PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans Discovery 2023-2025
Data Response

PG&E Data Request No.:	CalAdvocates_044-Q002		
PG&E File Name:	WMP-Discovery2023-2025_DR_CalAdvocates_044-Q002		
Request Date:	April 15, 2024	Requester DR No.:	CalAdvocates-PGE-2025WMP-08
Date Sent:	April 18, 2024	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Holly Wehrman

SUBJECT: MITIGATION EFFECTIVENESS

QUESTION 002

Page 54 of PG&E's 2025 WMP Update states,

> "To determine circuit segment-level mitigation effectiveness, the WBCA will adjust for the outage combinations likely to occur on a given circuit segment, their estimated frequency, and their contribution to overall risk on the circuit segment."

a) Please describe the methods used in the WBCA to adjust for the outage combinations likely to occur on a given circuit segment.

b) Please describe the methods used in the WBCA to adjust for the estimated frequency of outage combinations on a given circuit segment.

c) Please describe the methods used in the WBCA to adjust for the contribution of outage combinations to overall risk on a given circuit segment.

ANSWER 002

a) As stated on pp. 51-52 of PG&E's 2025 WMP Update, "outage combinations", refers to "potential ignition(s) resulting from particular combinations of unplanned outage events and equipment attributes". The likely "outage combinations" on a given circuit segment are based on the fifteen unique probability of ignition risk sub-drivers output from Version 3 of the Wildfire Distribution Risk Model (WDRM v3). These include:

- Vegetation (Branch);
- Vegetation (Trunk);
- Vegetation (other);
- Animal (Bird);
- Animal (Squirrel);
- Animal (other);
- Third Party (Balloon);

- Third Party (Vehicle);
- Third Party (other);
- Primary Conductor;
- Secondary Conductor;
- Equipment (Support Structure);
- Equipment (Transformer);
- Equipment (Voltage Control); and
- Equipment (other).

b) As described above, each circuit segment has a unique likelihood of an outage and ignition based on the 15 subdrivers from WDRM v3. In the WBCA, based on the mitigation effectiveness of associated with each individual subdriver, the residual frequency on a given circuit segment can be computed.

As a hypothetical example, the mitigation effectiveness for a program is 50% for vegetation (branch) and 60% for equipment (support structure). Circuit segment #1 has a vegetation (branch) subdriver frequency of 0.2 and equipment (support structure) subdriver of 0.8. Circuit segment #2 has a vegetation (branch) subdriver frequency of 0.5 and equipment (support structure) subdriver of 0.5. The resulting mitigation frequency for CS #1 is (0.2)*(1-50%) + (0.8)*(1-60%) = 0.42 frequency or 58% effective while CS #2 mitigation frequency is (0.5)*(1-50%) + (0.5)*(1-60%) = 0.45 or 55% effective.

As a result, even though the circuit segments start with the same baseline frequency, due to the difference in the frequency of the individual 15 subdrivers and its associated mitigation effectiveness, the resulting change in frequency is different for each circuit segment.

c) Similar to the response to part b, each circuit segment has a unique risk based on the 15 subdrivers from WDRM v3. In the WBCA, based on the mitigation effectiveness of associated with each individual subdriver, the residual risk on a given circuit segment can be computed.

As a hypothetical example, the mitigation effectiveness for a program is 50% for vegetation (branch) and 60% for equipment (support structure). Circuit segment #1 has a vegetation (branch) subdriver risk 2 and equipment (support structure) subdriver of 8. Circuit segment #2 has a vegetation (branch) subdriver risk of 5 and equipment (support structure) subdriver of 5. The resulting mitigation risk for CS #1 is (2)*(1-50%) + (8)*(1-60%) = 4.2 risk or 58% effective while CS #2 mitigation frequency is (5)*(1-50%) + (5)*(1-60%) = 4.5 or 55% effective.

As a result, even though the circuit segments start with the same baseline risk, due to the difference in the risk of the individual 15 subdrivers and its associated mitigation effectiveness, the resulting change in risk is different for each circuit segment.