

Southern California Edison

WSD-011 – Resolution implementing the requirements of Public Utilities Code Sections 8389(d)(1), (2) and (4) related to catastrophic wildfire caused by electrical corporations subject to the Commission’s regulatory authority

DATA REQUEST SET W S D - S C E - 0 0 4

To: WSD

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Response Date: 3/17/2021

Question 005:

At the 2/22/21 workshop, SCE indicated that for Probability of Ignition (POI) Models, SCE uses “outages that can lead to a spark” and “all outages”.

5(a). How do the POI models use the “outages that can lead to a spark” data?

5(b). How do the POI models utilize the “all outages” data?

5(c). How does SCE determine what outages can lead to a spark?

Response to Question 005:

- a) As with a linear or logistic regression model, there are independent or explanatory variables and there are dependent or response variables that the models attempt to generate by finding patterns in the explanatory data. The POI models use outages that lead to a spark as failure targets, i.e., the response variables or the events that we are trying to model. In order to discern between events that we are trying to model and those that we are not, outage data are combined with a random sample of equipment that did not fail. This set of failures and non-failures (classifications) are paired with their various explanatory variables that the asset experienced during the time period. The model then finds decision thresholds in the explanatory data that most accurately separates the failures from the non-failures, while minimizing misclassifications. Furthermore, a subset of these outages is withheld from the model training to test the accuracy of the decision trees built by the algorithms.
- b) To clarify, all outages are used to create a subset and extract outages that can lead to a spark, based on the cause description and code.
- c) The full set of outage causes was reviewed with Reliability and Grid Operations groups to isolate causes that could result in arcing or flashovers such as vegetation contact, arcing transformers, and wires down. These outages were separated from those that would not lead to sparks such as source losses, power losses due to restoration/repair steps, and underground circuit outages.