

Follow-up Questions and Responses to Fast Trip Workshop on March 17, 2023

Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), the Joint Parties, and the Public Advocates' Office (PAO) publicly presented to the CPUC and other stakeholders in a workshop conducted on March 17, 2023, regarding fast trip settings, unplanned outages, and distribution reliability issues and the impacts on customers. The Joint Parties included: Pioneer Clean Energy, the Joint Community Choice Aggregators (CCAs), Marin Clean Energy, Sonoma Clean Power, and the Rural County Representatives of California (RCRC).

A list of follow-up questions was raised verbally and in writing through the meeting chat during the workshop. Subsequently, PG&E, SCE, and SDG&E provided responses to the questions. See below for the follow-up questions and the IOUs' responses.

Follow-up Questions for PG&E and PG&E Responses

Question 01

(Energy Safety) Dave said you still have areas where you are planning to install more protective devices to further sectionalize circuits. How many circuits do you plan to increase the ability to further isolate areas? Where are these circuits located? How soon will this work be done?

Response to Question 01

In 2023 we plan to install up to 96 protective devices to further sectionalize circuits. This includes 3 devices in the Bay Area; 9 devices in Central Valley; 11 devices along the North Coast; 51 devices in North Valley and Sierra; 22 devices in South Bay and Central Coast. The 96 protective device projects are on 41 circuits. We plan to continue to further sectionalize circuits within the High Fire Risk Areas (HFRA) in 2024 and beyond where feasible and where the work can be expected to improve reliability. This work is also discussed in the Enhanced Powerline Safety Settings (EPSS) and Sectionalizing section of PG&E's 2023 Wildfire Mitigation Plan (WMP).

Question 02

(Energy Safety) Page 17 of the slide shows that the outage number on non-EPSS protected lines is significantly higher than the EPSS protected lines. Is that a function of the fact that there just are more miles of unprotected lines? Please provide an understanding of the outage rate of EPSS line. The EPSS line would be more sensitive and would have more outages on a day where they are enabled versus the lines that are not in EPSS line in a per mile basis.

Response to Question 02

The question, as we understood it, was whether it was possible to normalize these two columns for the sake of comparison. The table on the left replicates what we displayed at the workshop and the table on the right normalized for outages per 1000 Circuit Mile Days. For example, on

EPSS enabled circuits there were 0.07 Veg outages / every 1000 Circuit Mile Days vs. 0.12 for non-EPSS circuits. In relative terms, almost 50% fewer vegetation outages per circuit mile day.

<u>Type of outages</u>	<u>Non-EPSS</u>	<u>EPSS</u>
CI	-	106
3P	2,611	225
AN	1,871	391
VEG	3,068	265
ENV	443	12
EQ	11,770	293
UNK	6,427	1,083
TOTAL	26,190	2,375

<u>outages per CMD x 1000</u>	<u>Non-EPSS</u>	<u>EPSS</u>
CI	-	0.03
3P	0.10	0.06
AN	0.07	0.10
VEG	0.12	0.07
ENV	0.02	0.00
EQ	0.46	0.08
UNK	0.25	0.28
TOTAL	1.03	0.61

Question 03

(Marcel Hadwiger via Chat) Does PG&E have data on outages Per Mile, not just total on segments? Total is irrelevant w/o knowing the mileages.

Response to Question 03

This is covered in #2 above.

Question 04

(President Reynolds) The Joint Parties expressed a desire for the EPSS boundary. Is there communication and sharing with the Joint Parties on the EPSS boundaries of circuit protection zones? If not, how can PG&E make that available?

Response to Question 04:

Similar to comments made at the workshop, two Community Choice Aggregators (CCAs) have requested related data that is more granular than program boundaries. PG&E had a productive meeting on March 23 with the CCAs who are seeking this sensitive, confidential information. We are currently waiting for them to complete and return the NDA that is necessary for us to provide the requested data. Upon receipt, this action will be complete.

Question 05

(Joyce Steingass) Is PG&E planning to show the portal tools and the amount of information available to first responders or public safety partners during EPSS outages?

Response to Question 05

We understood this question in the workshop chat to be a request about an on-the-spot demo of the data available to first responders. If the CPUC is interested in seeing or discussing the details shared with public safety partners, via portals and other methods, we would be happy to set up a time to discuss.

Question 06

(Leigh Kammerich) Does PG&E have (or evaluate whether they have) the resources to quickly restore power to all EPSS enabled circuits should they be tripped simultaneously?

Response to Question 06

Per the Company Emergency Response Plan (CERP) and associated annexes, PG&E has a plan for staffing and responding to catastrophic events. It is extremely unlikely that the specific scenario described in this question would ever occur, due to the fact there would need to be a fault condition present downstream of each of the more than 4,000 protection devices, causing each of those devices to trip simultaneously.

Question 07

(Patrick Saxton) Will any of the grid modernization R&D work present a clear path to reducing restoration time after an EPSS? (Distribution Fault Anticipation, Early Fault Detection, Predictive Risk Identification with Radio Frequency Sensors, others?)

Response to Question 07

Yes, this outcome is possible. We expect to learn more as we further develop and test several emerging technologies, line sensor and Grid Data and Analytics Tool (GDAT) technologies. Additional details on other, related sensor technologies can be found in PG&E's 2023 WMP.

Question 08

(Joyce Steingass) How do the utilities and the local government jurisdictions know whether access and functional need customers are prepared, equipped, and ready for EPSS and other forms of fast curve outages?

Response to Question 08

PG&E conducts post-season surveys annually for the PSPS program. While driven by the PSPS program, the surveys help gauge overall preparedness for emergencies and awareness of resources that are available. Emergencies in this context include wildfire safety outages from PSPS events and outages on EPSS-enabled circuits. Additionally, specific EPSS questions were added in 2022 to understand customers' level of awareness of the program. The surveys do not break out customers with AFN, but gives us an overall view of customer awareness and preparedness to help inform strategies for the future.

Awareness of EPSS – The 2022 post-season surveys contained questions about EPSS awareness. Of all customers surveyed, 30% were aware of the program. However, over 50% of customers protected by EPSS in 2022 did not experience an outage. There was a 63% awareness of the program among customers who indicated they had experienced an EPSS outage in 2022. PG&E is updating our EPSS enablement lookup tool to more clearly indicate that EPSS settings are enabled. Additionally, outage notification scripts for EPSS are being reviewed to identify opportunities to increase program awareness.

Preparedness – The 2022 pre-season survey results showed a consecutive increase in customer recall of PG&E communications about the threat of wildfires and how to prepare.

Table from PG&E's 2022 Post-Season Report, Appendix, page App-6

Resources – In addition to program awareness, the 2022 post-season survey asked customers about their awareness of resources available for PSPS events. Customer resiliency programs from PSPS have been expanded to include customers in EPSS program scope. Of the population of customers who participated in the 2022 post-season survey, 37% were aware of the Medical Baseline program, 23% were aware of the Generator and Battery Rebate Program, and 17% were aware of the Portable Battery Program. All of these represent year-over-year improvements, and an improvement from the 2022 pre-season survey. PG&E is continuing to target vulnerable customers with resiliency offerings in 2023.

Question 09

(Joyce Steingass) How do the utilities and local government jurisdictions know whether the various forms of communication and outreach regarding resources for AFN customers have been effective to raise awareness about the resources available such as batteries, generator rebates, etc.?

Response to Question 9

PG&E tracks customer awareness of resiliency offerings through the PSPS post-season survey. The 2022 post-season survey asked customers about their awareness of resources available for PSPS events. Customer resiliency programs from PSPS have been expanded to include customers in EPSS program scope. Of the population of customers who participated in the 2022 post-season survey, 37% were aware of the Medical Baseline program, 23% were aware of the Generator and Battery Rebate Program, and 17% were aware of the Portable Battery Program. All of these represent year-over-year improvements, and an improvement from the 2022 pre-season survey. This information is used to develop annual outreach plans and campaigns for resiliency offerings.

Question 10

(Joyce Steingass) Will PG&E and all utilities be elaborating on the plans they have for responding to customer needs for the longest duration EPSS/fast trip outages, particularly during extreme heat events? Were there things learned from the experience of the extreme heat event of September 2022 that should broadly be implemented in similar situations in future?

Response to Question 10

We previously noted in letters sent to the CPUC that EPSS outage durations were, on average, shorter in 2022 than unplanned outages. In 2022, the number of extended outages on EPSS-enabled lines was 25% lower than for all PG&E outages in 2022. Additionally, PG&E had a meeting with SED and ED teams in the fall of 2022 to discuss details of customer support programs and the details of what PG&E is doing to support our most vulnerable and frequently impacted customers should they experience any type of extended outage.

Question 11

(Joyce Steingass) Is there a summary report that provides an overview of all the MORE analysis that PG&E did, which shows prevalence of root causes, and the types of solutions that PG&E applied after its MORE analysis?

Response to Question 11

Four examples of MORE process details are available on slide 31 in the appendix of PG&E's March workshop presentation. We would be happy to discuss with the CPUC in further detail and share more data and analysis if desired.

Question 12

(Joyce Steingass) How are the public utilities coordinating with CAL FIRE and the local governmental jurisdictions on identifying areas of high fuel loads and mitigating or reducing high fuel loads?

Response to Question 12

The PG&E Public Safety Specialist/Agency Reps meet with representatives from the CAL FIRE units, local/county government agencies, and Fire Safe Councils weekly and/or monthly at fire chiefs' meetings and other public partner meetings. The PSS/AREP's share and provide information on PG&E's Community Wildfire Safety Program to ensure the company's priorities align with those of our external partners, and work to determine where resources can be coordinated to accomplish a common goal.

Follow-up Questions for SCE and SCE Responses

Question 01

(Wendy Al-Mukdad) Have you looked at the system reliability numbers particularly the CAIDI, SAIFI, and SAIDI? How have they trended over this last year?

Response to Question 01

SCE does monitor system reliability numbers on a regular basis. SCE creates an annual reliability report that shows past 10-year performance regarding SAIDI, SAIFI, MAIFI, and CAIDI. The 2021 Annual Reliability Report can be found on SCE's website. SCE has not yet compiled the reliability data for 2022. 2022 system reliability numbers will become available in the same location as the 2021 Annual Reliability Report in the 3rd quarter of 2023.

Question 02

(Joint Parties) The slide on page 7 compares 2022 data to the 2015-2017 average. Does this trend still hold if you use 2021 or 2020? Can you share the 2020 and 2021 figures? How many life support customers were impacted by fast curve outages in 2022?

Response to Question 02

Yes, the trend still holds when comparing 2020 and 2021 outage data to 2015-2017 historical average. SCE's data shows that installation of fast curve settings has not affected reliability, as there has been no increase in unplanned outages overall on fast curve-enabled circuits in the five years since SCE began deployment of this wildfire mitigation tool, as compared to historical outage data.

Unplanned outages occur for a variety of reasons (*e.g.*, faults due to animal or vegetation contact) and cannot be causally linked to the operation of fast curve settings. As such, SCE cannot provide data on "fast trip outages" or customers impacted by "fast trip outages" because

the term incorrectly assumes unplanned outages on fast curve-enabled circuits are caused by the protective settings rather than unexpected fault conditions. Based on available SCE data, these types of outages would have occurred with or without fast curve settings due to hazards beyond SCE's control. The main difference is quicker reaction time to a fault and enhanced public safety.

The table below shows a comparison of outages on 956 circuits with fast curve capability in 2020, 2021, and 2022 versus outages on those same circuits in 2015-2017.¹ The information presented is for outage events where RAR fast curve and/or circuit breaker fast curve was enabled.

SCE interprets the term "fast curve outages" to refer to unplanned repair outages, as there is no evidence from SCE's data that deployment of fast curve settings led to outages that would not have otherwise occurred. In other words, there is no distinct "fast curve outage" type. SCE refers to "life-support customers" as critical care customers. In 2022, 4,211 unique critical care customers experienced unplanned repair outages on fast curve-enabled circuits.

Question 03

(Joyce Steingass) Will all utilities be elaborating on the plans they have for responding to customer needs for the longest duration fast trip outages, particularly during extreme heat events? Were there things learned from the experience of the extreme heat event of September 2022 that should broadly be implemented in similar situations in future?

Response to Question 03

SCE interprets "fast trip outages" as referring to unplanned repair outages on circuits with fast curve settings enabled. There is no evidence from SCE's data that deployment of fast curve settings led to an increase in unplanned repair outages or caused outages that would not have otherwise occurred or that would otherwise have been shorter. Fast curve settings do not affect outage duration.

When a heat storm (or another extreme weather event) causes a SCE has a large number of outages or multiple extended outages (regardless of the cause), we activate our Electrical Services Incident Management Team (ESIMT) to manage damage assessment/restoration and external engagement efforts for the incident. The customer care branch on the ESIMT would reviews current the outages and, considering such factors as employee and customer safety and the size and scope of the events, consider determines whether to activate Customer Care Vehicles (CCV) and Community Resource Centers (CRC) to help with customer outreach and engagement.

SCE also works with local, state and tribal government officials to identify and disposition public safety concerns. These public safety agencies play an important role in supporting communities during emergencies. For example, local emergency management officials may elect to activate cooling or heating centers during extreme weather events to provide relief to residents

in the impacted communities. During the heat storm in August and September 2022, SCE coordinated with local government officials regarding the deployment of CCVs to support customers. SCE will continue to utilize this approach for similar activations in the future.

Question 04

(Michael Nicholls) What efforts and timelines are being offered to upgrade bare uninsulated conductors in Tier 3 High Fire Threat Areas to tree wire, which would reduce fast trip events?

Response to Question 04

SCE interprets “fast trip events” as referring to unplanned repair outages on circuits with fast curve settings enabled. There is no evidence from SCE’s data that deployment of fast curve settings led to an increased in unplanned repair outages or caused outages that would not have otherwise occurred.

SCE interprets “tree wire” to refer to “covered conductor.”

SCE replaces bare overhead wire with covered conductor within its High Fire Risk Areas – including Tier 3 – pursuant to its Integrated Wildfire Mitigation Strategy (IWMS), which stratifies our HFRA based on potential customer and community impacts into three tranches of risk areas: (1) Severe Risk Areas, which represent locations with the highest risks; (2) High Consequence Areas; and (3) Other HFRA, which represent areas of lower relative risk than the first two tranches.

Based on IWMS and detailed engineering reviews, SCE will continue to deploy covered conductor to expeditiously reduce risk across HFRA, specifically in High Consequence Areas and in Severe Risk Areas.

SCE plans to install more than 2,850 additional circuit miles of covered conductor over the 2023 to 2025 WMP period. By the end of 2025, SCE expects to have replaced more than 7,200 circuit miles, or approximately 75%, of distribution primary overhead conductors in HFRA with covered conductor.

Additional information on SCE’s ongoing efforts to harden its distribution system in its HFRA can be found in SCE’s 2023-2025 Wildfire Mitigation Plan at Section 8.1.2.1.1 (page 251).

Question 05

(Joyce Steingass) How are the public utilities coordinating with CAL FIRE and the local governmental jurisdictions on identifying areas of high fuel loads and mitigating or reducing high fuel loads?

Response to Question 05

SCE coordinates with local fire agencies annually for joint agency patrols under SCE's "Operation Santa Ana" program, where SCE personnel and the fire agencies inspect for PRC 4292 and PRC 4293 compliance. PRC 4292 is specifically targeting fuel reduction around the base of a structure as indicated further below.

Additionally:

1. SCE inspects and clears structures subject to PRC 4292 (compliance scope) as well as additional structures in HFRA (expanded scope) to reduce fuel load within a 10-foot radius of the structure being brushed.
2. SCE conducts a weed abatement program that is typically scheduled around local agency requests and fire seasons to reduce fuel loading on SCE-owned field parcels.
3. Tree trimming waste generated from vegetation management activities is typically removed from the site, except in certain forested areas located away from roads where agency rules allow small size chips to remain. Large volumes of tree removal have a secondary benefit of reducing fuel loading.

Question 06

(Ariel Strauss) Are these SCE outage figures in slide 5 calculated by number of instances or customer-hours of outages?

Response to Question 06

SCE interprets this question to refer to Slide 7. In this slide, SCE outage figures are outages per Fast Curve (FC) enabled circuit in 2022 compared to the average number of outages on those same circuits in 2015-2017. The rest of the figures in the chart are a per outage calculation based upon these populations. The figures for Customer Minutes of Interruption Per Outage are in minutes and not hours.

Follow-up Questions for SDG&E and SDG&E Responses

Question 01

(Joyce Steingass) Will SDG&E be elaborating on the plans they have for responding to customer needs for the longest duration fast trip outages, particularly during extreme heat events? Were there things learned from the experience of the extreme heat event of September 2022 that should broadly be implemented in similar situations in future?

Response to Question 01

SDG&E does not plan to change its process or planning with regard to customer outreach during Sensitive Relay Profile (SRP) outages and has previously stated that SRP has not caused significant impacts to our system reliability. Extended outage durations are mostly attributed to the protocols SDG&E has with regard to patrol time and restoration during Elevated/Extreme Fire Potential Index (FPI) and PSPS scenarios regardless of the outage cause. It is because of this

that we do not expect to change our operational planning around SRP. The September 2022 event did not present information that would cause SDG&E to implement changes in the future.

Question 02

(Joyce Steingass) How are the public utilities coordinating with CAL FIRE and the local governmental jurisdictions on identifying areas of high fuel loads and mitigating or reducing high fuel loads?

Response to Question 02

SDG&E has 3 departments which work within the sphere of addressing high fuel loading and mitigation activities. Those 3 departments have an integrated program to work with CAL FIRE and local governmental jurisdictions when it comes to identifying and mitigating high fuel loads (HFL) within the SDG&E service territory.

- **Vegetation Management:** The Vegetation Management Department has worked collaboratively with Cal Fire to conduct joint field inspections in the State Responsibility Area to determine compliance with clearance requirements of Public Resources Codes (PRC) 4292 (pole clearance) and 4293 (conductor clearance). Additionally, in 2022 SDG&E and Cal Fire held joint training to discuss respective operations and opportunities for further collaboration. This joint training is scheduled to occur again in May 2023.
- In 2022 SDG&E collaborated with the Pala Band of Mission Indians to identify areas on tribal land where fuels management activities would further reduce fuel loading near utility poles subject to PRC 4292. This resulted in the tribe adopting SDG&E's scope of fuels thinning and performing this activity on 30 poles on tribal land.
- **Fire Science & Climate Adaptation:** The Fire Coordination Manager works with Cal Fire and other local government entities to address HFL near electric infrastructure and communities at risk. Fire Coordination uses fuel & fire modeling tools to identify potential HFL. Fire Coordination then coordinates with those jurisdictions to collaboratively plan and execute HFL reduction activities such as fuel break construction, roadside mowing, and defensible space. SDG&E also works with the Fire Safe Council of San Diego County (FSCSDC) to plan and implement HFL projects that are mutually beneficial to SDG&E and local communities. This is accomplished through a hazard fuels grant using a memorandum of understanding between SDG&E and FSCSDC.
- **Reality Service:** The Landscape Project Manager works with Cal Fire and other local governments to meet fire hazard compliance requirements in each jurisdiction. Those compliance activities include active reduction of HFL on SDG&E owned lands in the vicinity of electric infrastructure.