PACIFIC GAS AND ELECTRIC COMPANY
PG&E Ref. DRU17910-Case-EUP-SB 884
Data Request OEIS
Requester DR No. Energy Safety-DR-EUP-26-05 –
Risk Model Discussion Follow-up Continued

Requester: Berlinerman, Adam; Lysak, Dmitriy
Request Date: July 17, 2026
Response Date: July 31, 2026

Background:

This Data Request pertains to the PG&E Risk Model Discussion that took place on March 30, 2026 and DR No. Energy Safety-DR-EUP-26-04.

Question No. 001:

Public Safety Power Shutoff (PSPS)

a. Does Electrical Undergrounding Plan (EUP) PSPS Risk Modeling include PSPS outages on transmission lines?
    i. If so, how is PSPS risk allocated if affected customers are downstream of both a transmission line and a distribution Circuit Segment called for a PSPS event?
b. How are PSPS Project Variable Modifiers (PVMs) affected if there is an adjacent transmission line?
    i. Example: If a Circuit Segment is undergrounded but there is a transmission line in proximity, would the Circuit Segment get full PSPS risk reduction?

Response to Question No. 001 Response No. 001:

a. Transmission-only events are excluded from the model. The model incorporates distribution-only events and events where both distribution and transmission facilities are de-energized. Events where both distribution and transmission lines are de-energized are included in the model because it is assumed that, if distribution lines are placed underground, temporary generation at the substation would be available to prevent customer outages.
    i. For events where both distribution and transmission facilities are de-energized, the model attributes the associated PSPS outage risk to the distribution system. This treatment is consistent with the modeling assumption that, if the distribution facilities were undergrounded, temporary generation at the substation would be available to serve customers and avoid the outage. Therefore, the modeled risk is evaluated as addressable through the distribution mitigation.
b. PSPS Project Variable Modifiers (PVMs) are not impacted by adjacent transmission lines.
    i. The example provided is non-applicable.

Question No. 002:

Baseline

a. Does PG&E plan to account for the change in ignition risk from modeled ignitions avoided due to the current Enhanced Powerline Safety Settings (EPSS) enablement criteria applied to historical data at the time of EUP submission within the Overall Utility Risk (OUR) Baseline?
b. Does PG&E plan to include outages modeled due to the current EPSS enablement criteria applied to historical data at the time of EUP submission within the OUR Baseline as part of the Outage Program Risk?
c. Does PG&E plan to account for the change in ignition risk from modeled ignitions avoided due to the current EPSS enablement criteria applied to historical data at the time of EUP submission within the Benefit Cost Ratio (BCR) Baseline?
d. Does PG&E plan to include outages modeled due to the current EPSS enablement criteria applied to historical data at the time of EUP submission within the BCR Baseline as part of the Outage Program Risk?
e. Within DR No. Energy Safety-DR-EUP-26-04, PG&E stated the BCR Baseline will not include EPSS Risk to appropriately represent the risk tradeoffs from introducing EPSS as part of Alternative Mitigation 1. Please:

ii. Explain how PG&E would be introducing EPSS as part of Alternative Mitigation 1 if the capability of EPSS to affect that Circuit Segment does not change prior to and post EUP submission.

iii. Explain how the exclusion of EPSS risk within the BCR Baseline would appropriately represent the risk tradeoffs from introducing EPSS as part of Alternative Mitigation 1.

f. Same as (a-d) except PSPS rather than EPSS.
g. Will Outage Program Risk remain unchanged between the Baseline model and when modeling the risk after an Alternative Mitigation?

Response to Question No. 002 Response No. 001:

PG&E's responses to Question No. 002 assume that questions pertaining to Overall Utility Risk (OUR), absent any reference to Benefit Cost Ratio (BCR) calculations, are directed at PG&E's methodology for calculating the OUR baseline used for Portfolio Mitigation Objectives (PMO) and Key Decision-Making Metrics (KDDM). This OUR baseline is different than the risk baseline used in BCR calculations.

a. No. Consistent with PG&E's prior WMP reporting, OUR includes both unmitigated Wildfire and Outage Program Risks without accounting for the inherent risk trade-offs.
b. Yes. PG&E does plan to include outages modeled due to the current EPSS enablement criteria applied to historical data at the time of EUP submission.
c. No. Consistent with OMB Circular A-4, "baseline[s] should be the best assessment of the way the world would look absent the proposed action." Therefore, because EPSS is an explicitly required component of Alternative Mitigation 1 (the "proposed action"), it is not included in the Benefit Cost Ratio (BCR) analytical baseline. Instead, the incremental reduction in Wildfire risk and associated increase in Outage Program risk is introduced as part of Alternative Mitigation 1.
d. No. See response to (c) above.
e.

ii. The question conflates the operational availability of EPSS with its treatment in the BCR analytical framework. The relevant consideration is not whether EPSS is physically capable of affecting a circuit before and after EUP submission, but whether EPSS is included in the mitigation alternative being evaluated. Because Alternative Mitigation 1 expressly includes EPSS, the effects, including benefits and disbenefits, of EPSS are

introduced as part of that alternative rather than the analytical baseline, thereby permitting evaluation of its incremental impacts.

iii. Introducing EPSS as part of Alternative Mitigation 1, for overhead covered conductor, would introduce a negative EPSS reliability risk (a disbenefit) to the total benefits in the BCR calculation. Additionally, it would improve the wildfire mitigation effectiveness of overhead covered conductor, thereby increasing the wildfire risk reduction benefit. For underground, where EPSS is excluded from the baseline, there would be no EPSS reliability risk reduction benefit. These outcomes are consistent with maintaining EPSS as an explicit component of Alternative Mitigation 1, and consistent with the practice of establishing a baseline absent the proposed action.

f.

a. No. Consistent with PG&E's prior WMP reporting, OUR includes both unmitigated Wildfire and Outage Program Risks without accounting for the inherent risk trade-offs
b. Yes. PG&E does plan to include outages modeled due to the current PSPS enablement criteria applied to historical data at the time of EUP submission.
c. Yes, PG&E plans to account for the change in ignition risk from modeled ignitions avoided due to PSPS within the Benefit Cost Ratio (BCR) Baseline.
d. Yes, PG&E plans to include outages modeled due to PSPS within the BCR Baseline as part of the Outage Program Risk.

g. No, Outage Program Risk will not remain unchanged. Outage Program Risk changes when evaluating an Alternative Mitigation because the mitigation may reduce or increase outage-related impacts relative to the applicable baseline. The treatment of Outage Program Risk differs between the OUR and BCR frameworks.

Under the OUR methodology, the baseline represents unmitigated Wildfire, EPSS outage, and PSPS outage risks absent tradeoffs, Therefore, both EPSS and PSPS outage risk reductions are reflected in the post-mitigation results, consistent with the effectiveness of the mitigation being evaluated.

Under the BCR methodology, PSPS outage risk is included in the baseline and may therefore be reduced by the mitigation being evaluated. In contrast, because EPSS is an explicit component of Alternative Mitigation 1, EPSS-related Outage Program Risk is not included in the BCR baseline and is instead introduced as a disbenefit of Alternative Mitigation 1.

Question No. 003:

Ignition Likelihood Data Set

a. How does PG&E model the likelihood of an ignition given an outage?

iv. Do outages caused by EPSS or PSPS have a modeled likelihood of an ignition?

1. If so, how does PG&E model the likelihood of an ignition during an EPSS/PSPS event?

2. Also, how does PG&E model the likelihood of an ignition when EPSS is enabled but the circuit does not experience an outage due to EPSS?

b. Does PG&E model the likelihood of an ignition transforming into a wildfire?

v. If so, does PG&E plan to include this transformation likelihood in the reported Ignition Likelihood Key Decision-Making Metric (KDMM)?

c. How does PG&E model the likelihood of an outage caused by events other than EPSS or PSPS?

d. How does PG&E model the likelihood of an outage caused by EPSS or PSPS?

e. How do EPSS and PSPS affect the modeled likelihood of an ignition?

vi. Is this effect applied to historical data sets used to model likelihood of an ignition?

1. If so, how?
2. If not, why not?

Response to Question No. 003 Response No. 001:

a. Please see Section 3.6, *Probability of Ignition Model*, of PG&E's EUP Workpaper 015, Distribution Event Probability Models Version 4, which is provided for reference in this response as *"PGE_DR-EUP-26-05_20260731_Q003_ATCH001.pdf"*, for details on how PG&E models the likelihood of an ignition given an outage.

iv. Outages caused by EPSS or PSPS are not modeled as independent sources of additional ignition likelihood. PG&E treats EPSS and PSPS as mitigation effects on wildfire ignition likelihood, not as separate outage causes that create an incremental modeled probability of ignition.

1. This is non-applicable.
2. This is non-applicable.

b. PG&E does not directly model the likelihood of an ignition transforming into a wildfire. PG&E evaluates the potential outcomes if an ignition occurs through its wildfire consequence modeling framework. Please see PG&E's EUP Workpaper 025, provided with this response as *"PGE_DR-EUP-26-05_20260731_Q003_ATCH002.pdf"*, for more information on PG&E's wildfire consequence model.

v. Non-applicable; PG&E does not plan to include this transformation likelihood in the reported ignition likelihood Key Decision-Making Metric (KDMM).

c. For details on how the suite of outage likelihood models were developed and organized, please see Section 3.4, *Training Target Data Sets*, and Section 3.5, *Probability of Failure/Outage Models*, of PG&E's EUP Workpaper 015, Distribution Event Probability Models Version 4, which is provided for reference in this response as *"PGE_DR-EUP-26-05_20260731_Q003_ATCH001.pdf"*.

d. PG&E models EPSS and PSPS outage likelihood as the expected number of outage minutes per year:

EPSS Outage Program Likelihood

For details on how PG&E models the likelihood of an outage caused by EPSS, please see Section 3.3, *EPSS Likelihood*, in PG&E's EUP Workpaper 018, EUP EPSS Risk Model V1 Documentation, provided for reference in this response as "*PGE_DR-EUP-26-05_20260731_Q003_ATCH003.pdf*".

PSPS Outage Program Likelihood

For details on how PG&E models the likelihood of an outage caused by PSPS, please see Section 3.7, *Annual PSPS Likelihood*, in PG&E's EUP Workpaper 020, EUP PSPS V1 Risk Model Documentation, provided for reference in this response as "*PGE_DR-EUP-26-05_20260731_Q003_ATCH004.pdf"*.

e. The WDRM v4 event models are designed to predict ignition likelihood as if EPSS and PSPS were not present.

During PSPS events, lines are de-energized and ignitions cannot occur. However, PSPS inspections identify hazards and damage that represent system failures which could have caused outages and ignitions had the lines remained energized. Because the ignition probability model is intended to estimate ignition likelihood in the absence of PSPS, the probability-of-ignition-given-failure model, P(i|f), treats PSPS hazard and damage records as surrogate ignition events. To

account for the fact that these records exceed the number of historically observed failure-related ignitions, each hazard or damage record is assigned a fractional ignition weight. The weight is derived from historic ignition rate observed on High Fire Danger Days in HFTD areas during 2015–2018. These weighted ignitions are incorporated into model training, producing estimates that reflect conditions as if PSPS events had not been implemented.

When EPSS is activated, the number of sustained outages on protected conductors increases, but the number of ignitions decreases. To ensure the models are not biased by the presence of EPSS, the impact of EPSS is removed from the training data used to calibrate the probability of ignition. Specifically, event counts from the 2021 and 2022 fire seasons are adjusted to reflect what would have happened without EPSS. This is done using a correction factor based on the fraction of days EPSS was active and the observed change in event rates during EPSS activation.

vi. Please see PG&E's response to e.
   1. See PG&E's response to e.
   2. This effect is non-applicable to historical data sets.