

PACIFIC GAS AND ELECTRIC COMPANY
Wildfire Mitigation Plans Discovery 2022
Data Response

PG&E Data Request No.:	OEIS_007-Q10		
PG&E File Name:	WMP-Discovery2022_DR_OEIS_007-Q10		
Request Date:	March 28, 2022	Requester DR No.:	Data Request OEIS-PG&E-22-007
Date Sent:	March 30, 2022	Requesting Party:	Office of Energy Infrastructure Safety
PG&E Witness:		Requester:	Kevin Miller

SUBJECT: VIBRATION DAMPERS

QUESTION 10

In Southern California Edison's 2022 WMP Update, the utility states that

“in high and medium vibration susceptibility areas, vibration can reduce the covered conductor’s useful life from 45 years to an average of 20 years if not addressed” and that “[i]n installing dampers minimizes equipment failure ignition drivers, such as damage or failure of the conductor, connector, and/or splice” (Section 7.3.3.3.3 “Vibration Damper Retrofit [SH-16],” p. 202.¹

- a. Is PG&E including vibration dampers as part of its covered conductor installations? If so, provide the percentage of covered conductor installations that include vibration dampers, as well as a description of how PG&E determined where to install vibration dampers.
- b. Has PG&E done an analysis for determining what areas within its system would be susceptible to vibrations and potentially benefit from vibration dampers? If so, describe how SDG&E made such determinations, which areas are classified as potentially benefiting from vibration dampers, and what criteria or thresholds are used to determine if vibration dampers should be installed.
- c. If PG&E is not currently including vibration dampers as part of its covered conductor installations, please explain whether PG&E plans to do so in the future and what those plans are, including possible retrofits.
- d. Provide a description of any lessons learned regarding vibration damper installation for covered conductor, whether they be from SCE, lessons shared by SCE or other utilities during the joint utility covered conductor effectiveness effort, or from broader industry experience, or PG&E's in-house research and experience.

ANSWER 10

¹ See the Southern California Edison 2022 WMP Update here:
<https://www.sce.com/sites/default/files/custom-files/SCE%202022%20WMP%20Update.pdf>
(accessed March 24, 2022).

- a. PG&E does not currently include vibration dampers as part of our covered conductor installations. However, we are working with a manufacturer of spiral vibration dampers (SVD) to finalize its manufacture recommendations for SVD placement using data from a completed field test that monitored both dampened and un-dampened spans at the same PG&E location. We will be using the existing manufacture guidelines that are currently being used at other utilities as a reference to help determine PG&E standards. We have agreement with a supplier to install test equipment and install VORTEX dampers for testing. We still need to select the location, which has been recommended for a 1000' span of 397 or 715 aluminum conductor.
- b. We are currently conducting analysis and evaluations of the two types of vibration dampers (SVD and VORTEX) in partnership with the manufacturers to determine the appropriate placement, number of dampers per span based on conductor size, span lengths and span tensions. These criteria will determine the specific existing and future circuits that will require vibration dampers.
- c. We are evaluating the application of vibration dampers on both new installations and retrofit applications.

In 2021, PG&E completed field evaluations of the spiral vibration dampers (SVD) applied on 1/0 Aluminum Conductor Steel Reinforced (ACSR) and smaller diameter conductor, including piloting SVD on a long span of PG&E 1/0 ACSR. Additionally, PG&E has reviewed:

- 1. Manufacturer provided part numbers and damper types,
- 2. Manufacturer recommended number of dampers required per phase for all PG&E tree wire
- 3. Long span sag and tension data for PG&E approved covered tree wire.

In 2022, we intend to complete the following next steps:

- 1. Approve the manufacturer provided part numbers, damper types,
 - 2. Pilot the installation of VORTEX dampers on large conductor
 - 3. Finalize part numbers, damper types, and the required number of dampers required per phase.
 - 4. Update standards to provide guidance on the appropriate installation and use of dampers on existing and new tree wire conductor installations.
- d. The test results from the vibration test equipment show the need for the installation of dampers and the need to retrofit locations that will exceed the limitations that will be established in the new standards. PG&E has learned from the pilots and evaluations that the application and installation of field dampers on covered tree wire is very similar to applications on bare conductors when comparing span lengths, tension, and insulator attachment types.