Number of Total mile-years over the 8.75 years
  - $\boldsymbol{\hat{p}_{\text{Covered}}}$ – Facility ignition rate (per mile-year) of Covered Conductors
  - $\boldsymbol{\hat{p}_{\text{Bare}}}$ – Facility ignition rate (per mile-year) of Bare Conductors

Input Variables:

- $\boldsymbol{F_{\text{Covered}}} = 5$ (as shown in Table 1)
- $\boldsymbol{F_{\text{Bare}}} = 1{,}357$ (as shown in Table 1)
- $\boldsymbol{M_{\text{Total}}} = 25{,}655$
- $\boldsymbol{T} = 8.5$ years

Calculated Variables:

- $n_{\text{Total}} = M_{\text{Total}} \times T = 25{,}655 \times 8.75 = \mathbf{224{,}481}$ mile-years

- n_{Covered} is calculated as follows: For each year, the number of covered conductors installed that year, multiplied by the number of years from the mid-point of the installation year[2] until end-of-sample (i.e., counting 2026 year-to-date as 0.75 years).

$$\underbrace{15.8 \times 8.25}_{2018} + \underbrace{145.0 \times 7.25}_{2019} + \underbrace{334.5 \times 6.25}_{2020} + \underbrace{146.8 \times 5.25}_{2021} + \underbrace{334.6 \times 4.25}_{2022} + \underbrace{144.8 \times 3.25}_{2023} + \underbrace{108.1 \times 2.25}_{2024} + \underbrace{206.9 \times 1.25}_{2025} + \underbrace{265 \times 0.25}_{2026} = \mathbf{6{,}503} \text{ mile-years.}$$

- $n_{\text{Undergrounded}}$ - is similarly calculated as:

$$\underbrace{5.5 \times 7.25}_{2019} + \underbrace{25.6 \times 6.25}_{2020} + \underbrace{33.9 \times 5.25}_{2021} + \underbrace{99.4 \times 4.25}_{2022} + \underbrace{236.4 \times 3.25}_{2023} + \underbrace{178.0 \times 2.25}_{2024} + \underbrace{276.3 \times 1.25}_{2025} + \underbrace{224.9 \times 0.25}_{2026} = \mathbf{2{,}371} \text{ mile-years}$$

[2] Approximating that the installation was at a constant rate over the year

- $n_{\text{Bare}} = n_{\text{Total}} - n_{\text{Covered}} - n_{\text{Undergrounded}}$ = $224{,}481 - 6{,}503 - 2{,}371 = \mathbf{215{,}607}$ mile-years
  - $\hat{p}_{\text{Covered}} = \frac{F_{\text{Covered}}}{n_{\text{Covered}}} = \frac{5}{6{,}503} = \mathbf{0.077}\%$
  - $\hat{p}_{\text{Bare}} = \frac{F_{\text{Bare}}}{n_{\text{Bare}}} = \frac{1{,}357}{215{,}607} = \mathbf{0.629}\%$
  - Effectiveness = 1 - ($\hat{p}_{\text{Covered}}$)/($\hat{p}_{\text{Bare}}$) = 1 - 0.077%/0.629%= **87.8%**

PACIFIC GAS AND ELECTRIC COMPANY
Risk Assessment and Mitigation Phase (RAMP) 2024
Application 24-05-008
Data Response

PG&E Data Request No.:	TURN_006-Q004		
PG&E File Name:	RAMP-2024_DR_TURN_006-Q004		
Request Date:	August 6, 2024	Requester DR No.:	006
Date Sent:	September 10, 2024	Requesting Party:	The Utility Reform Network
PG&E Witness:	N/A	Requester:	Tom Long

SUBJECT: WILDFIRE RISK

QUESTION 004

Regarding PG&E's response to data request TURN 005-Q004(b), which states that PG&E's effectiveness values are not based on historical data from PG&E's deployment of covered conductors:

a. Given that PG&E reports that it has installed 1,161 miles of covered conductor to date, why does PG&E believe the number of ignitions that PG&E has recorded for those lines is not statistically significant?

b. How many ignitions has PG&E observed on covered conductor lines to date? Please provide an annual breakdown by year of ignition, beginning with 2018 and continuing through 2023. What mitigation effectiveness does this number of observed ignitions imply, even if PG&E does not consider the number statistically significant? Please show how PG&E calculated this mitigation effectiveness number.

c. PG&E's response shows that it began installing covered conductor in 2018. At any point in that period, have PG&E's records for outages and ignitions not tracked whether the outage or ignition occurred on a line or equipment that was hardened in the covered conductor program?

    i. If the answer is yes, (i.e. PG&E was not tracking this information), please state when PG&E was not tracking this information and the month and year PG&E began tracking this information.

    ii. If the answer is yes, why was PG&E not tracking this information?

ANSWER 004

a. and b. PG&E strongly believes that the ignition count observed on covered conductor is not appropriate to conduct any meaningful calculation, including effectiveness or statistical significance testing at this time for the following reasons:

1. A portion of the covered conductor projects include rebuilds of distribution overhead circuits in towns and communities in the aftermath of wildfires (~24 % of Covered Conductor installed since 2018). The ignition risk in these areas differ considerably from the non-fire scar areas because the vegetation growth in the fire scar areas takes years to reach the level of areas not previously impacted by wildfires.

2. Covered conductor has been installed relatively recently when compared to most bare overhead systems. As a result, covered conductor has not been exposed to as much weathering from heat, snow, and rain. With additional weathering and exposure to the elements, we expect covered conductor to degrade over time.

   For example, during the winter storm events of December 2021, heavy wind, snow and rain damaged over 1,400 spans of overhead distribution infrastructure including relatively recently installed covered conductor, resulting in numerous outages. A similar extreme event during warmer conditions could have produced ignitions and potentially wildfires.

   Weathering has a long-lasting degrading impact on the risk-reduction effectiveness and thus, to accurately compare ignition risk from covered conductor and bare overhead systems, it is estimated to require at least 8-10 years of weathering for a reasonable comparison to be made.

3. PG&E's system hardening decision tree indicates that undergrounding is the preferred mitigation in areas with higher tree strike risk. Therefore, PG&E generally installs covered conductor in areas with lower tree strike potential. With fewer potential strike trees, we anticipate fewer outages and ignitions from vegetation contact.

   However, in response to this request, as shown in Table 1 below, from 2018 to 2024 PG&E has observed 5 facility ignitions including 2 CPUC Reportable Fire Ignitions (RFIs) on approximately 1,161 miles of overhead Covered Conductor as of July 12, 2024. The 1,161 miles of covered conductor was gradually deployed since 2018 in the HFTD and HFRA.

Table 1 – Miles of Covered Conductor Deployed, Facility Ignitions, CPUC Reportable Ignitions (as of July 12, 2024)

	2018	2019	2020	2021	2022	2023	2024 YTD*	TOTAL
Deployed Covered Conductor miles	15.8	145.0	334.5	146.8	334.7	144.8	39.1	1,160.
Deployed Covered Conductor cumulative miles	15.8	160.8	495.3	642.1	976.8	1,121.6	1,160.7	1,160.7
All facility Ignitions associated with Distribution lines in HFTD / HFRA	261	181	195	201	124	108	81	1,151
All CPUC RFIs associated with Distribution lines in HFTD / HFRA	157	110	137	129	86	58	47	724
Facility Ignitions associated with Overhead Covered Conductor Distribution lines in HFTD / HFRA	0	0	0	1	2	0	2	5
CPUC RFI associated with Overhead Covered Conduct Distribution lines in HFTD / HFRA	0	0	0	1	1	0	0	2

Based on the above data, PG&E has estimated a covered conductor mitigation effectiveness of 79.3 percent. This is done by comparing ignitions observed on bare vs. covered conductor during the 2018 to 2024 YTD period as set forth below.[1]

Effectiveness = 1 - $(\hat{p}_{\text{Covered}})$/($\hat{p}_{\text{Bare}}$) = 1 - 0.146%/0.705%= 79.3%[2]
The details of the effectiveness calculation are provided in Appendix A.

PG&E reiterates that it is inappropriate to use the above calculation for the reasons stated in part (a).

c. As indicated above, PG&E does track ignitions based on conductor type. Ignitions can be traced to a clear location of an ignition point on a circuit.

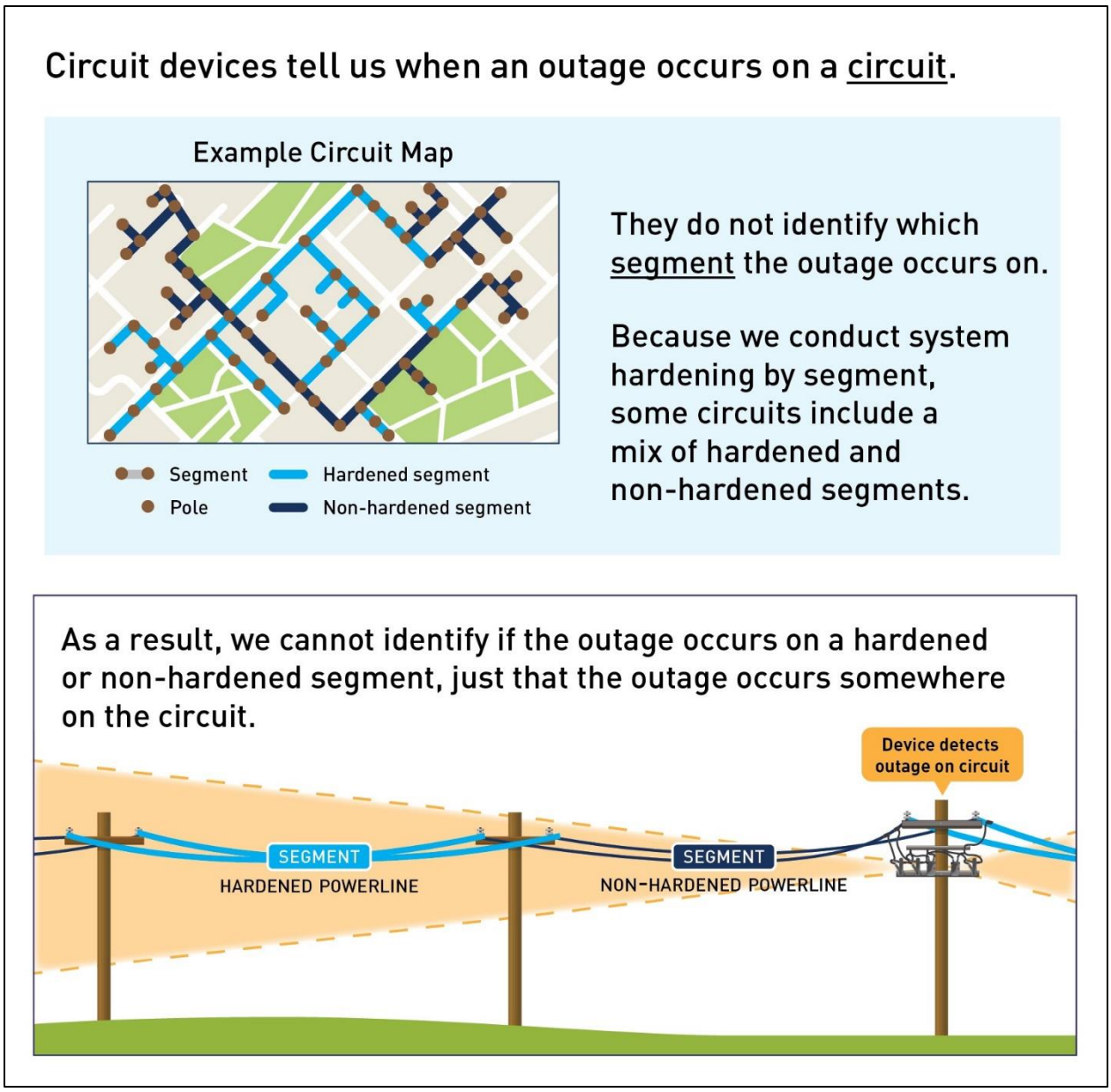
PG&E does not track outages by conductor type. An outage is caused when a circuit disturbance trips an upstream device. This makes it challenging to

[1] While PG&E does not support the methodology, a similar analysis could be conducted for distribution circuits recently undergrounded as part of PG&E's Wildfire Mitigation efforts. . Given that no facility or CPUC Reportable ignitions have been observed on these undergrounded circuits since 2018, the calculated effectiveness of undergrounding would be 100%.

[2] PG&E participates in the Joint CC Effectiveness Study to better understand the advantages, operative failures modes, and current state of knowledge regarding covered conductors. Based on the latest update, using data through 2022, the estimated effectiveness is 64 percent. This is consistent with the previous results that were completed using data through 2020. See Joint IOU Covered Conductor Working Group Report. A copy of the report is provided as Attachment 2023-03-27 to PG&E's 2023 WMP. (Attachment 2023-03-27_PGE_2023_WMP_R0_Appendix D ACI PG&E-22-11_Atch01.)

determine the exact location of an outage cause on a circuit, unless the outage is caused by an equipment failure or a failure event that leaves a distinct damage to the equipment at the failure point. A circuit can contain both covered and bare conductor segments. Accordingly, data for outages cannot be clearly mapped to covered or bare conductor segments (see picture below).

Picture 1 – Outages on circuit segments



Appendix A

Details of the effectiveness calculation

Defining the key variables for the calculation:

- $\boldsymbol{F_{\text{Covered}}}$ – Facility Ignitions on Covered Conductors
  - $\boldsymbol{F_{\text{Bare}}}$ – Facility Ignitions on Bare Conductors
  - $\boldsymbol{M_{\text{Total}}}$ – Total Distribution miles (includes covered, bare and undergrounded that were operational through the sample period of 6.5 years in HFTD / HFRA from 2018 through 2024 year-to-date)
  - $\boldsymbol{T}$ –Time period in years between 2018 and YTD 2024
  - $\boldsymbol{n_{\text{Covered}}}$ – Number of Covered Conductor mile-years over the 6.5 years
  - $\boldsymbol{n_{\text{Bare}}}$ – Number of Bare Conductor mile-years over the 6.5 years
  - $\boldsymbol{n_{\text{Undergrounded}}}$ – Number of Undergrounded mile-years over the 6.5 years
  - $\boldsymbol{n_{\text{Total}}}$ – Number of Total mile-years over the 6.5 years
  - $\boldsymbol{\hat{p}_{\text{Covered}}}$ – Facility ignition rate (per mile-year) of Covered Conductors
  - $\boldsymbol{\hat{p}_{\text{Bare}}}$ – Facility ignition rate (per mile-year) of Bare Conductors

Input Variables:

- $\boldsymbol{F_{\text{Covered}}} = 5$ (as shown in Table 1)
- $\boldsymbol{F_{\text{Bare}}} = 1{,}146$ (as shown in Table 1)
- $\boldsymbol{M_{\text{Total}}} = 25{,}655$
- $\boldsymbol{T} = 6.5$ years

Calculated Variables:

- $n_{\text{Total}} = M_{\text{Total}} \times T = 25{,}655 \times 6.5 = \mathbf{166{,}758}$ mile-years

- n_{Covered} is calculated as follows: For each year, the number of covered conductors installed that year, multiplied by the number of years from the mid-point of the installation year[3] until end-of-sample (i.e., counting 2024 year-to-date as 0.5 years).

  $\underbrace{15.8 \times 6}_{2018} + \underbrace{145.0 \times 5}_{2019} + \underbrace{334.5 \times 4}_{2020} + \underbrace{146.8 \times 3}_{2021} + \underbrace{334.7 \times 2}_{2022} + \underbrace{144.8 \times 1}_{2023} + \underbrace{39.1 \times 0.25}_{2024} = \mathbf{3{,}422}$ mile-years.

- $n_{\text{Undergrounded}}$ - is similarly calculated as:

  $\underbrace{7 \times 5}_{2019} + \underbrace{5 \times 4}_{2020} + \underbrace{40 \times 3}_{2021} + \underbrace{119 \times 2}_{2022} + \underbrace{291 \times 1}_{2023} + \underbrace{57 \times 0.25}_{2024} = \mathbf{718}$ mile-years

[3] Approximating that the installation was at a constant rate over the year

- $n_{\text{Bare}} = n_{\text{Total}} - n_{\text{Covered}} - n_{\text{Undergrounded}}$ = $166{,}758 - 3{,}422 - 718 = \mathbf{162{,}617}$ mile-years
  - $\hat{p}_{\text{Covered}} = \frac{F_{\text{Covered}}}{n_{\text{Covered}}} = \frac{5}{3{,}422} = \mathbf{0.146\%}$
  - $\hat{p}_{\text{Bare}} = \frac{F_{\text{Bare}}}{n_{\text{Bare}}} = \frac{1{,}146}{162{,}617} = \mathbf{0.705\%}$
  - Effectiveness = 1 - ($\hat{p}_{\text{Covered}}$)/($\hat{p}_{\text{Bare}}$) = 1 - 0.146%/0.705%= **79.3%**

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PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q006
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q006
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 23, 2026
Person(s) Responsible:	John Birch

Mitigation Effectiveness Analysis

QUESTION 006

Repeat the analysis performed in GRC-2027-PhI_DR_MGRA_010-Q001 and GRC-2027-PhI_DR_MGRA_010-Q002 using updated wire-down data showing how many wires-down resulted in an energized wire down while DCD is enabled.

ANSWER 006

As described in Section 8.7.1.1, Protective Equipment and Device Settings, of PG&E's 2026–2028 Wildfire Mitigation Plan (WMP), the GM-06 Downed Conductor Detection (DCD) commitment established in the 2023–2025 WMP concluded in 2025. DCD remains part of PG&E's regular operational activities and is enabled in accordance with the Enhanced Powerline Safety Settings (EPSS) enablement criteria shown in Figure PG&E-8.7.1.1-1 of the 2026–2028 WMP.

PG&E is providing "*EUP-PhI_DR_MGRA_002-Q006Atch01.xlsx*", which identifies wire-down events from 2023 through 2025 in which a DCD target tripped.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q007
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q007
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Responsible Person(s)	Megan Ardell

Marsh Third Party Impact Analysis

QUESTION 007

On p. 526, PG&E states that:

> "Marsh analyzed this data set to determine what fire characteristics (acres burned, estimated financial losses, reported fatalities, seasonality, weather conditions) were most predictive of a given ignition type. This analysis concluded that estimated losses were by far the strongest predictor of ignition source, including utility-asset related causes."

a. The meaning of this statement is unclear. Please explain.

ANSWER 007

a. Marsh compared the listed ignition characteristics to determine which factor provided the greatest predictive power for the ignition's source. The analysis found that estimated financial losses provided the strongest predictive power for utility asset-related causes of the ignition source and were thus selected as a frequency proxy for the Probabilistic Attribution calculation.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q008
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q008
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Responsible Person(s):	Megan Ardell

Marsh Third Party Impact Analysis

QUESTION 008

Regarding the estimate of homeowner premium savings due to undergrounding (p.534):

a. Does the Marsh insurance model assume the historical impact of utility wildfire in the PG&E service area (80% of losses due to utility-related wildfire)?

b. Does the Marsh insurance model take climate change into account, in which risk from wildfire due to all sources will increase during the analysis period?

c. Does the Marsh insurance model assume that risk mitigation efforts undertaken by utilities will be immediately reflected in homeowner insurance rates?

ANSWER 008

a. The Marsh homeowners' insurance model accounted for the impact that historical fires have had on premium pricing. Until July 2025, insurance carriers could only use historical losses when setting premium rates. This meant that known loss areas and areas designated high fire risk were likely to experience higher premiums on average than lower risk areas. Marsh's analysis of historical pricing trends confirmed this relationship. Historical fires are critical data points within Marsh's wildfire models, which produced the modeled average annual losses used to model anticipated premium impact.

b. The Marsh insurance model already accounts for risks from all wildfire, regardless of source. This is because while Marsh studied the impact of undergrounding PG&E attributable risk, the insurance impact was derived from what changes Marsh expected in the total wildfire risk in PG&E service area.

   Climate change was modeled but as part of a separate, longer-term analysis of undergrounding impact under extreme climate risk pathways.

c. Marsh's analysis indicated that modeled average annual losses were correlated with premiums. Real calendar years are difficult to compare directly with modeled years but, to the extent that underlying wildfire data reflects risk improvement, with that data then resulting in lower modeled average annual losses, then Marsh expects premiums to account for these lower average annual losses. With the rule change allowing modeling to be used by carriers to set pricing strategy, Marsh anticipates that this relationship between mitigation effectiveness and better premiums will be stronger. Marsh expressly characterizes its results as directional, area-based estimates, and not a prediction or guarantee of future premiums outcomes.

   One notable limitation to Marsh's analysis, acknowledged within the report, is that premium pricing is also contingent on several other factors, including other natural catastrophe perils, outside the scope of Marsh's analysis. Marsh's findings include the caveat that its results are contingent on all other perils remaining unchanged. Since wildfire is only one covered peril, any severe non-wildfire losses could offset any premium savings achieved by lower wildfire risk.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q009
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q009
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Responsible Person(s):	Andrea Brown

EUPS and PSPS

QUESTION 009

In Workpaper 016B, EPSS Toy Problem Calculations, p. 710, the largest contribution by far to the outage count is classified as “other_equipment_type” (33,470 versus the next largest vegetation_branch at 5,693).

a. What subcategories of event constitute other_equipment_type, and what are their respective contributions to outages?

b. Are all outages listed arising while EPSS triggering conditions are set?

c. What fraction of outages listed in the categories listed in Workpaper 016B result in ignition?

ANSWER 009

a. The other_equipment_type category are outages that are used to train the Other Equipment WDRM v4 event probability model. Other equipment is a catch-all for outages with a cause that does not belong with any other causal model or has no recorded cause. Please see Section 3.5.1.10, Other Equipment Model, in EUP attachment B-WP015, Distribution Event Probability Models Version 4, for more information on the Other Equipment Model.

b. Transformer and switch-related failure modes are considered independent of EPSS operation. This is why Workpaper 016B, EPSS Toy Problem Calculations, shows zero outages for those subsets. The other failure types can result in an EPSS outage if they occur on a circuit downstream of an EPSS enabled protective device.

c. The outage counts for the toy problem in Workpaper 016B were created for illustrative purposes. Please see Table 30 – Outage and Ignition Event Counts Summary in Section 3.6.1.3, Model Data, of EUP attachment B-WP015, Distribution Event Probability Models Version 4, for outage and ignition counts associated with each event type in WDRM v4.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_002-Q010
PG&E File Name:	EUP-PhI_DR_MGRA_002-Q010
Request Date:	October 12, 2026
Requester DR No.:	002
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 15, 2026
PG&E Witness(es):	Andrea Brown

EUPS and PSPS

QUESTION 010

For WP020 EUP PSPS V1 RISK MODEL DOCUMENTATION

a. Provide a description/red-line of the changes made on 3/3/2026.

b. How does PG&E take upstream sections into account when calculating PSPS and EUP risk, and how does this show up int the prioritization of circuits to be undergrounded?

c. For hybrid projects, what does PG&E assume for the change in reliability risk?

ANSWER 010

a. Please see "*EUP-PhI_DR_MGRA_002-Q010Atch01.pdf*" for a redline of the changes made on 3/3/2026.

b. Please see PG&E's response to EUP-PhI_DR_MGRA_001-Q005a for a description of how PG&E accounts for the impact of PSPS events on upstream circuit segments.

c. PG&E treats reliability risks (PSPS and EPSS outage risks) in hybrid projects by allocating the pre-mitigation reliability risk across the circuit segment in proportion to the mileage treated by each mitigation type, then applying the appropriate mitigation effectiveness to each portion

   For additional information, please see Chapter 2, Section D.1.g, "How Undergrounding Projects With Multiple Subprojects Will Be Reported and How the Risk Reduction Will Be Allocated Between Subprojects" and Chapter 7, Core Capability 5, "Accounting for Undergrounding Projects with Multiple Mitigations and Subprojects".

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_003-Q001
PG&E File Name:	EUP-PhI_DR_MGRA_003-Q001
Request Date:	October 19, 2026
Requester DR No.:	003
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 22, 2026
Responsible Person(s):	Justin Sadler

Subject: Wind

QUESTION 001

Table 1-2, p. 15, shows calculations for Unscaled and Mitigated Risk Reduction and Scaled and Unmitigated Risk Reduction.

a. Provide an additional column for Scaled and Mitigated Risk Reduction.

ANSWER 001

a. Please see the table below for the requested information:

Line No.	Risk Type	Unscaled and Mitigated Risk Reduction	Scaled and Unmitigated Risk Reduction	Scaled and Mitigated Risk Reduction
1	Total Wildfire and Outage Program Risk	$15.1	$117.4	$30.3
2	Wildfire	$4.5	$104.9	$17.8
3	EPSS	$6.3	$6.3	$6.3
4	PSPS	$4.3	$6.2	$6.2

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_003-Q002
PG&E File Name:	EUP-PhI_DR_MGRA_003-Q002
Request Date:	October 19, 2026
Requester DR No.:	003
Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 22, 2026
Responsible Person(s):	Yumi Oum

Subject: Wind

QUESTION 002

With regard to PG&E's response to MGRA Data Request 2, Question 3, does PG&E incorporate damage or hazards identified in post-PSPS patrols in any of its risk calculations? If so how?

ANSWER 002

Yes. PG&E uses damage and hazard information identified during post-PSPS restoration patrols to inform PSPS avoided ignition analyses in its WDRM v4 and WLDFR (Wildfire Risk Bow Tie) models. In WDRM v4, PSPS damages and hazards are included as a type of failure in the failure probability models and use an assumed ignition rate in the ignition probability model. Wildfire Risk Bow Tie model also uses PSPS damages and hazards data in estimating ignitions avoided through PSPS events. It calculates avoided ignitions by multiplying the number of hazards and damages identified during post-PSPS patrols by an outage-to-ignition rate derived from historical ignition and outage data associated with vegetation- and equipment-caused events during Red Flag Warning (RFW) conditions in High Fire Threat Districts (HFTDs). These avoided ignitions are then annualized along with the historical ignition data for baseline risk calculation for applicable drivers and RFW outcomes.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

PG&E Data Request No.:	MGRA_003-Q003
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Requesting Party:	Mussey Grade Road Alliance
Requester:	Joseph Mitchell
Date Sent:	October 22, 2026
Responsible Person(s):	Justin Sadler

Subject: Hardening

QUESTION 003

Table PCS-6 shows the risk reduction of overhead hardening as 67% for balloons and 57% for covered conductor line slap. PG&E's previous WMP filing (pp. 191-194) shows that these risk reduction values were much higher.

a. What accounts for the much lower efficiency estimated by PG&E for balloons and line slap than was reported in PG&E's WMP?
b. Southern California Edison reported 99% effectiveness of covered conductor for both balloons and line slap in its GRC filing.1 Why is PG&E's estimate of covered conductor efficiency so low for these drivers?
c. In its response to RAMP-2024_DR_TURN_006-Q004, PG&E calculated that the observed efficiency of covered conductor inclusive of EPSS was 79.3%. Does this value have any relationship to the 79% efficiency PG&E claims for system wide effectiveness of overhead hardening and EPSS in its EUP?
d. For both balloons and line slap, provide the data analysis, statistics, and analysis that led PG&E to derive the numbers presented in PCS-6.

ANSWER 003

a. The values cited from PG&E's prior WMP are not directly comparable to the values presented in Table PCS-6 because the analyses reflect different mitigation scenarios and methodologies. PG&E assumes MGRA is referring to the Joint IOU Grid Hardening Working Group Report,[1] which cites results of various outage drivers.

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[1] Joint IOU Grid Hardening Working Group, Report: Update for 2026-2028 Wildfire Mitigation Plan, ACI 25U-03, Continuation of Grid Hardening Joint Studies (Mar. 19, 2025), Table 1, "PG&E Covered Conductor Mitigation Effectiveness Estimate. <https://www.pge.com/assets/pge/docs/outages-and-safety/outage-preparedness-and-support/aci-25u-03-continuation-of-grid-hardening-joint-studies.pdf> (Accessed Oct. 21, 2026).

In the EUP, Table PCS-6 presents the incremental effectiveness of Overhead Hardening with respect to the baseline wildfire risk condition that already includes EPSS and PSPS mitigations, whereas the WMP effectiveness values are derived with respect to a baseline condition without EPSS and PSPS mitigations. The covered conductor effectiveness values in WMP TABLE PG&E-8.2.1-3, are labelled to indicate which, if any, additional operational mitigations they include.

Accordingly, the differences in the balloon and line-slap values do not indicate that PG&E concluded covered conductor became less effective. Rather, we reflect differences in the mitigation scenario and analytical methodology being evaluated.

Please refer to PG&E's Mitigation Effectiveness Workpaper in the EUP (WP 001, Section 2.3.1, Vol 2, pp. 501-503) where we explain the incremental approach to mitigation effectiveness by mitigation type and the operational controls in place.

b. Covered-conductor effectiveness estimates are utility-specific and reflect differences in mitigation design, underlying data, failure-mode definitions, engineering assumptions, and analytical methodology.

   This distinction is supported by the Joint IOU covered-conductor work. The most recent Joint IOU Grid Hardening Working Group report[2] is particularly relevant. Using PG&E's methodology and historical outages classified according to WDRM v4 drivers, it reported PG&E Overhead Hardening effectiveness of 88% for Third Party (Balloon) and 85% for Primary Conductor-Line Slap. As detailed in that report, PG&E's overall effectiveness value is 67%, which increases to 79% when combined with EPSS and DCD, while SCE estimates a 60% effectiveness for its Wildfire Covered Conductor Program (WCCP) and SDG&E estimates a 44% effectiveness for CC at reducing wildfire risk.

   Thus, comparing individual driver values or overall effectiveness values across utilities without accounting for methodological differences can produce misleading conclusions. The 99% SCE estimate reflects SCE's methodology and assumptions and is not directly interchangeable with PG&E's reported values.

c. No, these values are distinct because they were derived through different analyses. The 79% value in the EUP and our 2027 GRC is based on our mitigation effectiveness analysis and reflects Overhead System Hardening combined with EPSS and DCD. That analysis uses engineering assessments of each mitigation's ability to prevent ignition across more than 2,700 combinations of *outage failure modes* and more than 100,000 historical outage failure events.

   The 79.3% value in RAMP-2024_DR_TURN_006-Q004 was a simple comparison of observed facility *ignition rates* on covered and bare conductor in HFTD/HFRA from 2018 through 2024 year-to-date. We provided the value in response to TURN's request which required the specific methodology. As we explained in our response, the limited number of ignitions observed on covered conductor is not sufficient to support a meaningful effectiveness calculation, and thus is not the method PG&E uses to establish mitigation effectiveness values.

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2 Id.

For PG&E's updated analysis and a more detailed explanation of the limitations of this methodology, please refer to PG&E's response to EUP-Ph1_DR_MGRA_002-Q005 and Attachment EUP-Ph1_DR_MGRA_002-Q005Atch01.

d. Please see the following attachment, *"EUP-PhI_DR_MGRA_003-Q003Atch01.xlsx,"* which provides the data, calculations, and results supporting the mitigation effectiveness values for Third Party – Balloon and Primary Conductor – Line Slap reported in Table PCS-6.

   Please see EUP Volume 2, Workpaper WP001 (Mitigation Effectiveness Analysis) that describes the approaches used to derive the mitigation effectiveness values.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

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Requester:	Joseph Mitchell
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Responsible Person(s):	Andrea Brown

Subject: Risk Model

QUESTION 004

PG&E's Risk Model Change Factor Calculation (pp. 55-57) shows that there is 20% more calculated risk per mile with WDRM v3 than there is with WDRM v4. However, overall risk is increased by 30% through inclusion of PG&E's suppression and ingress/egress submodules.

a. How does PG&E reconcile these two values?

ANSWER 004

The two percentages are not directly comparable. PG&E's Risk Model Change Factor measures the change in risk density for the proposed EUP portfolio. MGRA's approximately 30% figure compares aggregate modeled risk between WDRM v3 and v4. Because WDRM produces relative, rather than absolute, risk values, comparisons between versions are meaningful only when calibrated to Bow Tie risk. Any increase or decrease in total system risk is therefore determined by the Bow Tie system risk evaluation, not aggregate WDRM risk.

Additionally, WDRM v4 introduced multiple substantive enhancements, including improved historical fire data, 24-hour simulations, Terrain Difficulty Index, and public egress and wildfire suppression adjustments. Collectively, these enhancements altered the relative geographic distribution of modeled risk and produced a flatter risk profile. As a result, the proposed EUP portfolio can have lower relative risk per mile under WDRM v4 than under WDRM v3.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

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Requester:	Joseph Mitchell
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Responsible Person(s):	Justin Sadler

Subject: Risk Model

QUESTION 001

PG&E in various places and for various purposes uses both scaled and unscaled wildfire risk calculation. In Table 9-3, p. 397, PG&E indicates that Scaled Wildfire Risk post-PSPS is a precursor to the BCR metric:

TABLE 9-3:
MODEL RISK LANDSCAPE VARIABLES TABLE

Line No.	Field Name	Type	Addresses	Resolution	Is KDMM?	Precursor to Metric(s)
1	Scaled Wildfire Risk post-PSPS	Risk	Ignition Risk	Per Circuit Segment	No	BCR
2	Scaled PSPS Risk	Risk	PSPS Risk	Per Circuit Segment	No	BCR
3	PCEEE Risk	Risk	PCEEE Risk	Per Circuit Segment	No	BCR

a. In the rest of the document and supplemental files, please identify all instances for which "BCR" or "Benefit-Cost Ratio" implies the use of scaled wildfire risk in the benefit calculation, and for which "BCR" or "Benefit-Cost Ratio" implies the use of unscaled wildfire risk, unless the title of the variable or section already specifies whether the BCR uses scaled or unscaled benefit values.

b. If there are tables in which a BCR is presented that depends on scaled wildfire risk, please present an alternative table where columns are added presenting unscaled wildfire risk.

ANSWER 001

a. The BCRs calculated in the EUP and supporting workpapers use Scaled Wildfire Risk post-PSPS and post-EPSS, consistent with Table 9-3 (Model Risk Landscape Variables).

The SPD-37 Appendix 1 Data Submission (Attachment D) separately reports scaled and unscaled BCR values in fields identified as benefit_cost_ratio_scaled and benefit_cost_ratio_unscaled.

b. Unscaled BCRs are provided in PG&E's SPD-37 Appendix 1 Data Submission (Attachment D, SPD-37 Data Table 1), alongside the scaled BCRs, for each project and comparison type. These can be matched to the applicable project-level information in Tables C.11, C.13, and C.15 using the Project ID.

PACIFIC GAS AND ELECTRIC COMPANY
10-Year Electrical Undergrounding Plan (EUP)
Data Response

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Subject: Risk Model

QUESTION 002

Specify which of the following variables used in the PG&E data tables use scaled wildfire risk and which use unscaled wildfire risk.

a. Ignition_consequence
b. 100_percent_ug_total_risk_reduction
c. 100_percent_ug_cost_benefit_ratio
d. project_as_scoped_total_risk_reduction
e. project_as_scoped_cost_benefit_ratio
f. screen_2_alt_1_total_risk_reduction
g. screen_2_alt_1_cost_benefit_ratio
h. screen_2_alt_2_total_risk_reduction
i. screen_2_alt_2_cost_benefit_ratio
j. screen_3_alt_total_risk_reduction
k. screen_3_alt_cost_benefit_ratio
l. baseline_cumulative_risk
m. project_as_scoped_cumulative_risk
n. screen_3_alt_cumulative_risk

ANSWER 002

Please see the requested information below:

Variable	Unscaled/Scaled Status

a. Ignition_consequence	Unscaled
b. 100_percent_ug_total_risk_reduction	Scaled
c. 100_percent_ug_cost_benefit_ratio	Scaled
d. project_as_scoped_total_risk_reduction	Scaled
e. project_as_scoped_cost_benefit_ratio	Scaled
f. screen_2_alt_1_total_risk_reduction	Scaled
g. screen_2_alt_1_cost_benefit_ratio	Scaled
h. screen_2_alt_2_total_risk_reduction	Scaled
i. screen_2_alt_2_cost_benefit_ratio	Scaled
j. screen_3_alt_total_risk_reduction	Scaled
k. screen_3_alt_cost_benefit_ratio	Scaled
l. baseline_cumulative_risk	Unscaled
m. project_as_scoped_cumulative_risk	Unscaled
n. screen_3_alt_cumulative_risk	Unscaled