

**PACIFIC GAS AND ELECTRIC COMPANY**  
**Wildfire Mitigation Plans**  
**Rulemaking 18-10-007**  
**Data Response**

PG&E Data Request No.:	CalAdvocates_044-Q09		
PG&E File Name:	WildfireMitigationPlans_DR_CalAdvocates_044-Q09		
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PG&E Witness:		Requester:	Alan Wehrman

The following questions related to PG&E's 2021 Wildfire Mitigation Plan (WMP) Update.

**QUESTION 09**

Section 4.2.A(f) of PG&E's 2021 WMP, on page (p.) 75, discusses PG&E's Outage Producing Winds (OPW) model. This model was trained on distribution outages occurring from 2008 to 2020, the majority of which will have occurred on bare wire.

- a. As PG&E performs system hardening activities such as installing covered conductor, how does PG&E expect the accuracy of predictions based on the OPW to change?
- b. Describe how PG&E plans to update the OPW to account for the effects of system hardening and other wildfire mitigation activities.

**ANSWER 09**

- a) PG&E's Outage Producing Wind (OPW) Model is trained on distribution outages from 2008 to 2020. Modeling outages at the high spatial and temporal granularity of OPW requires a large sample size of history of hours with outages and hours without outages under weather conditions for the model to learn outage probabilities to train a model with forecast skill. In the near term, until sufficient miles of different types of System Hardening have been completed, and more time and weather events have passed since the System Hardening has been completed, it is not possible to model accurately the effect of the various types of System Hardening with observations of outages using statistical and machine learning methods. It is expected the OPW Model would have a positive bias for areas where System Hardening and Enhanced Vegetation Management have recently been completed, but that this bias would reduce each year from the time the work has been performed as the OPW Model is updated annually learning from the latest outage and weather information.
- b) PG&E intends to update the OPW Model on an annual basis with the latest outage and weather information and continue to improve and evolve the modelling approach. This annual re-training of the model will learn as performance improves due to wildfire mitigation programs such as System Hardening and Enhanced Vegetation Management. PG&E also continues to evaluate other methodologies for accounting for changes in asset and vegetation conditions due to completed

System Hardening and Enhanced Vegetation Management. For example, PG&E's Failure Mode Analysis methods are based on a combination of subject matter expertise applied to outage histories broken down into detailed causes to create failure mitigation effectiveness factors for both System Hardening and Enhanced Vegetation Management programs.