

*Southern California Edison*  
*R.18-10-007 – SB 901*

**DATA REQUEST SET C A L P A - S C E - 0 0 2**

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**Response Date: 2/21/2019**

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**Question 11: Question 11**

A discussion with participants after the Wildfire Mitigation Plan Workshop on February 13 revealed that some covered conductor installations had issues tripping relays/fuses when they fell, meaning a covered wire would be more likely to stay energized on the ground.

Has SCE's efforts to install covered conductors resulted in any experiences similar to this?

If not, has SCE's review of the program identified this as a potential problem?

**Response to Question 11:**

SCE started installing covered conductors for wildfire mitigation in June 2018. Since inception of the program, SCE has not experienced energized wire downs with covered conductor.

While it is possible that high impedance faults are more likely to occur with covered conductors, SCE believes the benefits of covered conductor significantly outweigh the minimal drawbacks associated with high impedance faults for the following reasons:

- Covered Conductors will reduce the number of wire down events from occurring by preventing contact-related faults. Wire downs can occur when a fault initiating event generates a surge of current that surpasses the short circuit duty limit of a conductor. In HFRA, over 50% of faults are caused by contact with objects. Because covered conductors are protected by insulating layers, they prevent contact-related faults from occurring. By decreasing the occurrence of faults, covered conductors decrease the possibility of wire down events.
- Energized wire downs can happen with both bare wire and covered conductor systems. Additionally, the detection of downed bare wire is not absolute. The main component that determines detection is the surface the downed wire makes contact with. Due to the surface, a high impedance fault may occur regardless of conductor type.
- In an energized down wire scenario, covered conductors are more advantageous than bare wire in terms of wildfire risk and public safety. The area of exposed conductor during a wire down will be greater in bare wire than in covered conductor. More exposed conductor increases the chance of ignition. Therefore, covered conductors reduce the chance of ignition due to energized wire downs. Additionally, covered conductors provide public safety benefits because the touch current on the covering is reduced to approximately 0.2 mA, which according to the Centers for Disease Control and Prevention is generally not

perceptible. Please refer to workpaper “NEETRAC Final Report and SCE Summary of Covered Conductor Touch Current” supporting section (IV)(B)(e)(1) submitted in support of SCE-01A in (A.18-09-002).

- Utilities are mitigating energized wire down problems by developing detection systems that do not rely on fault current. These alternative detection systems will be effective for both covered conductor and bare wire systems. SCE is pursuing the development of Meter Alarming Downed Energized Conductor (MADEC), which uses a machine learning algorithm to detect energized wire down conditions and likely location within minutes of occurrence. The implementation of these alternative detection systems will complement current protection systems and provide additional detection capabilities should a high impedance fault occur.