

**PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans Discovery 2022
Data Response**

PG&E Data Request No.:	MGRA_002-Q17		
PG&E File Name:	WMP-Discovery2022_DR_MGRA_002-Q17		
Request Date:	March 23, 2022	Requester DR No.:	MGRA-PGE-WMP22_DataRequest2
Date Sent:	March 28, 2022	Requesting Party:	Mussey Grade Road Alliance
PG&E Witness:		Requester:	Joseph Mitchell

SUBJECT: SITUATIONAL AWARENESS

QUESTION 17

On p. 319, PG&E states that it has

“Developed a weather-station specific wind gust model, with particular emphasis on Diablo winds”.

Please provide the documentation for this weather model.

ANSWER 17

After benchmarking with SDG&E and SCE, we used the same external expert to produce weather-station specific, machine learning wind gust models for approximately 200 weather stations in our territory. A list of these stations can be found in “WMP-Discovery2022_DR_MGRA_002-Q17Atch01”. Below is a description on how each machine learning model was developed.

Observation data was retrieved for each candidate weather station that overlaps with the multidecadal historical weather model output period. For each station, the observation data was first quality controlled. This quality-controlled observation data is then matched to the hourly weather model output of the closest grid cell to each station. An initial comprehensive list of weather model variables is then evaluated to see which predictors have a significant relationship with the predictand (wind gust, in this case). Using Random Forest/XG Boost models across the entire data set period, we attain a unique predictor mixture which minimizes the machine learning model error (MAE, RMSE and BIAS). Finally, these optimized Random Forest/XG Boost models are tested for high-impact weather events not included in the training period. In the end, these models were operationalized to provide output given PG&E input weather forecast model data.

The model itself was developed by a third-party vendor retained by PG&E, ADS, and is proprietary. Therefore, PG&E does not possess any additional documentation describing the model.