

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

PG&E Data Request No.:	CalAdvocates_045-Q04		
PG&E File Name:	WildfireMitigationPlans_DR_CalAdvocates_045-Q04		
Request Date:	March 1, 2021	Requester DR No.:	CalAdvocates-PGE-2021WMP-11
Date Sent:	March 3, 2021	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Henry Burton

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

QUESTION 04

PG&E states that it found the “optimal” combination of the fire weather parameters, dead and live fuel moisture, and other factors as inputs in the FPI model.¹

- a. How did PG&E determine which parameters are optimal?
- b. Please describe the optimal ranges determined by PG&E's data scientists.

ANSWER 04

- a) When creating the current version of the FPI, PG&E sought to create a statistically robust Fire Potential Index (FPI) model that can output the probability of observing a large fire based on environmental factors. In order to determine the optimal model, PG&E built ~4,000 FPI model variants based on random feature selection and custom-built variants based on subject-matter expertise. The features PG&E considered in model construction were:
 - a. sustained wind speed at 10m above ground level
 - b. temperature
 - c. relative humidity (RH)
 - d. dew point temperature
 - e. dew point depression
 - f. daily accumulated precipitation
 - g. Dead Fuel Moisture (1 hr., 10 hr., 100 hr., 1000 hr.)
 - h. Live Fuel Moisture
 - i. NFDRS components (Ignition component, Spread component, Burning Index, Energy Release component)
 - j. Fosberg Fire Weather Index
 - k. Weather Component of the Santa Ana Wildfire Threat Index
 - l. The Hot-Dry-Windy-Index
 - m. Distance to nearest fire station
 - n. Slope
 - o. Ruggedness

¹ PG&E WMP p. 880.

- p. Road Density
- q. Population Density
- r. Structure Density
- s. Land Use type

After the ~4,000 FPI models were constructed, they were evaluated for accuracy in predicting large fires. The metrics used to evaluate model performance were the Area Under the Receiver Operating Characteristic Curve (ROC AUC) and the Average Precision. Both cross-validation, and train-validation-test data splits were used for validation. PG&E's final Fire Potential Index (FPI) Model is a function of several quantifiable factors: The Live Fuel Moisture (LFM), the Nelson Dead Fuel Moisture 10 hour (DFM10hr), the Fosberg Fire Weather Index (FFWI) and Land Use (LU).

- b) PG&E's data scientists did not determine the optimal ranges.