

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

PG&E Data Request No.:	WSD_010-Q16		
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Date Sent:	March 18, 2021	Requesting Party:	Wildfire Safety Division
PG&E Witness:		Requester:	Ryan Arba

QUESTION 16

Regarding PG&E's Vegetation Ignition and Equipment Ignition Models:

- a. For the learning component:
 - i. What is the number of risk events that were previously used to train the 2018 model?
 - ii. What is the number of ignition events used to train PG&E's 2021 Vegetation Ignition and Equipment Ignition Models respectively? What sort of criteria needed to be met to include the ignition data for each of the respective models?
 - iii. Where any outage/ignition events excluded from the 2018 model? If so, explain what types and why.
 - iv. What is the number of outage events that would currently be available to train the 2021 model if PG&E were to use outage rather than ignition events?
- b. For the testing component:
 - i. What is the number of outage events that were previously used to test the 2019 and 2020 models?
 - ii. What is the number of ignition events used to test PG&E's 2021 Vegetation Ignition and Equipment Ignition Models respectively? What sort of criteria needed to be met to include the ignition data for each of the respective models?
 - iii. What is the number of outage events that would currently be available to test the 2021 model if PG&E were to use outage rather than ignition events?

ANSWER 16

- a. For the learning component:
 - i. The 2019-2020 Wildfire Risk Model (referred to in the question as the 2018 model) used a total of 186 ignition events for Vegetation and 247 ignition events for Equipment respectively. These ignition events (dependent variables) were PG&E's CPUC reportable ignitions from July 2014 to April 2018 that occurred in the HFTD areas (Tier 2, Tier 3, and Zone 1) within PG&E's service territory. PG&E used approximately 80% of these events for

training (approx. 149 and 198 events respectively) and the remaining 20% of these events for testing (approx. 37 and 49 respectively).

- ii. The 2021 Wildfire Distribution Risk Model used 222 ignition events for the Vegetation Probability of Ignition Model and 242 ignition events for the Equipment Probability of Ignition Model respectively. See the response to WSD-10, Q2(b) for the criteria for both the Vegetation Probability of Ignition Model and the Equipment Probability of Ignition Model training data sets.
- iii. Yes, ignitions that occurred outside of HFTD Tiers 3, 2 and Zone 1 were excluded.
- iv. If PG&E were to construct a Risk Model trained on outages, we would utilize approximately 15,800 outages from 2015-2018 that occurred during fire season and in HFTD Tiers 2 and 3. However this approach would predict a probability of outage and not a probability of ignition. Therefore, PG&E would need to develop model logic to translate outages into ignitions, which is not a one-to-one relationship.

b. For the testing component:

- i. PG&E observes that the WSD asks about “outage events” in this question, and provides an answer based on “risk events” in alignment with its answer to part 16(a)(i). As stated in 16(a)(i) above, the number of ignition events retained for testing was 20% of the set, so approx. 37 and 49 respectively for each model.

In addition, PG&E did consider “outage events” as independent variables in the regression model and used a total of 21,593 vegetation and equipment related outages in the analysis for System Hardening prioritization.

- ii. PG&E 2021 Vegetation model used 20% (44) of the 222 ignitions from 2015 to 2018 to test the model and then validated the model against the 47 vegetation related ignitions that occurred in 2019.

PG&E 2021 Equipment model used 20% (48) of the 242 ignitions from 2015 to 2018 to test the model and then validated the model against the 50 conductor related ignitions that occurred in 2019.

The criteria was the same as explained in WSD_010-Q2(b) for each model.

- iii. If PG&E were to construct a Risk model trained on outages, we would utilize approximately 4,100 outages from 2019 that occurred during fire season and in HFTD Tier 2 and 3. However this approach would predict a probability of outage and not a probability of ignition. Therefore, PG&E would need to develop model logic to translate outages into ignitions, which is not a one-to-one relationship.