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 022:
Regarding utilization of vibration dampeners for covered conductor:
22(a). What is the per-unit cost for the vibration dampeners being used for covered conductors?
22(b). What is the additional circuit-mile cost for the vibration dampeners being used for covered conductors?
22(c). What is the additional total cost to the covered conductor program due to the implementation of vibration dampeners?
22(d). How does the addition of vibration dampeners affected the RSE value of covered conductor?
22(e). What conditions and circumstances require vibration dampeners as part of the standard for bare conductor?
22(f). What percentage per circuit-mile of bare conductor throughout SCE's service territory require vibration dampeners?
22(g). What percentage per circuit-mile of bare conductor within HFRAs require vibration dampeners?

Response to Question 022:
a) SCE utilizes two types of vibration dampers for covered conductor: one for smaller diameter conductors and the other for larger diameter conductors. The average per-unit cost of a spiral vibration damper (used for smaller wire) is approximately $65 and the average per-unit cost of a Stockbridge damper (used for larger wire) is approximately $80.

b) The projected weighted cost for vibration dampers is $4,100 per circuit mile. The following assumptions were included in this calculation:

1. One damper per phase, per span for the spiral vibration damper and two dampers per phase, per span for the Stockbridge damper.
2. The average span length is 180 ft.
3. Spiral vibration dampers will be used 86% of the time and Stockbridge dampers will be used 14% of the time. This assumption is based on existing covered conductor installations.
4. Vibration dampers will be required in 78% of covered conductor installations. This assumption is based on 78% of HFRA having an elevation of 3,000 ft or less.

Per circuit-mile $ = 5,280 ft/mile ÷ 180 ft/span × 2.3 average conductors/span × (86% × $65/spiral + 14% × $80/Stockbridge × 2) × 78% usage = $4,120.

c) In 2021, assuming a target of 1,000 circuit miles of covered conductor, the total vibration damper cost is estimated to be approximately $4.1 million. In 2022, assuming a target of 1,600 circuit miles of covered conductor, the total vibration damper cost is estimated to be approximately $6.6 million.

d) The addition of vibration dampers may minimally decrease the RSE value of covered conductor due to the incremental cost increase. Vibration dampers mitigate the risk of premature failure of the covered conductor; therefore, the installation of vibration dampers will help ensure that the useful life of the covered conductor, which is taken into account in the covered conductor RSE calculation, is maintained.

e) For bare wire, SCE requires the installation of dampers for new construction on spans greater than 300 ft in areas with an elevation of 3,000 ft or less.

f) Approximately 90% of distribution overhead circuit miles in SCE's service territory is located in areas with an elevation of 3,000 ft or less. However, span length information is not available. For new construction of bare wire, dampers will be installed on spans greater than 300 ft. in 90% of SCE's service territory.

g) Approximately 78% of distribution overhead circuit miles in HFRA are located in areas with an elevation of 3,000 ft or less. However, new construction in HFRA will be constructed with covered conductor and not bare wire.