

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

DATA REQUEST SET O E I S - S C E - 2 2 - 0 0 2

To: Energy Safety
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Response Date: 3/18/2022

Question 11:

Fast Response Settings:

- a. SCE is increasing their use of devices with fast response settings.
 - i. What number and percentage of remote sectionalizing devices have the capability to enable these settings?
 - ii. When would devices with such a setting capability within the HFTD be enabled (i.e. during days with an extreme FPI rating or PSPS-triggering conditions)?
 - iii. How does SCE determine which devices are enabled and when?
 - iv. How would conditions triggering a PSPS event differ from determining if more sensitive settings are enabled?
 - v. For the sensitive/fast protection settings, what is the increased sensitivity.
 - vi. Are the sensitive/fast protection settings factory based? If the sensitive/fast protection settings are not factory-based, how are settings determined?
 - vii. Are the same sensitive/fast protection settings enabled for all devices? If not, how are settings for particular locations or devices determined?

Response to Question 11:

- i. SCE has 1,071 distribution circuits in HFRA. SCE currently has approximately 900 circuits protected by Fast Curve Settings (FCS) using a combination of circuit breakers and/or Remote Controlled Automatic Reclosers (RAR). There are approximately 1,100 RARs on the 900 HFRA circuits which have FCS. 100% of these RARs have the remote capability to enable (or disable) the FCS.
- ii. All distribution circuits with this capability shall have their FCS enabled when a Red Flag Warning (RFW), Fire Weather Threat (FWT), Fire Climate Zone (FCZ), or Thunderstorm Threat is declared for the Switching Center and county affected.
- iii. The FCS are enabled per System Operating Bulletin 322, under the following conditions:

Declaration of RFW, FWT, FCZ, Thunderstorm Threat

1. RFW issued by the National Weather Service (NWS). The NWS will declare a RFW anytime weather conditions warrant.

A. Recloser Restrictions will be applied to all sub-transmission and distribution circuits within the county under the declaration.

B. Operating Restrictions will be applied to all sub-transmission and distribution circuits within the county under the declaration.

2. FWT. SCE Weather Services will declare a FWT based on assessments provided by SCE's Meteorology Group of possible fire threats. Fire threats may also be declared by FCZ based on assessments provided by SCE Fire Science Group.

A. Recloser Restrictions will be applied to all sub-transmission and distribution circuits by Switching Center and county, unless Individual Recloser Restrictions are in effect for distribution per SOB-322. Refer to Section 3.5. FCZ recloser restrictions will be applied to HFRA distribution circuits by zones utilizing the SOB-322 program.

B. Operating Restrictions: The Switching Center System Operator must reference the PSPS Watch List following a relay operation to determine if Operating Restrictions apply. Circuits that are not listed on the Watch List may be tested without a patrol.

3. Thunderstorm Threat. SCE Weather Services will declare a Thunderstorm Threat based on assessments provided by the Meteorology Group of possible thunderstorms producing dry lightning and strong downburst winds during periods of increased fire threat.

A. Recloser Restrictions will be applied to all sub-transmission and distribution circuits and circuit sections by Switching Center and county.

B. Operating Restrictions will be applied to all sub-transmission and distribution circuits and circuit sections by Switching Center and county.

4. Fire Climate Zones

- This group seeks approval to build on the existing seasonality approach of FCZ Operating Restrictions. The new methodology will include a weekly forecast of Fire Science's newly developed Fuels Index.

- Analysis has been conducted to determine breakpoints for fuel dryness and to determine periods of time that FCZ Operating Restrictions should be implemented on a weekly basis.

- Utilizing this new index will incorporate a weekly assessment of fuel dryness to limit the negative work impacts, improve reliability and customer experience, and allow for a more targeted approach in implementing FCZ Operating Restrictions.

- iv. See responses to ii & iii above. SCE can command these changes from remote switching centers through a radio control network near real time. The commands can be sent to individual reclosers or also can be set to enable a group of reclosers depending on the

operational needs.

- v. SCE increases sensitivity by decreasing the time the relay takes to operate. This reduces the fault energy (I^2t) by limiting the time the fault persists on the circuit. The traditional time overcurrent response is dependent on a current/time curve which generally will take longer to operate for fault currents towards the end of line and faster for higher magnitude faults closer to the source. The Fast Curve response operates in a fast fixed time (0-2 cycle relay response time). The Fast Curve pickup sensitivity is different for each circuit and is set to a multiple of each circuit's minimum trip.
- vi. No. For circuit breakers, the Fast Curve pickup is set to a multiple of each circuit's minimum trip (typically 4 or 5 times the minimum trip). The time delay for the Fast Curves is set to either 0 or 2 cycles depending on the available fault current at the source. For Remote Controlled Automatic Reclosers, Fast Curve pickup is set to a fixed 5 times multiple of each recloser's minimum trip and the time delay is set to 0 cycles.
- vii. No, they're not the same settings however the same setting criteria is applied generally. Refer to response in v and vi. SCE has standardized recloser configuration settings which control the operation of the recloser. These settings reside as part of the local recloser controller, and SCE has elected to use these standard configuration settings for typical recloser installations whether they are related to HFRA circuitry or non-HFRA circuitry. As examples, these configuration settings include capabilities to block reclosing, block the ground relay, and activate fast curve settings.