

*Southern California Edison*  
*2022-WMPs – 2022 Wildfire Mitigation Plan Updates*

**DATA REQUEST SET Cal Advocates - SCE - 2022 WMP - 15**

**To: Cal Advocates**  
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**Job Title: Senior Engineer**  
**Received Date: 6/29/2022**

**Response Date: 7/14/2022**

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**Question 04:**

Please provide:

- a) Any studies that show how SCE determined that the protective device settings identified in question 1 are the best settings to use during high fire-risk weather; and
- b) Any studies of the impact to reliability due to the settings identified in question 1.

**Response to Question 04:**

**CONFIDENTIAL**

**The Attachment(s) Are Marked Confidential In Accordance With D. 16-08-024 and D.17-09-023.  
Basis for Confidentiality In Accompanying Confidentiality Declaration. Public Disclosure  
Restricted.**

a. SCE completed a study in 2021 that analyzed a total of 15 HFRA circuits using both the existing Fast Curve practice (“philosophy”) first applied in 2018 and the revised philosophy. The goal of the study was to evaluate the revised philosophy’s ability to operate correctly for fault induced low voltage events that impact AC motor stalling when compared to the 2018 philosophy. The 15 circuits were first modeled in MATLAB/Simulink to study the effects of AC motor stalling caused by low voltage events due to faults on adjacent circuits or the subtransmission system. Using relay event records from an AC motor stalling event, the study verified that the revised Fast Curve philosophy would have operated correctly (meaning that it would not have tripped) for this event. In addition, SCE benchmarked its Fast Curve philosophy with several other electric utilities’ fast trip philosophies. The results of these studies are included in the attached “Fast Curve Protection Philosophy Review, Revision 0\_CONFIDENTIAL”, dated August 9, 2021.

SCE also compared the fire ignition rates for electric faults which occurred with Fast Curves enabled and without Fast Curves enabled. By calculating the fault to ignition ratio on circuits in HFRA when fast curve settings were activated in 2020 and 2021 versus circuits in HFRA over the same period where fast curve was not enabled, SCE found that an estimated 40% relative reduction in the fault to ignition ratio was achieved when Fast Curve was enabled.

b. SCE minimizes the impact to reliability by studying the appropriate settings applied to each protective device installed on every circuit. The setting philosophy is to help ensure, to the extent possible, that each protective device coordinates so that the nearest device upstream of a fault operates before other upstream devices in order to minimize the number of customers impacted. For example, if a fault occurs downstream of a branch line fuse at the end of a circuit, the fuse should operate before the upstream recloser or circuit breaker so only that section of the circuit is

interrupted from service. SCE reviews this type of coordination and deploys its settings accordingly based on the configuration of each circuit.