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VIA ELECTRONIC FILING

Tony Marino, Deputy Director
Office of Energy Infrastructure Safety
715 P Street, 20th Floor
Sacramento, CA 95814

**RE: MUSSEY GRADE ROAD ALLIANCE COMMENTS ON THE REVISION NOTICE OF
THE 2026 TO 2028 WILDFIRE MITIGATION PLANS OF PG&E**

Dear Deputy Director Marino,

The Mussey Grade Road Alliance (MGRA) files these comments pursuant to the June 27, Office of Energy Infrastructure Safety Issuance of Revision Notice for the Pacific Gas and Electric Company 2026-2028 Base Wildfire Mitigation Plan¹ which authorizes public comment on PG&E's Revision Notice Response by August 12, 2025.

PG&E filed its original Wildfire Mitigation Plan on April 4, 2025.² MGRA³ and other parties filed comments on the SDG&E WMP on June 13, 2025. PG&E filed reply comments on June 20, 2025.⁴ On June 24, 2025, Energy Safety issued a Revision Notice listing critical issues and required remedies and set a July 28th deadline for resubmission. PG&E filed its Revision Notice Response and Revision R1 on July 28, 2025.⁵

¹The Office of Energy Infrastructure Safety Issuance of Revision Notice for the Pacific Gas and Electric Company 2026-2028 Base Wildfire Mitigation Plan (Revision Notice).

² Docket 2026-2028-BASE-WMPS; PG&E; PG&E Wildfire Mitigation Plan R0 2026-2028, April 4, 2025. (PG&E WMP).

³ Docket 2026-2028-BASE-WMPS; MUSSEY GRADE ROAD ALLIANCE COMMENTS ON THE 2025 UPDATE OF THE WILDFIRE MITIGATION PLANS OF PG&E; May 23, 2025; TN15885_20250523T090028_MGRA_20262028_WMP_PGE_Comments. (MGRA Comments)

⁴ Docket 2026-2028-BASE-WMPS; Reply Comments of Pacific Gas and Electric Company on its 2026-2028 Wildfire Mitigation Plan; June 2, 2025; TN15936_20250602T152434_Pacific_Gas_and_Electric_Company's_ReplyComments_PGE_20262028_BaseWMP_R0.pdf. (PG&E Reply)

⁵ Docket 2026-2028-BASE-WMPS; PG&E's 2026-2028 Wildfire Mitigation Plan – Final Revision Notice Response; (RN Response)

MGRA provides the following comments timely and requests that Energy Safety give them serious consideration.

Respectfully submitted this 12th day of August, 2025,

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1. INTRODUCTION AND SUMMARY

These comments are provided in reply to the PG&E's Revision Response They are ordered as per the sections in the Revision Notice.

3. CRITICAL ISSUES AND REQUIRED REMEDIES

3.2. Risk Methodology and Mitigation Strategy

3.2.1. RN-PGE-26-02: Project prioritization is not properly represented.

Energy Safety requires that PG&E use risk-per-mile for its tables 5-5 and 6-4, which currently list overall circuit risk. In this way, Energy Safety is requiring PG&E to make these tables consistent with PG&E's system hardening prioritization.⁶

While this is a reasonable goal, the implementation required by Energy Safety is problematic in that as PG&E notes: "*PG&E prioritizes system hardening work based on wildfire risk per mile, with the exception of circuit segments with very short lengths which artificially inflate their risk per mile.*"⁷ PG&E's new Table 5-5B demonstrates this problem:

TABLE 5-5B:
SUMMARY OF TOP RISK CIRCUIT SEGMENTS BY RISK-PER-MILE FOR CRITICAL ISSUE RN-PGE-26-02

Risk Ranking	Circuit, Segment, or Span ID	Overall Utility Risk Score	Wildfire Risk Score	Outage Program Risk Score	Top Risk Contributors	Total Miles	Version of Risk Model Used
1	DUNBAR 11034882	176.19	0.18	176.01	PSPS	0.00	WDRM v4
2	PUEBLO 1104968601	126.37	6.92	119.45	PSPS	0.01	WDRM v4
3	ARBUCKLE 110130376	97.21	0.16	97.05	PSPS	0.00	WDRM v4
4	VACAVILLE 111112342	82.76	1.44	81.33	PSPS	0.01	WDRM v4
5	BALCH NO 1 1101CB	72.56	72.55	0.00	Wildfire	0.12	WDRM v4

Table 1 - PG&E's Table 5-5B showing top ranked circuit segment risk on a per mile basis.

⁶ Revision Notice; p. 5.

⁷ RN Response; p. 4.

As is evident, the “top risk” circuit segments have 1) very short lengths and 2) are driven by PSPS risk, with small wildfire risk. These are clearly anomalous results and bear more detailed analysis by Energy Safety.

As PG&E explains in its WMP:

*“PG&E calculates PSPS risk at the segment circuit level. As described in previous sections, PSPS likelihood and PSPS consequence are calculated by the probability and consequence of each individual customer service_point_ID (SPID). Those calculations provide the PSPS risk score per customer.”*⁸

Given this explanation, it is possible that very short segments may service multiple customers, AFN customers, or commercial customers that would be impacted by outage of that short circuit segment, while neighboring circuit segments (potentially also short) with fewer or less sensitive customers would have much lower or zero Outage Program risk scores. This is a sampling error due to and should be remedied. It does not make sense to have short segments ranked based on PSPS risk because mitigating those particular segments alone will not mitigate their PSPS risk.

Recommendations:

- Energy Safety should request PG&E recalculate its top risk circuits by either:
 - Requiring a minimum circuit length of over 0.1 miles (or some other minimum), or
 - Using wildfire risk only rather than PSPS risk.

3.3. Grid Operations and Maintenance

3.3.1. RN-PGE-26-03: Decision-making process for system hardening is insufficiently supported.

The Revision Notice finds that:

“PG&E’s decision-making process for system hardening has multiple steps (cost-benefit ratio comparison and hybrid analysis) that are not well explained. Together, these steps favor

⁸ PG&E Wildfire Mitigation Plan R1; 2026-2028; p. 74. (PGE WMP R1)

undergrounding over other system hardening mitigations. PG&E did not explain how it defined the parameters for these steps nor explain why the steps are not already built into its risk model.”⁹

Energy Safety list recommendations PG&E should follow to improve transparency and clarity of its calculation:

“PG&E must revise its WMP to include:

1. An explanation, including qualitative analytical support, for the 50 percent cost-benefit ratio threshold for selecting undergrounding over CC + EPSS.

2. An explanation for the tree strike potential threshold in the hybrid analysis, including why the categorization for “high” tree strike potential changed, how PG&E’s current risk model and the existing cost-benefit ratio analysis does not adequately account for tree strike risks, and a description of the uncertainties in the risk modeling that necessitate an additional analytical step in the system hardening decision-tree.

3. An explanation for the ingress and egress concerns threshold in the hybrid analysis, including how PG&E’s current risk model and the existing cost-benefit ratio analysis does not adequately account for ingress and egress risks and a description of the uncertainties in the risk modeling that necessitate an additional analytical step in the system hardening decision-tree.

4. An explanation for the PSPS threshold in the hybrid analysis, including how current risk model and the existing cost-benefit ratio analysis does not adequately account for reliability risks and a description of the uncertainties in the risk modeling that necessitate an additional analytical step in the system hardening decision-tree.

5. An explanation of how EPSS is already factored into the decision-making process, or an explanation of why it is unnecessary to include EPSS into the decision-making process.

6. An explanation of alternative mitigations outside of Table PG&E 8.2.1-3 considered during the cost-benefit ratio analysis of PG&E’s decision-making process.”

3.3.1.1. Explanation for the Use of a 50% Cost-Benefit Ratio Threshold

PG&E provides additional detail and explanation about its risk calculation in its Response:

⁹ Revision Notice; p. 6.

“While the 50 percent CBR threshold is discretionary, it is not arbitrary. The primary reason for implementing a 50 percent threshold is to account for significant risks which are not fully represented within a cost benefit analysis, particularly ingress/egress, tree strike, and climate change. These risks are not fully captured in the CBR calculation at the circuit segment level and, therefore, must be reviewed outside of the standard CBR framework. We describe these individual risks, why they are not fully represented in the risk model, and the extent to which they can be quantified below....

The mitigation cost estimates used in the CBR calculation—during the early phase of project selection—are considered by the Association for the Advancement of Cost Engineering (AACE) a “Class 5” estimate. Per the AACE, Class 5 estimates can vary significantly, from +100% to -50% when compared to a project’s final recorded costs, and are typically used for strategic planning and concept screening.”¹⁰

PG&E’s differentiation of “discretionary” and “arbitrary” is a distinction without a difference. PG&E’s appeal to the Advancement of Cost Engineering (AACE) framework and PG&E’s self-designation of “Class 5” is derived from the following reference:

¹⁰ RN Response; pp. 5-6.

TABLE 1: Summary of AACE International Cost Classifications and Expected Ranges of Accuracy

AACE Class	ANSI Classification	Typical Use	Project Definition	Expected Range of Accuracy		Other Terms
				Low Expected Actual Cost	High Expected Actual Cost	
Class 5	Order-of-Magnitude	Strategic Planning; Concept Screening	0% to 2%	-50% to -20%	+30% to +100%	ROM; Ballpark; Blue Sky; Ratio
Class 4		Feasibility Study	1% to 15%	-30% to -15%	+20% to +50%	Feasibility; Top-down; Screening; Pre-design
Class 3	Budgetary	Budgeting	10% to 40%	-20% to -10%	+10% to +30%	Budget; Basic Engineering Phase; Semi-detailed
Class 2	Definitive	Bidding; Project Controls; Change Management	30% to 75%	-15% to -5%	+5% to +20%	Engineering; Bid; Detailed Control; Forced Detail
Class 1		Bidding; Project Controls; Change Management	65% to 100%	-10% to -3%	+3% to +15%	Bottoms Up; Full Detail; Firm Price

Table 2 - AACE international cost classification and expected ranges of accuracy.¹¹

According to AACE, “Class 5” estimations are ROM (Rough Order of Magnitude), Ballpark, or Blue Sky. PG&E has spent years working on and refining its calculational techniques and collecting data. For it to at the end of the day throw up its hands and say that its estimates are only “ballpark” or “Order of Magnitude” strains credulity.

However, the most worrisome component of PG&E’s estimate in this regard is the following:

“In PG&E’s decision tree, two economic analyses are considered when evaluating potential mitigation measures:

(1) CBR (calculated as: Cost Benefit Ratio = Benefits / Costs over the lifespan of the asset);
and

¹¹ Integrated Technologies, Inc. The Cost Estimating Series: Capital Cost Estimate Classes. Website. Downloaded August 9, 2025.

<https://www.processengineer.com/insights/capital-cost-estimate-classes>

(2) *Net Benefit (NB) (calculated as: Net Benefit = Benefits – Costs over the lifespan of the asset).*”¹²

While Energy Safety’s question discusses Cost Benefit ratio, the more concerning element is the Net Benefit, as this is extremely dependent on the overall normalization of risk, and therefore on PG&E’s risk averse attitude function, which MGRA showed was a factor of 7.5 for catastrophic risks.¹³ PG&E ferociously (though not always accurately) defends its risk attitude function in its Reply Comments.¹⁴ There is a reason for this. Some of PG&E’s programs, or specific circuits – for example its secondary conductor undergrounding program¹⁵ -- do not have a favorable cost/benefit ratio unless risk-averse scaling is used.

While it is completely understandable why PG&E would have a risk-averse attitude – it favors underground and thereby checks all of the boxes as far as reducing risk and improving profitability at the same time – PG&E should not claim that this attitude represents the *public* interest. It doesn’t quite do this. Instead PG&E claims that “*there is no evidence that our customers are risk-neutral.*”¹⁶ This is an “either/or” logical fallacy. There is likewise no evidence that PG&E customers are risk-averse, or that to the extent that there might be risk averse customers they would adopt PG&E’s version of risk aversion. While “risk aversion” in other fields generally refers to the avoidance of mass-casualty events, PG&E’s risk attitude is based upon economic losses, and in fact represent a huge insurance premium paid on the public assets at risk. While a catastrophe bond vendor might require significant return on investment compared to lower risk assets available in the market, people insuring assets might balk and decide to self-insure if faced with multi-percent premiums per year.¹⁷

We would ask Energy Safety to seriously consider the impact of PG&E’s risk averse function on its decision tree and cost-benefit analysis. Energy Safety and the CPUC have spent years developing reporting rules and guidelines to make the utility risk analysis more quantitative.

¹² RN Response; pp. 8-9.

¹³ MGRA PG&E WMP Comments; pp. 12-17.

¹⁴ PG&E Reply Comments; pp. 5-8.

¹⁵ Op. Cite; p. 16.

¹⁶ Op. Cite; p. 5.

¹⁷ See MGRA SDG&E WMP Comments; p. 19.

Adopting risk-averse scaling, particularly in the manner suggested by PG&E and SDG&E, discards this work and effectively picks a number out of the air.

Recommendations:

MGRA suggests that Energy Safety:

- Ensure that PG&E risk analyses including its scaling function are clearly labelled as such, and
- Require PG&E to use a risk-neutral scaling function in addition to its risk averse scaling function when performing critical risk analyses.
- Request E3 to independently verify PG&E’s approach to convex risk attitude functions.
- Use risk neutral scaling for any evaluation of PG&E’s WMP.

3.3.1.2. Ingress / Egress Risk

MGRA comments noted that PG&E’s “egress” analysis used in its risk calculations isn’t an egress analysis at all, but rather a measure of AFN population exposure. This turns out to be valuable but it isn’t egress.¹⁸ PG&E’s RN Response lists numerous other factors that Grid Designers use when evaluating mitigations, including fuel types, population density, road infrastructure, proximity of electrical equipment, and terrain.¹⁹ These are correct factors to be considering, and MGRA agrees with PG&E that egress is a critical risk multiplier that is not adequately calculated in current risk models.

Two concerns should be considered by Energy Safety, however:

Firstly, PG&E’s approach is at the moment purely qualitative and highly subjective. Different experts will have different assessments. These factors should be used to increase

¹⁸ MGRA PG&E WMP Comments; pp. 43-46.

¹⁹ PG&E RN Response; p. 15.

prioritization of egress circuits but undergrounding is not necessarily the most rapid way to protect these communities.

Secondly, while egress is a critical problem and can greatly increase risk to residents, the most important aspect is not to start an ignition that would trap people in these areas, and prevention can be obtained either through undergrounding or covered conductor in conjunction with other mitigations. The strongest argument for undergrounding is in the case where the electrical assets themselves become a threat to evacuation, i.e. lines falling onto the evacuation route has happened in the Camp fire. Rapid deployment of covered conductor mitigation around threatened may reduce overall risk faster than a delayed undergrounding program.

4. CONCLUSION

MGRA thanks Energy Safety for the work they do on behalf of residents of high risk areas and respectfully requests that they consider these comments on PG&E's Revision Notice.

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