Southern California Edison
2023-WMPs – 2023-WMPs

DATA REQUEST SET M G R A - S C E - 0 0 3

To: MGRA
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Received Date: 5/3/2023

Response Date: 5/8/2023

Question 04:
Referring to the data provided in Data Request Response 04_MGRA-SCE-002 Q4.xlsx:
After two years of no wires down in covered conductor, 5 wires down were reported in 2022. Additionally, there have been 11 covered conductors down in the first months of 2023.
a. What is the explanation for 1) the first years without covered conductors down, and 2) the sudden increase in covered conductor wires down in the past months.
b. If this is a weather related phenomenon, please specify how this phenomenon affected the conductors.

Response to Question 04:

a. What is the explanation for 1) the first years without covered conductors down, and 2) the sudden increase in covered conductor wires down in the past months.

The 16 wire downs experienced in 2022 through April 25, 2023 are due to the following drivers:

Driver	Number of Wire Downs
Tree Fall	11
Vehicle Contact	2
Weather (e.g., ice loading/lightning)	3

Note that wire downs due to these drivers may also cause wire downs on bare wire. SCE also notes that as covered conductor deployment continues each year, including in areas with exposure to vegetation, the population of covered conductor with exposure to these risk drivers increases.

Due to the increased amount of rain and snow fall during the past few months, SCE experienced a spike in wire downs. By the end of April 2023, SCE experienced approximately 50% more wire downs system wide compared to the average amount of wire downs experienced from January through April from 2019 to 2022.

b. If this is a weather related phenomenon, please specify how this phenomenon affected the conductors.

The majority of tree falls into the conductor or structure were due to wind, snow loading, or soil erosion driven by rainstorms or snow. The force or weight of the tree may surpass the strength of the pole or conductor, causing the pole to break or the conductor to part, respectively. Other weather-related events involved ice loading and lightning.

SCE accounts for ice on the conductor in areas with elevation exceeding 3,000 ft. above sea level by using conductor tensions designed to withstand a combination of wind at 6 pounds per square foot and ice at 0.5 inches of radial thickness at 0°F. However, ice forming on the conductor may surpass 0.5 inches of radial thickness. This increased radial thickness in combination with wind and temperature conditions may greatly increase the conductor tension, causing the conductor to exceed its rated strength and part.

Lightning strikes to overhead conductor can produce local damage to the conductor from the direct strike. The strike may also cause an electrical fault which may produce damage to conductors in addition to the energy from the lightning strike. Fault events may be at the strike location, but can also be remote from the strike location due to insulation flashovers created by over-voltages from the lightning. Damages include melting of conductor material at either the strike location or the fault location(s). Additionally, the fault on the electric system may produce high currents that can also cause annealing or melting of conductor at other areas beyond a fault or strike location, though this is generally associated with smaller conductor types.