

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 Cal Advocates - SCE - 2021 WMP - 11

To: Cal Advocates
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Received Date: 3/10/2021

Response Date: 3/15/2021

Question 001:

Table 7.1 of SCE’s non-spatial WMP data tables includes data on “Transformer damage or failure – Distribution” (line 18n). According to that table, the number of outages caused by distribution transformer damage or failure increased from 2,489 in 2019 to 3,405 in 2020.

- a) Explain the factors that account for this increase in transformer-related outages in 2020, compared to 2019.
- b) What is the minimum age of the transformers that failed in 2020 in the line 18n data?
- c) What is the maximum age of the transformers that failed in 2020 in the line 18n data?
- d) What is the mean age of the transformers that failed in 2020 in the line 18n data?
- e) Has a root cause analysis been performed on any of the transformers that failed in 2020? If so, please provide the findings of the analysis.
- f) What are the five most common causes of distribution transformer failures in 2020?
- g) How many of the 3,405 distribution transformer-related outages from line 18n are in HFTD Tier 2 areas?
- h) How many of the 3,405 distribution transformer-related outages from line 18n are in HFTD Tier 3 areas?

Response to Question 001:

- a) A September 2020 heatwave and the second hottest August (2020) ever recorded (according to National Oceanic and Atmospheric Administration) resulted in an increased number of outages connected to transformers. Specifically, on Labor Day weekend (September 5-7, 2020), over 640 transformers caused outages. Further, in August 2020, SCE experienced almost 400 more transformer failures than compared to August 2019.
- b) The minimum age of a transformer that failed in 2020 was less than 1 years old per SCE’s system of record.
- c) The maximum age of a transformer that failed in 2020 was 98 years old per SCE’s system of record.
- d) The mean age of transformers that failed in 2020 was 37 years per SCE’s system of record.
- e) The below table contains a summary of the root cause analysis that SCE performed on 37 distribution transformers that failed in 2020:

Cause	Count
Usage/lifespan	1
Exceeded rating	8

Inconclusive	2
Internal failure	8
Mechanical	1
Connection failure	3
Workmanship	10
Vehicle contact	1
Weather/contamination	3
Grand Total	37

- f) SCE's system of record and outage data does not track the reason for transformer replacements. See SCE's response to part (e) for common causes of transformer failures as reflected in the root cause analysis of 37 transformers in 2020. Please note the causes listed in response to part (e) are not a statistical sample and may not be representative of the causes of all transformer failures in SCE's system in 2020. Generally, common transformer failure causes are: exceeded rating, internal failure, mechanical damage, corrosion/rust, and weather/contamination.
- g) 339 transformers were in Tier 2.
- h) 403 transformers were in Tier 3.