BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.	Rulemaking 18-12-005

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) AMENDED 2021 POST-SEASON REPORT

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Dated: **March 17, 2022**

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AMENDED 2021 POST-SEASON REPORT

Pursuant to the California Public Utilities Commission's (CPUC) Decisions (D.) 21-06-014, Ordering Paragraph 66, and D.21-06-034, Appendix A, Southern California Edison Company (SCE) files its Amended 2021 Post-Season Report (Attachment 1 hereto). After completing additional good faith efforts to validate data and to correct a business logic methodology error, SCE is amending the following metrics in Section II.B.1 of its 2021 Post-Season Report: (i) total customers cancelled, and (ii) missed cancellation notifications for Critical Facilities & Infrastructure and other affected customers during the October 11, 2021, October 15, 2021, October 16, 2021, November 21, 2021, and November 24, 2021 PSPS events.[1] SCE also provides the following link to access and download the Amended 2021 Post-Season Report and Appendices A-D thereto: https://on.sce.com/PSPSPostSeasonReporting

A Word version of the Amended 2021 Post-Season Report and Appendix C will be filed via mixed media with the Commission's Docket Office.

[1] The amended cancellation metrics appear in Tables II-3, II-4, II-5, II-7, II-8, and II-12.

Respectfully submitted,

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March 17, 2022

Attachment 1

SCE_POSTR1_3-17-2022

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) AMENDED 2021 POST-SEASON REPORT

INSTRUCTIONS

1. Requirements in italics apply to PG&E, SCE and SDG&E only.
2. Respond to all applicable questions in the template in a single document.
3. Response to each question should be no longer than two pages and as brief as possible.
4. Follow the section heading and subheading organization used in the template in your response.
5. Submit your response in a Word and a PDF format. Both files should follow the file name convention and syntax below:
   <Utility Abbreviation>_POSTSR1_<Submission Date>
   PGE_ POSTSR1_3-1-2022
   PacifiCorp_ POSTSR1_3-1-2022
6. Responses must be filed to the service list of R.18-12-005 no later than March 1, 2022

I.

SECTION I. BACKGROUND: OVERARCHING REGULATION

1. Each electric investor-owned utility must file a comprehensive [prior year] Post-Season Report, no later than March 1 of each year, in R.18-12-005 or its successor proceeding. The report must follow a template provided by SED no later than 60 days after SED posts a [prior year] Post-Season Report template on the Commission's website. Parties may file comments on these reports within 20 days after they are filed, and reply comments within 10 days after the final date to file comments.

   [Authority: Decision (D.) 21-06-034; Guidelines at p. A15, Section K-3]

2. The [prior year] Post-Season Report must include, but will not be limited to:
   f. Annual report, as applicable, required by Ordering Paragraph 66 of D.21-06-014.

[Authority: D.21-06-034; Guidelines at p. A15, Section K-3.f]

3. To the extent a required item of information is also required to be included in the electric investor-owned utility's Wildfire Mitigation Plan, the [prior year] Post-Season Report may refer to the electric investor-owned utility's Wildfire Mitigation Plan rather than repeat the same information; such reference must specify, at minimum, the page and line number(s) for where the required information is contained within the electric investor-owned utility's Wildfire Mitigation Plan. In cases where this reference is to data, a summary table of the data shall be provided in the report.

[Authority: D.21-06-034; Guidelines at p. A17, Section K-3]

II.

AMENDMENTS TO POST-EVENT REPORTS

A. Regulatory Requirements

1. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company must provide aggregate data, as identified above [D.21-06-014, Ordering Paragraph (OP) 65], in an annual report, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report and must contact the Commission's Safety and Enforcement Division if the utility requires additional guidance to ensure adequate reporting on the requirement to provide information on affected customers in the 10-day post-event reports.

[Authority: D.21-06-014; OPs 65 and 66]

*2. Pacific Gas and Electric Compan**y** (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) must address, among other things, each element of Resolution ESRB-8 reporting requirements, as clarified herein, in the 10-day post-event reports, including the below [OP 65] and, if no information is available, PG&E, SCE, and SDG&E must respond to these Resolution ESRB-8 reporting requirements by indicating the reason this information is not available.*

[Authority: D.21-06-014; OPs 65 and 66]

B. Directions

1. *Provide any information missing [including, but not limited to the specific topics listed below] from any Post-Event Report for Public Safety Power Shutoffs (PSPS) in 2021 by:*

    a. *Identify the date name of the PSPS.*
    b. *Identify the Section of the Post-Event Report template for which the missing information will be added.*
    c. *Provide the missing information under that heading.*

    [Authority: D.21-06-014; OPs 65 and 66]

Response: Subsequent to the filing of SCE's 10-day post-event reports for 2021 PSPS events, SCE conducted a review, aided by Palantir, of certain key PSPS metrics included in its 2021 reports.[1] Through this review as well as other routine data validation efforts, SCE identified the following corrections and updates to post-event report metrics.

[1] As indicated in SCE's post-event report for the November 24, 2021 PSPS event filed on December 10, 2021, SCE has continued to validate certain metrics pertaining to the November 24, 2021 PSPS event, as well as other 2021 PSPS events. SCE has not sought to proactively validate all the data points in these post-event reports. Rather, SCE has undertaken a good faith and reasonably diligent review process which looked at post-event reporting metrics, such as missed customer notifications and de-energized customer counts – data that SCE believes has the largest potential customer impacts. SCE reviewed its data sources and methods for calculating these core metrics and is making specified corrections where it was able to validate the information. These corrections and updates are reflected in this 2021 post-season report, consistent with SCE's understanding of how to update and supplement post-event report data in the post-season reports. In addition, given the significance of errors in its last two November 2021 reports, SCE intends to partially amend these post-event reports.

Table II-1
Total customers de-energized metric updates

PSPS event date	Post-event report section(s)	Description	Updated metric
Jan. 12, 2021	Executive Summary; 13. Each electric investor-owned utility shall enumerate and explain the cause of any false communications in its post event reports by citing the sources of changing data.	Total customers de-energized	110,608
Oct. 15, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers de-energized	104
Nov. 21, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 2. Decision-Making Process 5. Explanation of alternatives to de-energization considered and evaluation of each alternative; Section 10. Mitigation to Reduce Impact	Total customers de-energized	5,197
Nov. 24, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers de-energized	79,697

Notification metric updates

SCE provides in the tables below updates identified for certain notification metrics in its 2021 post-event reports.[2]

[2] SCE is aware of a delayed cancellation notification to the City of Moorpark for the October 15th PSPS event that was not listed as a "notification failure" in the post-event report due to a difference in interpretation of the new cancellation notice requirement from D.21-06-034 Appendix A.H.2, p.A11. SCE has identified providing timely notifications of a decision to cancel or to remove from scope as an area of improvement and will continue to make every effort to notify impacted public safety partners and other entities within two hours of cancellation. *See also* response in Section IV.9.

Table II-2
September 30, 2021 Post-event report

September 30, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	3
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	4
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	6
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	6

Table II-3
October 11, 2021 Post-event report

October 11, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	13
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.[3]	127
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	5
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	9
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	5
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	32

[3] Cancellation notices may not have been sent to customers within the recommended 2-hour window, but due to limitations in available 2021 data, SCE is unable to determine how many cancellation notices were sent more than two hours after the decision to cancel or to remove from scope. The missed cancellation notice numbers provided here show how many of the customers who had been notified, but not de-energized received no cancellation notice at all. SCE is addressing the identified data limitations through the development of the Central Data Platform (CDP) via Palantir-Foundry. This CDP will be in use starting in 2022 and will capture and log notification type, timing, and customer type. This new automation capability will improve adherence to the CPUC's 2-hour reporting guideline for cancellation notifications. Additionally, to support post-event and post-season reporting, automation with standardized logic has been developed for each data element within the reporting templates and will flow directly from the decisions made and actions taken during PSPS events.

Table II-4 *October 15, 2021 Post-event report*			
October 15, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	31
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	35
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	4
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	12
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	27
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	27
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	11

Table II-5
October 16, 2021 Post-event report

October 16, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	16
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	319

Table II-6
October 22,2021 Post-event report

October 22, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	3
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	12

Table II-7 *November 21, 2021 Post-event report*			
November 21, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	82
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	137
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	486
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	921
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	4,219
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	2,685
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	10,086

Table II-8 *November 24, 2021 Post-event report*[4]			
November 24, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	1,505
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	1,798
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	797
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	28,257
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	61,776
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	55,608
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	44,174

Damages and hazards updates

[4] SCE experienced a significant number of delayed or missed notifications during its largest PSPS event in November 2021. Additional details on this are included in Section IV.8 of this report.

SCE provides in the tables below updates in redline identified for certain damages and hazards reported in its 2021 post-event reports.

Table II-9
11.21.2021 Post-event report

Damage and Hazards				
Circuit Name	**County**	**Structure Identifier**	**Tier 2/3 or Non-HFTD**	**Type and Description of Damage or Hazard**
Cuthbert	Los Angeles	798284E, 798290E, 7982~~8~~93E	Tier 3	~~Damaged/broken potheads and sagging lines~~ Installed cover to protect against heavy palm tree debris, replaced crossarm and deteriorated primary bails resag wire.
Sutt	San Bernardino	4552445E	Tier3 Tier 2	~~Damaged/displaced crossarm~~ Damaged Support Structure: Replaced missing hardware and straightened crossarm

Table II-10
11.24.2021Post-event report

Damage and Hazards				
Circuit Name	**County**	**Structure Identifier**	**Tier 2/3 or Non-HFTD**	**Type and Description of Damage or Hazard**
~~Sutt~~	~~San Bernardino~~	~~4552445E~~	~~Tier 2~~	~~Broken crossarm~~
Langer	Ventura	127~~566~~543E	Tier 2	Tree came down on service line
Timber Canyon	Ventura	1358862E	Tier ~~2~~3	Damaged 480 Bank
Balcom	Ventura	874217E	Tier ~~2~~3	Damaged secondary
De Mille	Los Angles	1997221E	Tier ~~2~~3	Damaged secondary
Buckhorn	Ventura	4434827E	Tier ~~2~~3	Broken tap
Stores	San Bernardino	4358534E	Tier 2	Broken tap

Total customers PSPS notified and total customers cancelled updates

SCE provides in the tables below updates identified to total customers PSPS notified and total customers cancelled metrics in its 2021 post-event reports.

Table II-11
Total Customers PSPS Notified

PSPS event date	Post-event report section(s)	Description	Updated metric
Apr. 12, 2021	Executive Summary; Regulatory Requirements 10. Evaluation of alternatives to de-energization that were considered, and mitigation measures used to decrease the risk of utility-caused wildfire in the de-energized area and an explanation of how the utility determined that the benefit of de-energization outweighed the potential public safety risks:; 16. A description of how sectionalizing, i.e., separating loads within a circuit, was considered and implemented and the extent to which it impacted the size and scope of the de-energization event.	Total customers PSPS notified	454
Jun. 14, 2021	Notification, Communication, and Information Sharing Q8	Total customers PSPS notified	3,954
Oct. 11, 2021	Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	12,033
Oct. 15, 2021	Section 1. Executive Summary; Table 1: PSPS Event Summary	Total customers PSPS notified	3,478

Table II-11 (continued)
Total Customers PSPS Notified

PSPS event date	Post-event report section(s)	Description	Updated metric
Oct. 16, 2021	Table 1: PSPS Event Summary	Total customers PSPS notified	335
Oct. 22, 2021	Table 1: PSPS Event Summary; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	601
Nov. 21, 2021	Table 1: PSPS Event Summary	Total customers PSPS notified	25,137
Nov. 24, 2021	Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	203,124

Table II-12
Total Customers Cancelled[5]

PSPS event date name	Post-event report section(s)	Description	Updated metric
Oct. 11, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	13,426
Oct. 15, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	3,727
Oct. 16, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	335
Oct. 22, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	632
Nov. 21, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	23,003
Nov. 24, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	152,261

[5] "Cancelled" refers to customers who were sent a "PSPS All Clear-Event Avoided" notice.

2. *Community Resource Centers:*

   Provide aggregate data, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

   a. *Address and describe each Community Resource Center during a de-energization event.*

Response: In 2021, SCE activated 22 Community Resource Center (CRCs) sites for a total of 50 days and deployed Community Crew Vehicles (CCVs) to 31 sites for a total of 66 days in multiple counties. Each CRC and CCV was operated by staff who could provide customers event-specific information and information about SCE's resiliency programs, update customer contact information, and enroll customers in outage alert notifications. Each CRC and CCV also had available bottled water and light snacks, ice and ice vouchers, access to a restroom, a power source to charge personal mobile or medical devices, and customer resiliency kits that customers may take on the go. These kits have preparedness information, a solar phone battery, and a flashlight or a battery-backed LED lightbulb. In January, SCE also provided blankets and firewood at the Tehachapi CRC. During the COVID-19 pandemic, SCE enforced social distancing and complied with SCE's or the respective community's COVID-19 public health protocols, whichever was stricter. Each activated location was reviewed with local community site management and county OEM input and agreement. Table II-12 provides aggregate data on CRCs activated and CCVs deployed to communities impacted by a PSPS event in 2021.

Table II-13
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CCV	Los Angeles	1/14/2021	2	1/14: 12 - 10 PM 1/15: 8 AM - 10 PM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	1/14/2021	4	1/14: 12 - 10 PM 1/15-1/17: 8 AM - 10 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Ventura	1/14/2021	4	1/14: 6 PM - 10 PM 1/15-1/17: 8 AM - 10 PM	Boys & Girls Club of Moorpark	200 Casey Rd., Moorpark, CA 93021
CCV	Los Angeles	1/15/2021	1	8 AM - 10 PM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CCV	Orange	1/15/2021	3	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CCV	Riverside	1/15/2021	1	1 PM - 10 PM	Idyllwild Community Center	25925 Cedar St., Idyllwild, CA 92549
CCV	San Bernardino	1/15/2021	3	8 AM - 10 PM	Cal State University San Bernardino	5500 University Pkwy., San Bernardino, CA 92407
CRC	Kern	1/18/2021	2	8 AM - 10 PM	Bear Valley Police Dept.	25101 Bear Valley Rd., Tehachapi, CA 93561
CCV	Los Angeles	1/18/2021	3	8 AM - 10 PM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CRC	Los Angeles	1/18/2021	4	1/18-1/20: 8 AM - 10 PM 1/21: 8 AM - 11 AM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	1/18/2021	3	8 AM - 10 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Orange	1/18/2021	2	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CRC	Riverside	1/18/2021	2	8 AM - 10 PM	Idyllwild Community Center	25925 Cedar St., Idyllwild, CA 92549
CCV	Riverside	1/18/2021	2	8 AM - 10 PM	Calimesa City Hall	908 Park Ave., Calimesa, CA 92320
CCV	San Bernardino	1/18/2021	2	8 AM - 10 PM	Cal State University San Bernardino	5500 University Pkwy., San Bernardino, CA 92407
CCV	Ventura	1/18/2021	3	8 AM - 10 PM	Fillmore Active Adult and Community Center	533 Santa Clara Ave., Fillmore, CA 93015
CRC	Ventura	1/18/2021	3	8 AM - 10 PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CCV	Los Angeles	1/19/2021	2	8 AM - 10 PM	Mayor's Discovery Park	1800 Foothill Blvd., La Canada, CA 91011
CCV	Santa Barbara	1/19/2021	2	8 AM - 10 PM	Carpinteria Middle School	5351 Carpinteria Ave., Carpinteria, CA 93013
CCV	Los Angeles	1/20/2021	1	8 AM - 10 PM	The Centre Pointe	20970 Centre Pointe Pkwy, Santa Clarita, CA 91350
CCV	Inyo/Mono	4/13//2021	1	8 AM - 10 PM	Millpond Recreation Area	Hwy 395 & Sawmill Road, Bishop, CA 93514
CRC	Santa Barbara	6/14/2021	2	6/14: Noon - 10 PM 6/15: 8 AM - 10 PM	Residence Inn	6350 Hollister Ave, Goleta, CA 93117
CRC	Santa Barbara	6/14/2021	2	6/14: Noon - 10 PM 6/15: 8 AM - 10 PM	Independent Living Resource Center	423 W Victoria St., Santa Barbara, CA 93101

Table II-13 (continued)
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CRC	Ventura	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 12PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CRC	Ventura	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Fillmore Active Adult Community Center	533 Santa Clara Ave., Fillmore, CA 93015
CRC	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CRC	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Residence Inn	25320 The Old Rd., Stevenson Ranch, CA 91381
CCV	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Calabasas City Hall	100 Civic Center Way, Calabasas, CA 91302
CCV	Kern/Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Frazier Mountain Park	3801 Park Dr, Frazier Park, CA 93225
CCV	Ventura	10/15/2021	1	8AM - 5PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CCV	Los Angeles	11/21/2021	1	8 AM - 10 PM	Michael Landon Community Center	24250 Pacific Coast Hwy., Malibu, CA 90265
CCV	Los Angeles	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Orange	11/21/2021	1	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CCV	Riverside	11/21/2021	1	8 AM - 10 PM	Riverside County Fire Station	30515 10th St., Nuevo, CA 92567
CRC	Riverside	11/21/2021	1	8 AM - 10 PM	Holiday Inn Express & Suites	1864 Oak Valley Village, Beaumont, CA 92223
CCV	Riverside	11/21/2021	1	8 AM - 10 PM	Centennial Park	7330 Jurupa Rd., Jurupa Valley, CA 92509
CRC	San Bernardino	11/21/2021	1	8 AM - 10 PM	Jessie Turner Community Center	15556 Summit Ave., Fontana, CA 92336
CRC	Ventura	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Santa Paula Community Center	530 W. Main St., Santa Paula, CA 93060
CRC	Ventura	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Ventura Beach Marriott	2055 Harbor Blvd., Ventura, CA 93001
CRC	Kern	11/24/2021	2	11AM - 10PM 8AM - 12PM	Bear Valley Police Dept.	25191 Bear Valley Rd, Tehachapi, CA 93561
CRC	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Acton Community Center	3748 Nickels St, Acton, CA 93510

Table II-13 (continued)
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CCV	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8AM - 4:30PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CRC	Los Angeles	11/24/2021	1	11AM - 10PM	Residence Inn	25320 The Old Road, Stevenson Ranch, CA 91381
CRC	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	San Fernando Community Center	208 Park Ave, San Fernando, CA 91340
CCV	Orange	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 2PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CRC	Riverside	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	San Jacinto Community Ctr.	625 Pico Ave, San Jacinto, CA 92583
CRC	Riverside	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	James A Venable Community Center	50390 Carmen Ave, Cabazon, CA 92230
CCV	San Bernardino	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Cal State University San Bernardino	5500 University Park, San Bernadino, CA 92407
CRC	San Bernardino	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Jessie Turner Community Center	15556 Summit Ave., Fontana, CA 92336
CCV	Ventura	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Moorpark City Hall	799 Moorpark Ave, Moorpark City, CA 93021
CRC	Ventura	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Fillmore Active Adult & Community Center	533 Santa Clara St., Fillmore, CA 93015
CCV	Los Angeles	11/25/2021	2	5PM - 10PM 8AM - 4:30PM	Bluffs Park	24250 Pacific Coast Hwy., Malibu, CA 90265

[Authority: D.21-06-014, OPs 65 and 66]

3. *Notification:*

Provide aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

Response: SCE provided updates to its notification metrics in Section II.B.1 above.

a. Identify who the utility contacted in the community prior to de-energization and whether the affected areas are classified as High Fire Threat District Tier 1, Tier 2, or Tier 3 (as defined in General Order 95, Rule 21.2-D22);

Response: SCE does not have any updates to the information included in its 2021 post-event reports on who the utility contacted in the community prior to de-energization.

b. Explain why notice could not be provided at least two hours prior to a de-energization, if such notice was not provided;

[Authority: D.21-06-014, OPs 65 and 66]

Response: Rapidly changing weather conditions cannot always be forecasted based on information available through weather modeling. As such, it is not always feasible to identify all circuits that may potentially be in scope for de-energization two hours in advance. This information can include wind trends and speeds as identified by weather stations in the area of concern and/or live field observations. As a result, in situations when weather conditions change rapidly, it may be necessary to de-energize customers without any required prior notifications. SCE provided explanations in its post-event reports for any notifications that could not be provided at the required intervals or at all prior to de-energization. As noted above, SCE identified through its data validation and review process the need for updates to certain notification metrics in its 2021 post-event reports and the need for additional improvements to its notifications process. SCE has initiated the PSPS IMT Process Automation & Customer Notifications project, which is focused on IT improvements in customer notifications, such as the automation of reports and customer notifications.

4. Restoration:

Provide aggregate data, as identified in OP 65, in an annual report, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

a. Provide a detailed description of the steps the utility used to restore power.

[Authority: D.21-06-014, OPs 65 and 66]

Response:

Table II-14
Aggregate Restoration Times for 2021 PSPS Events [6]

PSPS event date name	Date / Time of First Circuit Restoration	Date / Time of Last Circuit Restoration
01.12.2021	01/15/2021 16:56	01/21/2021 18:30
04.12.2021	04/14/2021 00:39	04/14/2021 00:39
09.30.2021	09/30/2021 15:51	09/30/2021 15:51
10.11.2021	10/12/2021 11:18	10/12/2021 14:30
10.15.2021	10/15/2021 17:10	10/16/2021 08:57
10.22.2021	10/22/2021 16:28	10/22/2021 16:28
11.21.2021	11/21/2021 14:51	11/22/2021 13:45
11.24.2021	11/25/2021 12:02	11/26/2021 19:48

After a circuit has been de-energized pursuant to SCE's PSPS protocol, PSPS IMT personnel continue monitoring the Period of Concern (POC) and begin developing restoration plan(s) to return the circuit(s) or circuit segments to service as soon as the POC expires, Fire Weather Conditions have subsided, and it is safe to do so. If multiple circuits have been de-energized, the restoration plans include prioritization for circuits that have been de-energized (prioritization can include first off, first on, need for water resources, essential customers, critical care customers, etc.). PSPS IMT personnel monitor all circuits that are de-energized and will watch for winds to decrease below thresholds, which triggers circuit patrols for re-energization. Upon receiving the All-Clear declaration and approval from the PSPS IMT Incident Commander to begin restoration of a circuit, restoration notifications are sent to impacted customers, and circuits or circuit segments under PSPS protocols are patrolled and re-energized. The patrols are intended to ensure there is no damage to SCE facilities before power can be safely restored. In most cases, field crews are standing by for patrol, so that patrols can typically take placewithin eight hours. However, visual inspections of the power lines usually take place during daylight hours for safety and accuracy. Consequently, patrol and restoration operations may be limited or prolonged during overnight hours. SCE strives to restore all power within 24 hours of de-

[6] *See* Appendix B for a detailed list of updates to 2021 de-energization, all clear and restoration times.

energization when possible. For multiday events, with gaps of even a few hours, field crews will attempt to restore customers before a second POC begins, even if this requires a repeat de-energization. Some circuits will require a helicopter patrol. When possible, customers on difficult-to-patrol circuits are switched to more accessible circuits for restoration, so that circuits with no customers on them will be the last in line for restoration.

PSPS IMT personnel perform ongoing assessments of restoration plans to monitor progress and address any delays to re-energization that may occur.

III.

DECISION-SPECIFIED

A. Education and Outreach

1. Include the results of the most recent education and outreach surveys not yet previously reported on, as an attachment to the Post-Season Report. See D.21-06-034, Sections E-1.1. – E.1.4. for specific requirements on the surveys.

[Authority: D.21-06-034, Guidelines at p. A7, Section E-1]

Response: In response, as we did for the 2020 customer research, SCE is filing our 2021 Pre- and Post- wildfire season survey results which also include an assessment of our performance "before, during, and after" a wildfire from the Residential and Business customers' perspective.

As in 2020, SCE and the other IOUs administered a common (virtually identical) core questionnaire in two phases: a pre-wildfire season survey in July / early August 2021 (1-2 months earlier than in the prior year), and a post-wildfire season survey (including the pre-questions again as well as more detailed PSPS experience-related questions) in late November / December 2021 – with the objective to measure the communications and outreach effectiveness prior to and coincident with when wildfire activity is most expected to be greatest. Each IOU added custom questions if desired, developed its own sampling plan / approach, and utilized its

own preferred research vendor to implement the surveys – and determined which "prevalent" languages to offer the surveys in.

The 2021 survey results are included in Appendix A.

B. Medical Baseline and Access and Functional Needs

1. Description of Programs Provided to AFN Customers During PSPS Events

1. Describe in detail all programs and/or types of assistance, including:
   a. Free and/or subsidized backup batteries
   b. Self-Generation Incentive Program Equity Resiliency Budget
   c. Community Microgrid Incentive Program [sic] ["Microgrid Incentive Program" per D.21-01-018]
   d. Hotel vouchers
   e. Transportation to CRCs
   f. Any other applicable programs or pilots to support resiliency for persons with access and functional needs and vulnerable populations.

2. Identify and describe the costs and associated funding source(s) for all partnerships, each unique program and form of assistance (e.g., backup batteries as distinct from hotel vouchers), and any other efforts aimed at mitigating the impacts of public safety partners events on persons with access and functional needs and vulnerable populations.

3. Funding source(s) shall specify applicable utility balancing accounts or other accounting mechanisms, and non-utility funding sources, if applicable.

4. Identify any communities or areas not served by utility partnerships with CBOs that provide assistance to persons with access and functional needs or vulnerable populations in preparation for or during a public safety partners event;

[Authority: D.21-06-034, Guidelines at p. A16, Sections K-3.d]

Response: In the below table, SCE is providing data on each type of assistance provided in 2021 to support resiliency for customers with AFN.[7]

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[7] SCE does not have data to report for Microgrids at this time. The Joint IOUs have filed a Microgrid incentive program implementation plan. *See* R.19-09-009, *available at* https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M428/K469/428469637.PDF. The CPUC has yet to make a decision on the Microgrid OIR.

Table III-15

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
Critical Care Backup Battery Program (CCBB)	The CCBB Program provides a free portable back-up battery to eligible customers enrolled in the Medical Baseline (MBL) Program, enrolled in either the California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) programs and reside in a HFRA. The program supports customers with AFN who are electricity dependent and rely on electrically operated medical devices.	$19,724,057 Program expenditures in 2021 represent the costs associated with program administration, procurement and deployment of free portable backup batteries, and creation and implementation of marketing and outreach to increase awareness of the Critical Care Battery Backup program. A total of 6,021 free portable backup batteries were deployed in 2021.	SCE did not request funding for this activity in its 2021 General Rate Case (GRC). Therefore, any incremental amounts associated with this activity are tracked in its Wildfire Mitigation Plan Memorandum Account (WMPMA) for potential future cost recovery.
Portable Power Station Rebates	Residential customers who live in an area designated as a Tier 2 or Tier 3 high fire risk area can receive up to five (5) $75 rebates for purchasing qualified Electric Portable Power Stations (e.g., portable batteries) per residential address. While the CCBB Program is the main backup battery program for customers with AFN,	Total Cost: $177,331 Total number of Portable Power Station Rebates (1,761)[8] Program expenditures in 2021 represent the costs associated with site host operations, program administration, incentive expenditure, and implementation of marketing and outreach to increase	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its WMPMA for potential future cost recovery.

[8] Represents total number of rebates. Customers may be eligible to collect more than one rebate per service account.

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	this offering is also available to all customers enrolled in CARE, FERA and MBL who live in HFRAs, including customers who use accessible technology or participate in the CCBB Program, etc.	awareness of SCE Marketplace.	
Portable Generator Rebates	SCE's online marketplace offers rebates for portable generators and is available to customers who live in an area designated as Tier 2 or Tier 3 high fire risk areas. Residential customers enrolled in MBL or income qualified programs, such as CARE and FERA, could receive a $500 rebate. Other residential customers located in an area designated as Tier 2 or Tier 3 high fire risk zones, are eligible to receive a $200 rebate.	Total Costs: $322,098 Total number of Portable Generator Rebates (666) Program expenditures in 2021 represent the costs associated with site host operations, program administration, incentive expenditure, and implementation of marketing and outreach to increase awareness of SCE Marketplace.	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its WMPMA for potential future cost recovery.
Self-Generation Incentive Program (SGIP) Resiliency Equity Budget	The SGIP is a Statewide program that provides eligible customers with financial incentives for the installation of new qualifying technologies installed to meet all, or a portion of, the electric energy needs of a facility. To help	Total Costs in 2021: $60.06 million 2021 Incentive costs: $55.28 million. 2021 Administrative costs: $4.78 million 2021 Resiliency Incentives paid: $24.54 million which is	Self-Generation Program Incremental Cost Memorandum Account (SGPICMA)

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	address the need for resiliency and better prepare our customers for outages and PSPS, SGIP offers incentives for the installation of self-generating energy storage systems designed to offset the customer's energy use and work as back-up battery to provide power when an outage occurs. The incentives for "Resiliency" qualified projects covers close to 100% of residential and roughly 85% of non-residential battery cost. The eligibility requirements to qualify for these incentives differ between residential and non-residential customers.	included in the $55.28 million noted above. Total number of Self-Generation Incentive Program resiliency projects completed in 2021 and incentive payments have been made (870) There is an overall budget for the program which is collected and paid from Public Purpose funds. The assigned budget is used to pay Incentive and Administrative costs. The incentive portion is spread across several subcategories or buckets, one being the Resiliency budget. We do not track Administrative costs at the subcategory level, only at the program level.	
211 Partnership (Transportation, hot meal delivery or shelf stable food, and/or shelter)	SCE offers transportation, shelter, hot meal deliveries, and shelf stable food to customers with AFN through its partnership with 211.	Total Cost: $1,554,332 In 2021, 211 provided one meal delivery for a disabled veteran and secured shelter for a customer enrolled in the MBL Program. 211 did not receive any requests for transportation in 2021. SCE, in collaboration with 211, now offers year-round care coordination and	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its Fire Risk Mitigation Memorandum Account for potential future cost recovery.

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
		specialized referrals for customers with AFN. This involves direct referrals to CBOs, yearly check-ins and resiliency planning by 211 staff (e.g., Care Coordinators, Resource Specialists, etc.) trained to provide services to individuals with AFN. Care Coordination gives customers access to 10,000 CBOs across SCE's service area. When customers contact 211 during a PSPS, 211 will screen SCE customers to determine any AFN that may arise. 211 provides customers with AFN 24/7 live support which includes reporting accurate and up-to-date information about the active PSPS and connects customers to transportation, shelf-stable food, meal delivery, or shelter as needed.	
Hotel Discounts	SCE provides additional assistance to customers by encouraging local hotels to provide discounts to customers experiencing a PSPS activation. Customers can	Total Cost: $0	N/A

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	review a list of participating hotels listed on SCE's website and can interact directly with the hotel to book rooms at a discounted rate.		

In accordance with CPUC D.21-06-034 Phase 3 OIR Decision Guidelines, SCE, along with SDG&E, and PG&E, leveraged the Federal Emergency Management Administration's (FEMA) Developing and Maintaining Emergency Operations Plans Comprehensive Preparedness Guide (CPG) 101 6 Step Planning Process to develop each IOU's respective Access and Functional Needs (AFN) Plan for Public Safety Power Shutoff Support (2022 AFN PSPS Plan).[9] Following the FEMA 6 Step Planning Process, SCE collaborated with external stakeholders from the Statewide Joint IOU AFN Advisory Council and identified a gap in providing accessible communications for individuals who are Deaf, Blind, Deaf-Blind, and Hard-of-Hearing. SCE is addressing this gap in 2022 and will work with a third-party vendor to prepare and send PSPS notifications and educational outreach materials in American Sign Language and with English voice and Text (in refresh Braille reader format). In addition, SCE will be increasing its number of CBO partners that represent AFN communities to be part of SCE's CBO Marketing & Outreach Effort. The objective of this CBO effort is to educate and create awareness with constituents around Wildfire and Safety Preparedness, before, during, and after a wildfire.

C. Mitigation

1. For each proactive de-energization event that occurred during the prior calendar year:

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[9] *See* SCE's 2022 Access and Functional Needs Plan for Public Safety Power Shutoff Support Pursuant to Commission Decision in Phase Two and Phase Three of R.18-12-005 filed on January 31, 2022, *available at* https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M449/K511/449511922.PDF

a. i. Circuit-by-circuit analysis of mitigation provided from backup power and microgrid pilots.

[Authority: D.21-06-034, Guidelines at p. A15, Section K-3.a.i.]

Response: In preparation for the 2021 PSPS season, SCE planned backup generation activities across a variety of use cases. Principal among these were underground load blocks, in which SCE engineered and modified circuity to interconnect mobile generators to serve areas of very low fire risk, should the upstream feed be interrupted. SCE prepared five circuits with this capability.

SCE also prepared eight resiliency zone customers and two CRCs with backup generation capability in order to supply goods and services to communities during a de-energization. Finally, SCE may deploy temporary mobile generators for critical facilities to assist maintaining electric service for essential life safety and public services emergencies. These case-by-case decisions are made by the IMT in coordination with county emergency management offices, based on the unique circumstances associated with each event.

SCE retained over forty mobile generator units for the duration of the season to help ensure availability when needed. The table below contains details for SCE's 2021 deployment of backup generation. No microgrids were completed in 2021, although SCE did start to deploy a behind-the-meter microgrid for a community resiliency pilot in Fontana, which is anticipated to be completed in Q1 2022.

Table III-16

Event Date	Circuit	Mitigation	Approximate Customer Count
10.11.2021	Trumpet	Critical Care Customer Backup Generator	1
11.21.2021	Impala	Underground Load Block Backup Generator	428

11.24.2021	Impala	Underground Load Block Backup Generator	428
11.24.2021	Energy	Underground Load Block Backup Generator	121[10]
11.24.2021	Galena	Critical Care Customer Backup Generator	1
11.24.2021	Pick	Customer Resource Center Backup Generator	1 meter – 79 visitors served
11.24.2021	Fingal	Customer Resource Center Backup Generator	1 meter – 233 visitors served
11.24.2021	Poppy Flats	Resiliency Zone Backup Generator	1 meter – unknown visitors served

D. Public Safety Partners

1. Identification of all requests for selective re-energization made by public safety partners during a de-energization event, whether each such request was granted or denied, and the reason for granting or denying each such request.

[Authority: D.21-06-034, Guidelines at p. A16, Section K-3.c.]

Response: SCE did not receive requests for selective re-energization made by public safety partners during de-energizations events in 2021.

E. Transmission

1. Description of the impact of de-energization on transmission.

Response: SCE's interconnected bulk transmission system is designed and operated to maintain reliability under various conditions. At a minimum, SCE's grid is operated to withstand all single- and selected double-contingencies while adhering to emergency equipment thermal and voltage limits. On any given day, SCE bulk transmission equipment may be in a

[10] This is an updated metric that was not provided in the November 24, 2021 post-event report.

planned outage state, and SCE ensures that its grid can still withstand next contingency (single and select double), while adhering to thermal and voltage limits, under these conditions. Whenever a forced equipment outage occurs and that piece of equipment cannot be returned to service, SCE will coordinate necessary mitigating actions with its Balancing Authority (California Independent System Operator—CAISO) in order to readjust the grid to withstand the next potential worst contingency. If mitigating actions are not performed in a timely manner, reliability may be reduced—and potentially making the grid more susceptible to greater impacts upon next contingency conditions.

2. Evaluation of how to mitigate and prepare for those impacts in future potential de-energization events.

Response: SCE begins to evaluate bulk transmission lines and weather scenarios 4-7 days prior to potential de-energization of those lines. This process starts by determining the forecasted windspeeds on those transmission lines and comparing them with their associated PSPS thresholds. Next, we consider the forecasted Fire Potential Index (FPI), as well as circuit health conditions to determine the likelihood of these transmission lines being de-energized for the PSPS event. We then develop various scenarios of these potential de-energized transmission line(s) to define likely de-energization "scenarios." For example, those transmission lines with the highest forecasted windspeeds and highest forecasted FPI would be grouped into one scenario, while others that traverse a corridor in the same county may be grouped into another scenario. After defining these scenarios, we determine what transmission equipment outages are planned during the PSPS event. We then perform contingency analysis based on forecasted load during the PSPS event with the planned transmission equipment outages, along with the various transmission line de-energization scenarios, to determine potential impacts. If potential impacts are found that can be mitigated by rescheduling planned transmission equipment outage(s), then those will be evaluated for reschedule potential. Once rescheduling of planned transmission outages are determined, we then perform contingency analysis again to evaluate any potential unmitigated impacts. The PSPS Operations group then communicates any potential thermal and

voltage violations and discusses mitigating action plans with the Grid Control Center (GCC) real-time personnel, as well as with the CAISO. Mitigating actions will then be discussed amongst PSPS Operations, GCC, and CAISO—and implemented prior to the start of the PSPS event, when required.

3. Identify and describe all studies that are part of such analysis and evaluation.

Response: PSPS load flow studies are performed with either or both an off-line and/or real-time study. Typically, PSPS Operations utilizes SCE's State Estimator Real-Time Contingency Analysis (RTCA) tool to perform studies pre- and during-event. The State Estimator RTCA tool can take a "snapshot" of the grid, and then modified off-line to model planned outages, load and generation adjustments, as well as intertie flow adjustments. Additionally, this tool is used to extract data (using a data historian) to trend all necessary real-time data points including load, Megawatts (MW) and Mega Volt Amp Reactance (MVAr) flows, voltages, circuit breaker status, etc., to accurately simulate scenarios for the PSPS event. Once all necessary modeling and adjustments have been made, the RTCA function is enabled to perform all contingencies. Once all contingencies have been simulated, all thermal and voltage violations are evaluated. PSPS Operations then summarizes those violations that are not automatically mitigated for (such as from Remedial Action Schemes, etc.), and shares the results with GCC and CAISO, when applicable.

4. Identify all efforts to work with publicly owned utilities and cooperatives to evaluate the impacts of de-energization on transmission.

   [Authority: D.21-06-034, Guidelines at pp. A15-A16, Section K-3.b.]

Response: PSPS Operations will communicate (as far in advance as possible) any potential impacts with neighboring entities identified in the pre-PSPS event timeframe. In the days leading to the PSPS event, PSPS Operations will communicate to SCE's Outage Coordination group (within the GCC) any transmission outages it deems "high likelihood" of de-energizing based on forecasted windspeeds at/near wind speed thresholds of those transmission lines. The Outage Coordination group will in turn submit these potential transmission line

outage(s) as PSPS transmission outages to the CAISO and any impacted publicly owned utilities and cooperatives in advance of the PSPS event for their awareness and to plan for mitigating actions, where required. The GCC will also schedule a call with the CAISO and PSPS Operations to ensure all outage submittals have been received and mitigations will be in place prior to the start of the event. SCE is currently in the process of enhancing communications to any potentially impacted utilities as well as critical facilities interconnected at the transmission level.

IV.

SAFETY AND ENFORCEMENT DIVISION-SPECIFIED QUESTIONS

Brief response no longer than two pages.

1. Discuss how your meteorology and fire science predictive models performed over the year. What changes will you make to improve performance?

Response:

Weather Modeling:

During the past year, SCE made major upgrades to its in-house weather modeling capabilities. Two additional High Performance Computing Clusters (HPCCs) were purchased in 2021 to help implement the Next Generation Weather Modeling System (NGWMS) which consisted of three specific enhancements: 1) More robust ensemble forecasting to include more members and the use of the European weather model, 2) Higher model output resolution from 2 km to 1 km, and 3) the use of machine learning to provide better estimates of wind speeds at select site specific locations. Since the NGWMS was implemented less than 6 months ago, there has not been the opportunity to perform an extensive evaluation on how these enhancements have improved SCE's overall forecasting ability. However, what is certain is that having more models provides additional guidance to provide better weather forecasts with a higher degree of confidence.

SCE has four primary meteorology predictive models run in house: 1) a 2-KM deterministic Weather Research and Forecasting (WRF) model driven by the National Centers for Environmental Prediction (NCEP) Global Forecast System (GFS), 2) a 2-KM WRF ensemble of models driven by the NCEP North American Mesoscale Model (2-KM NAM Ensemble), 3) a 1-KM WRF ensemble of models driven by the NCEP GFS and European Global Models (1-KM EC/GFS Ensemble), and 4) a machine learning forecast system. Because weather forecasts are inherently uncertain, SCE runs these multiple weather modeling systems to account for varying scenarios.

Table IV-14 provides an annual summary of the forecast evaluation for each of the meteorology predictive models listed above. While these new sources of forecast guidance were not available all year, they have generally shown better ability to discriminate which circuits will reach monitoring criteria from those that will not with a higher hit rate and lower false positive rate.

Table IV-17

Forecast (Day Of)	Sustained Bias (MPH)	Gust Bias (MPH)	Sustained MAE (MPH)	Gust MAE (MPH)
2-KM Deterministic	4.5	5.8	9.4	11.9
2-KM NAM Ensemble	5.7	7.9	9.1	11.6
1-KM EC/GFS Ensemble*	1.7	1.7	7.2	7.4
Machine Learning*	-3.6	-5.8	6.4	8.3

Table IV-14 - Annual forecast verification statistics for day-of forecasts by raw meteorology predictive models ordered by source. *The 1-KM EC/GFS Ensemble and Machine Learning came online late in 2021 and thus do not sample all PSPS. Bias is calculated as forecasts minus observations, whereas MAE represents the mean absolute error of the forecast.

Fire Spread Modeling:

Technosylva is the preferred vendor for SCE's fire spread modeling capabilities with associated software applications consisting of the Wildfire Risk Reduction Model (WRRM) and

FireCast/FireSim. Multiple enhancements were made to improve the output of these applications to include updating the "static" fuels layer and providing more advanced metrics.

In 2020-2021, the fuels layer underwent a major update which included the use of remote sensing technology to depict vegetation types and amounts more accurately across the landscape. Since this layer directly influences calculations of fire spread and intensity, the updated layer provided more realistic estimations of simulated fire perimeters. For example, Figure IV-1 shows two fire simulations for the Alisal Fire using a before and after updated fuels layer. This layer has continued to be periodically refreshed throughout 2021 to account for new burn scars and other land disturbances which have altered the vegetation.

Figure IV-1

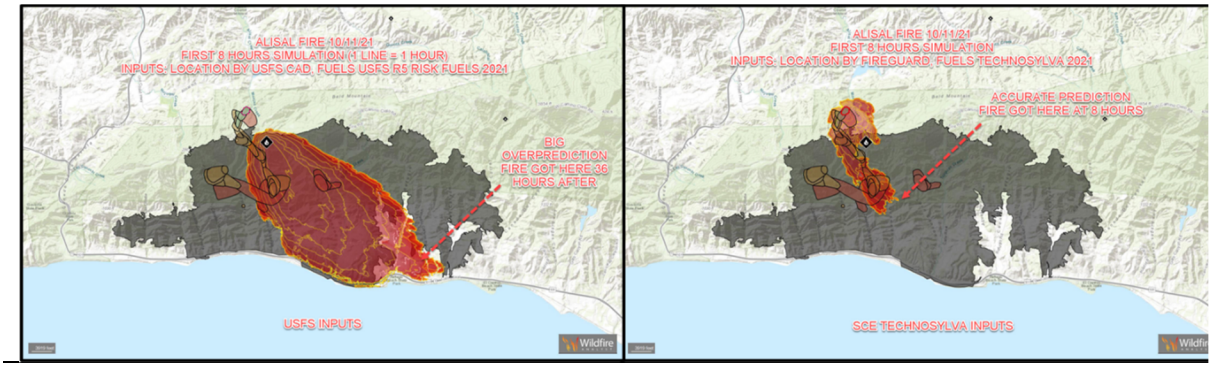

Figure IV-1 - Fire simulations for the Alisal Fire using the fuels layer before and after being updated. The 8-hour simulation on the left uses the old fuels layer and grossly overestimates the fire perimeter, while the 8-hour simulation on the right uses the updated fuels layer and depicts a more accurate perimeter size. Grey area on both images depicts the final perimeter of the fire.

In addition to having a more accurate assessment of surface and canopy fuels, several new metrics were introduced to both FireCast and WRRM to include the Fire Behavior Index, Rate of Spread, and Flame Length (Figure IV-2). These new metrics are useful for understanding the characteristics of fires related to propagation and intensity. As such, they help identify areas where the most intense fire activity could occur based on either past or future weather conditions.

Figure IV-2

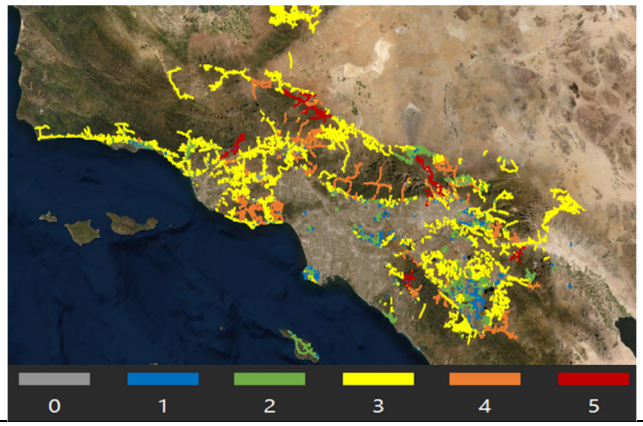

Figure IV-2 - Image showing the Fire Behavior Index levels by circuit.

2. <u>What were the challenges in quantifying risks and benefits in terms of determining the scope (size and duration) of the PSPS you conducted?</u>

Response: The scope and duration of PSPS is primarily determined based on the weather, fuel and asset considerations reflected in our activation and de-energization thresholds. The risks and benefits are inherent in these thresholds with challenges around forecasting accuracy, FPI calibration, and asset health.

SCE also uses a PSPS Risk vs. Benefit Comparison Tool to provide an event-based quantitative comparison of risk scores to further inform de-energization decision making. Challenges in developing the PSPS Risk vs. Benefit Comparison Tool quantitative outputs centered on operationalizing FireCast simulations (over 100 million) and establishing conservative, justifiable, and independently validated assumptions on public harm (safety, reliability, financial) co-incident with PSPS de-energization. All assumptions, references and design of the Risk vs. Benefit Comparison Tool are documented in the post-event reports, and SCE will continue to refine and enhance these calculations. Other challenges experienced during PSPS operations in 2021 included the availability of FireCast model information for those circuits that were not originally in scope. These circuits were subsequently brought into scope for potential de-energization based on emergent weather conditions. FireCast modeling inputs are dependent on the information provided as part of SCE's initial PSPS forecast. Therefore, some

circuits not originally identified in scope for a PSPS event could not be included in the Firecast Model inputs. SCE continues to refine and update its forecasting models through the addition of new models and machine learning algorithms which are expected to further improve forecasting for PSPS event scope to address this data challenge.

3. **How did you build a resilient emergency management team? Discuss in terms of personnel staffing, training, exercising, and changes to business practices.**

Response: SCE has been building and expanding our incident response capabilities for nearly a decade. SCE's Business Resiliency staff is made up of professional emergency managers who have come from local, State, and Federal emergency management agencies as well as related other private sector companies. These professional emergency managers work across SCE to find the appropriate personnel to staff Incident Management Team (IMT) and Incident Support Team (IST) roles in support of all types of hazards we might face in our service territory. Personnel are selected for their areas of expertise, their ability to respond to incidents, and their position within the company. Upon selection, all IMT / IST personnel go through comprehensive Incident Command System training, position-specific training that goes into their roles and responsibilities and completes either an exercise or shadows a real-world activation. SCE's Business Resiliency team routinely collects feedback on performance and areas for improvement, and regularly assesses staffing depth, positions, and capabilities to ensure the company response staff are prepared and fulfilling expectations.

4. **Explain your policies (provide a copy of written policies) regarding public safety partner (PSP) liaisons in your emergency operations center (EOC) and utility liaisons to state, local, and tribal government EOCs.**

Response: SCE prescribes to both the Federal National Incident Management System and the State of California Standardized Emergency Management System, which utilize the

Incident Command System for incident response operations. SCE regularly trains and exercises team members in the Liaison Officer (LNO) and Agency Representative (AREPs) positions of the ICS system. These team members are then available to respond to external agency Emergency Operations Centers (virtually or in person) as applicable during major emergencies.

SCE maintains an open line of communication with local jurisdiction during emergencies through the Business Resiliency Duty Manager at the county level and the Liaison Officer at the local government level to better understand the need for EOC representation overall. SCE also hosts daily coordination calls for impacted public safety partners and critical facilities and extends an invitation to public safety partners to its EOC (currently virtual) during each call.

Requests for AREPs to local jurisdiction EOCs are evaluated on a case-by-case basis through our Local Public Affairs organization in consultation with the Business Resiliency Duty Manager. AREPs that are deployed maintain contact to the SCE EOC through the Liaison Officer and provide enhanced coordination during emergencies as trained.

5. Recap the lessons learned from all of your de-energization exercises, the resulting action items, their implementation, and observed consequences.

Response: In 2021, SCE conducted several table-top simulation exercises, and incorporated learnings from these activities into our PSPS processes. As part of this process, SCE identified that a generator request process was not followed correctly. The process was thoroughly briefed at an October 6, 2022 meeting to help ensure all personnel were aware and familiar with this process.

6. Discuss how you fully implemented the whole community approach into your de-energization exercises.

Response: SCE utilizes objectives and scenarios in exercises that touch upon whole community concerns. In particular, the scenarios help to ensure that personnel are being tested on a wide range of potential issues and concerns from customers and community members of every

type. Furthermore, SCE invited stakeholders from throughout the communities we serve to participate in the exercise design, development, and execution. Invitations were extended to representatives from jurisdictions throughout the service territory, personnel from community-based organizations, and representatives from critical infrastructure and other utilities. Their input was solicited in exercise design and development, and their feedback incorporated as much as possible. Feedback and lessons learned from real world events was also incorporated to the fullest extent possible.

7. Discuss the complaints you received (as documented in POSTSR4) and any lessons learned and implementation of changed business practices.

Response: SCE has received over 3,500 complaints related to its 2021 PSPS events.[11] The vast majority of these complaints were in response to SCE's November 24, 2021 PSPS event (over 3,300). The vast majority (i.e., over 85%) of the total complaints received for 2021 PSPS events were through social media channels such as Facebook, Instagram and Twitter. These complaints typically came from customers generally dissatisfied with PSPS outages, such as expressing frustration related to PSPS in general (including timing of the event over the Thanksgiving holiday), duration, and frequency of events, timing of restoration, and/or providing comments regarding dissatisfaction with SCE generally. The remaining complaints were received through SCE's Call Center, Business Customer Division, Consumer Affairs, Local Public Affairs or at an activated CRC or CCV site during a PSPS event. Complaints received through these channels included concerns over accuracy of notifications, health, safety, and food loss. Where appropriate, SCE worked to resolve complaints by providing information such as available customer support programs and information on SCE's claims process.

SCE recognizes the challenges faced by individuals that were de-energized during the event that took place over the Thanksgiving holiday and has identified opportunities for

[11] *See* POSTSR 4 that provides a list of complaints received for SCE's 2021 PSPS events.

improvement to the notifications process for PSPS events. SCE identified delayed and missed notifications particularly during the rapidly escalating Thanksgiving PSPS event. SCE is working on improvements to its customer notifications including automation. *See* response to question 8 for additional details on SCE's evaluation and planned improvements to its notification process.

8. How did your PSPS notifications, to both customers and public safety partners/local governments, perform over the year? What changes will you make to improve performance?

Response: SCE made numerous changes to its PSPS notifications to both customers and public safety partners to improve performance in 2021. These changes included improvements to messaging and improvements to processes to reduce over-notification. For example, SCE reviewed the language used in the PSPS notifications for (a) text messages, (b) voice messages, and (c) emails for each of the notifications provided to Public Safety Partners and customers. Based on feedback gathered, SCE re-wrote the various notification messages to improve clarity and comprehension. SCE tested these new messages and cadence via focus group meetings with residential and business customers. SCE mapped the customer experience from first notification through event all-clear, including the cadence, content, language, and delivery methods, and developed a plan for customer experience improvements. In addition, SCE also changed the cadence of notifications to customers on the monitored circuit list to factor in data from two consecutive weather reports in order to send notifications more accurately to customers.

SCE also made changes to the notifications sent to local and tribal governments and other stakeholders including Community Choice Aggregators and Community Based Organizations serving the AFN community. The biggest change was moving from a primarly manual process to an automated system to send the notifications. This change resulted in a significant decrease in the amount of time required to send the notifications. SCE also revised the spreadsheet

containing information on the circuits in scope for PSPS so that the agencies receiving the updates could more easily identify changes from the previous versions.

SCE is currently working to incorporate lessons learned from the 2021 PSPS events to drive additional improvements to its notifications in 2022. SCE experienced a significant number of delayed or missed notifications in 2021, especially during PSPS events in late November 2021, as detailed in Section II, Amendments to Post Event Reports. A major factor for missed and delayed notifications during SCE's largest PSPS event in November 2021 was rapidly escalating wind speeds beyond initial forecasts. The size, scale, and speed of the event as it escalated leading up to November 25 strained the limits of our pre-automation processes and resulted in delays in processing weather forecasts and pre-event notifications. These processing delays were exacerbated by our efforts to send pre-event notifications at the segment level to account for circuit segments with covered conductor and corresponding higher de-energization thresholds. During the period of concern, the quickly increasing intensity of this event made it difficult to determine real-time circuit status and corresponding customer impacts to support in-event notifications and external reporting and briefing activities.

SCE's PSPS IMT Process Automation & Customer Notifications project, which was initiated in 2021, focuses on IT improvements in customer notifications, such as the automation of reports and customer notifications and will improve the issues experienced in the late-November PSPS event. Through this project, SCE identified opportunities to further integrate the workflows between the operational (grid-focused) team and the customer-facing (notification and communications) team to improve adherence to timing and reporting guidelines for PSPS notifications. This resulted in a project to use Palantir's Foundry system to build automation into the process to eliminate most of the manual efforts and handoffs. Key process changes and automations were delivered in December 2021 that streamline PSPS processes for forecasting scope and notifications. These capabilities and others such as Risk Analysis, Situational Awareness, and post-event reporting will continue to be enhanced through Palantir throughout 2022.

9. **How did your Public Safety Specialists and Public Affairs Representatives deconflict and synchronize operational direction given to local governments' Office of Emergency Services? What lessons did they learn in 2021 and what corrective actions are planned?**

Response: SCE does not have a Public Safety Specialist position. Instead, a similar function is performed by SCE's Fire Management staff. SCE utilizes specialized Fire Management staff to monitor, respond to, and report on all fires affecting or having the potential to affect SCE infrastructure. These personnel represent SCE by serving as a Cooperator in the field fire incident management structure. Fire Management staff assist in coordinating SCE's response to fires by providing information to manage the bulk electric system, repairing damage, restoring the electric system, and providing safe access to begin restoration work. These personnel maintain close working relationships with fire and emergency management agencies throughout the service area and serve as consultants and subject matter experts on fire risk management.

In addition to the Fire Management staff described above, when SCE activates an Incident Management Team (IMT) for a PSPS, a Laision Officers (LNO) is also activated. The primary responsibility of the LNO is to coordinate and resolve issues between SCE's IMT and local and tribal governments. SCE also activates Agency Representatives (AREPs) to work with local and tribal government officials as required. Additionally, SCE's Government Relation Managers and Customers Service Account Managers help to respond to local and tribal government issues. SCE's Business Resiliency personnel also coordinate with County Offices of Emergency Management. Local and Tribal governments are provided a dedicated phone number and email to contact SCE's LNO and Business Resiliency staff.

During response activations, SCE's Fire Management Staff and other SCE IMT personnel are actively engaged with local and tribal government officials to ensure alignment

between SCE's IMT and local and tribal government and emergency services officials on operational matters.

SCE is working with University of California San Diego and piloting artificial intelligence (AI) Fire detection and confirmation using SCE's 166 Alert Wildfire Cameras, and additional cameras located in SCE's service area. In 2021, SCE identified an opportunity to more effectively share and collaborate on this situational awareness and AI fire detection and confirmation technology with fire and emergency management agencies. SCE met with a fire agency to give a demonstration of AI fire confirmation technology, which was well received. SCE plans to continue to provide similar in-depth demonstrations to fire and emergency management agencies in SCE's service area.

In 2021, SCE also identified an opportunity to improve the accuracy and speed in sending notifications to impacted local and tribal governments through the Palintir/Foundry Platform. SCE expects to use this system in time for the 2022 Fire Season.

10. <u>What process did your Public Safety Specialists follow to provide situational awareness and ground truth to your EOC? How did the EOC incorporate their input?</u>

Response: See response to question 9 above.

Appendix A

METRICS TO DETERMINE EFFECTIVENESS OF COMMUNICATIONS AND OUTREACH EFFORTS

METRICS TO DETERMINE EFFECTIVENESS OF COMMUNICATIONS AND OUTREACH EFFORTS

METHODOLOGY

SCE administered its pre- and post- wildfire season surveys on a large scale to the general public (Residential and Business customers) systemwide and in high fire risk areas (HRFAs). To use the research to evaluate our communications and outreach efforts with both English- and non-English speaking customers (exception: indigenous languages could not be captured through the surveys), the 2021 surveys were offered in 19 "prevalent" languages within our territory – Arabic, Armenian, Chinese-Cantonese and Mandarin, Farsi, French, German, Japanese, Khmer, Korean, Punjabi, Russian, Spanish, Tagalog, Vietnamese, Hindi, Hmong, Portuguese, and Thai – plus English (a reduction from the 25 "prevalent" languages plus English included in 2020).

Since we are not able to target individual customers with any certainly based on their languages spoken or preferred, SCE used a self-selection / self-identifying methodology as part of the email and phone survey administration to reach language-dependent customers, supplemented by direct questions within the survey about language / communications preferences. Even applying this open-ended approach, we projected and subsequently proved in 2020 that the actual number of non-English survey completes (sample sizes) would likely be quite small and not statistically significant for most of the lower-incidence languages.

Survey invitations were delivered to Residential and Business customers via email (to a self-administered web survey) and / or by phone (to an interviewer-administered telephone survey), with 70% of completed interviews expected from email and 30% via phone. Email invitations greeted potential respondents in all 20 languages with a jump link in the email to a web survey in the language of the respondent's choice. The Computer-Assisted Telephone Interview (CATI) phone center is capable of administering the questionnaire in all of the

languages, but all interviewers / languages are not available at all times. Upon encountering a language barrier with a potential survey respondent, the interviewer attempted to identify the language and stored the record for re-contact at a later date. If the language could not be identified, a surname-based, pre-coded flag was used to assign the record for re-contact.

All participants were offered entry to a sweepstakes to encourage participation. Across all quotas, the prizes offered were: Two grand prize winners of $500 (1 each for Residential and Business), and enough $100 winners to make the odds of winning 1:100.

Target sample sizes for the various surveys were established prior to implementation. Residential pre- quotas were exceeded Systemwide (2,500) and in the HFRAs (1,000). Business pre- quotas (750) were not met (due to sample limitations and a suspected high number of COVID-related closures). The quotas for the post- surveys were adjusted based on the pre-survey experience.

Actual sample sizes achieved were as follows:

- **Residential** –
  - Systemwide: Pre-: 2,270 (210 non-English) Post-: 2,316 (191 non-English)
  - HFRAs: Pre-: 2,392 (111 non-English) Post-: 2,272 (85 non-English)
  - Non-HFRAs: Pre-: 1,612 (172 non-English) Post-: 1,627 (167 non-English)
- **Business** –
  - Systemwide: Pre-: 943 (94 non-English) Post-: 780 (85 non-English)
  - HFRAs: Pre-: 591 (30 non-English) Post-: 655 (40 non-English)
  - Non-HFRAs: Pre-: 713 (83 non-English) Post-: 641 (74 non-English)

All Residential and Business pre- surveys were completed between July 7 and August 3, 2021. Post- surveys were fielded between November 23 and December 28.

The average length of the Residential pre- survey was about 11 minutes and the post-survey 14-15 minutes. Business surveys averaged about 9 minutes for the pre- and 12-13 minutes for the post-.

2021 SURVEY RESULTS

Comparisons are made below between the results for the 2021 Pre-/Post- surveys and for this year versus the prior year (2021 versus 2020).

RESIDENTIAL

Need for Wildfire comms in languages other than English

- Results for both 2020 and 2021 indicate clearly that only a tiny minority of Residential customers chose to take the survey in a non-English language (6.4% of all surveys – or 608 of a total 9,522 – spread across just 15 of the available [25/19] languages offered).
- When asked directly in the survey to choose their preferred language for wildfire communications from SCE, less than 1 in 10 (9.25% – or 881 of 9,522) indicated a preference for a language other than English.
- To further investigate this issue of language dependency, an additional question was asked of these respondents who prefer a non-English language option about receiving WF comms from SCE in English only:
  - 3.1% of all Residential customers report they cannot understand English and need wildfire communications in some other language.
    - Most of these (2.1%) require a Spanish language option
    - The balance (1%) require communications in a language other than English OR Spanish.

After two survey years it appears that language dependency for Residential customers is a relatively minor concern across SCE's territory (and even less so in the HFRAs) in reaching customers with wildfire-related communications – and it is especially not critical for WF comms to be offered in such a wide array of "prevalent" languages beyond English and Spanish.

SUMMARY OF FINDINGS

Changes in PSPS metrics among Residential customers territory-wide and in HFRAs between the pre- and post- surveys in 2021 are less substantial than those found between pre- and

post- surveys in 2020 – and performance comparisons are down between 2020 and 2021. These findings suggest the 2020 WF communications were more effective and generated a stronger, more supportive response.

Recall of SCE WF Communications

- The 2021 post- survey found half of all Residential customers (51%) recall seeing SCE WF communications – a significant increase from 48% in the pre- survey. Recall among customers in HFRAs, however, was unchanged (55% to 56%), indicating the lift in recall occurred among customers in non-HFRAs.
- In 2020, there was higher recall of SCE WF comms overall than in 2021 – and a substantial pre- to post- increase among customers in HFRAs (+9 pct. pts. to 65%) and those in non-HFRAs (+4 pct. pts. to 51%) which fueled a systemwide increase of 6 pct. pts. (from 49% to 55%).

SCE WF Communications Sources

- Emails and letters from SCE continue to be the most common sources of WF communications for customers; however, both fell in their usefulness pre- to post-.
- Four SCE WF communications sources grew in their recall incidence between the 2020 pre- and post- surveys – and none declined. In 2021, one rose and one declined.
- Satisfaction with SCE.com as a source of information about preparing for wildfires dropped between the 2020 pre- and post- surveys (systemwide – and among customers in HFRAs and non-HFRAs alike). In 2021, these satisfaction levels were maintained (unchanged) pre- to post-.

Other WF Communications Sources

- Among a wide variety of "other" sources of WF comms, local news reports followed by city/county government and CalFire are the most common – most are considered useful by a majority of customers.
- Perhaps due to fewer wildfire or PSPS events in 2021, the pre-/post- rise in the use of "other sources used to obtain information about wildfire safety and preparedness" identified in 2020 was not repeated in 2021 (where none of these other sources rose).

Wildfire Preparedness

- Self-reported preparedness levels held steady, but preparedness actions taken have declined.
  - At the end of 2020, 57% of customers systemwide and 67% in HFRAs reported being Completely or Somewhat prepared. By mid-2021, these percentages were 54% and 59%, respectively.
  - Between the 2020 pre- and post- surveys, customers territory-wide reported a higher incidence on 5 preparedness actions – and in HFRAs, the increased activity stretched to 10 actions. Between the 2021 pre- and post- surveys, there was a much less enthusiastic response: Systemwide, action on two items declined (and none increased) – and in HFRAs, action increased for 5 items but declined for 2.

Ratings of SCE's WF Efforts

- Ratings of SCE on WF matters have slipped and did not improve during the 2021 wildfire season.
  - At the end of 2020, 61% of customers systemwide and 57% of customers in HFRAs were satisfied with SCE's overall wildfire safety and preparedness efforts. In mid-2021, these pre- ratings dropped to 57% and 53% – and both further declined to 54% and 51% by the end of 2021.
  - Agreement with 9 wildfire-related image statements about SCE is asked pre- and post-. In 2020, attitudes improved on 3 statements systemwide and on 1 statement in HFRAs, while none declined. In 2021 six declined systemwide and one declined in HFRAs, while none increased – showing that weakened attitudes occurred mostly in the non-HFRAs.

PSPS Awareness and Satisfaction

- Awareness of "PSPS" has eroded from 2020 levels – and there was no lift in PSPS awareness between the 2021 pre- and post- surveys
  - PSPS Awareness at the end of 2020 was 69% systemwide and 84% in HFRAs.
  - PSPS Awareness in mid-2021 (July pre- survey) was 60% systemwide and 67% in HFRAs – and remained mostly unchanged by the end of 2021 (57%; 65%, respectively).
- Satisfaction with SCE.com's PSPS information also eroded from 2020 levels – and there was either no lift or a drop in 2021.

- Satisfaction with SCE.com's PSPS information at the end of 2020 was 71% systemwide and 65% in HFRAs.
- In mid-2021, satisfaction was down to 67% systemwide and 57% in HFRAs – and by the end of 2021, it was at 60% systemwide and 48% in HFRAs.

PSPS Notifications and Events – 2021 Post- versus 2020 Post-

- Fewer non-HFRA customers received PSPS alerts in 2021 than in 2020. However, the same percentage of HFRA customers report having received an alert (47%).
  - Customers who receive alerts report more often receiving Texts (56% in HFRAs)
- Customers in HFRAs more often say they experienced a PSPS event (24% in 2020 vs. 33% in 2021).
- Customers in HFRAs more often checked SCE.com (increased from 37% to 47%) for updates during events, while fewer checked with local news stations (decreased from 12% to 8%). Unfortunately, the source usefulness of SCE.com declined from 63% to 47% systemwide and from 54% to 44% in HFRAs.
- Satisfaction with SCE.com for information provided during events declined (from 60% to 45% systemwide, and from 48% to 39% in HFRAs).
- Customers more often received power restoration notices (increased from 51% to 67% in HFRAs), but the usefulness of these notices declined (from 58% to 47% in HFRAs).
- Satisfaction with SCE.com for information provided after events also declined (from 51% to 42% in HFRAs).
- Finally, overall satisfaction with SCE's PSPS communications declined (from 62% to 52% Systemwide and 53% to 46% in HFRAs).

BUSINESS

Need for Wildfire comms in languages other than English

- Results for both 2020 and 2021 indicate clearly that a minority of Business customers chose to take the survey in a non-English language (8.8% of all surveys – or 239 of a total 2729 – across all of the available languages).

- When asked directly in the survey to choose their preferred language for wildfire communications from SCE, just 6.1% (167 of 2,729) indicated a preference for a language other than English.
- To further investigate this issue of language dependency, an additional question was asked of these respondents who prefer a non-English language option about receiving wildfire communications from SCE in English only:
  - 1.05% of all Business customers report they cannot understand English and need wildfire communications in some other language (29 out of 2,729)
  - Spanish, Korean, or Chinese Mandarin address the vast majority of these 29 customers.

As with Residential customers, after two survey years it appears that language dependency for Business customers is a relatively minor concern across SCE's territory (and even less so in the HFRAs) in reaching customers with wildfire-related communications – and it is especially not critical for WF comms to be offered in such a wide array of "prevalent" languages beyond English and Spanish.

SUMMARY OF FINDINGS

Changes in PSPS metrics among Business customers territory-wide and in HFRAs between the pre- and post- surveys in 2021 are relatively minor – and results are comparable to those found pre- to post- in 2020.

Recall of SCE WF Communications

- The 2021 post- survey found half of all Business customers (48%) recall seeing SCE WF communications – unchanged from 51% in the pre- survey. Recall among customers in HFRAs was also unchanged (57% to 57%).
- In 2020, there was an increase in recall of SCE WF comms (51% to 56%), which was concentrated in HFRAs (HFRA recall +6 pct. pts.; no change in non-HFRAs).

SCE WF Communications Sources

- Emails and letters from SCE continue to be the most common sources of WF communications for customers – and the source usefulness ratings of each were unchanged.

- In 2021, recall of texts from SCE rose between the pre- and post- surveys (5% to 9%). Source usefulness of texts from SCE improved *directionally* (71% to 85%).
- Among the 17% or so of all businesses who recalled SCE.com as a WF comms source, satisfaction with it as a source of information about preparing for wildfires was unchanged at high levels between the 2021 pre- and post- surveys (91% vs 83%).

Other WF Communications Sources

- At most, 1/3 of business customers (34%) cite any of a wide variety of "other" sources of WF comms. Local news reports (34%) lead, followed by city/county government (27%) and CalFire (20%) as the most common. Source usefulness ratings of all of these are at least 59%.
- These 2021 survey results are comparable to those of the 2020 survey.

Wildfire Preparedness

- Self-reported preparedness levels held steady, as did preparedness actions.
  - Net Preparedness systemwide (completely plus somewhat) was unchanged at 55%, though it did rise in non-HFRAs (47% to 52%).
  - A few preparedness actions rose (purchase of new lanterns or flashlights +7 pct. pts. to 27%, visits to SCE.com +4, and use of the SCE app +2 to 7%), but net "I have not taken any action" was unchanged (33% to 32%).

Ratings of SCE's WF Efforts

- Ratings of SCE on WF matters eroded among Residential customers but held steady among Businesses.
  - At the end of 2020, 59% of Business customers systemwide and 57% in HFRAs were satisfied with SCE's overall wildfire safety and preparedness efforts. In the mid-2021 pre- survey, these ratings were comparable at 56% and 52%, respectively. Further, agreement held steady (at 56% and 54%, respectively) by the end of 2021.
  - The same pattern occurred in agreement with 9 statements about SCE's WF efforts. Agreement in mid-2021 was comparable to that found at the end of 2020 – and held steady between the 2021 pre- and post- surveys. These findings were found both systemwide and in HFRAs.

PSPS Awareness and Satisfaction

- Awareness of "PSPS" among Business customers held steady from 2020 levels – and was unchanged between the 2021 pre- and post- surveys.
  - PSPS Awareness at the end of 2020 was 72% systemwide and 81% in HFRAs.
  - PSPS Awareness in mid-2021 (July pre- survey) was 67% systemwide and 79% in HFRAs – and remained unchanged by the end of 2021 (67% and 80%).
- Satisfaction with SCE.com's PSPS information held steady from 2020 levels systemwide, but had declined in HFRAs by mid-July 2021. With completion of the 2021 post- survey, systemwide satisfaction held steady but had recovered in HFRAs.
  - Satisfaction with SCE.com's PSPS information at the end of 2020 was 62% systemwide and 60% in HFRAs.
  - In mid-2021, satisfaction was unchanged at 61% systemwide but had dropped to 46% in HFRAs. By the end of 2021, it was at 64% systemwide and recovered to 58% in HFRAs.

PSPS Notifications and Events – 2021 Post- versus 2020 Post-

- Fewer non-HFRA Business customers received PSPS alerts in 2021 than in 2020. However, the same percentage of HFRA customers report having received an alert (47%).
  - Customers who received alerts in 2021 are less likely to say the alert arrived via email (46% vs. 55% in 2020) – especially in HFRAs (56% vs. 66% in 2020).
  - In HFRAs, those receiving alerts more often report having received them via texts (47% vs. 40% in 2020) and by way of a recorded phone message from SCE (34% vs. 26% in 2020).
- Business customers in HFRAs more often say they experienced a PSPS event in 2021 (24% in 2020 vs. 33% in 2021).
- Most customers checked for updates during PSPS outages (just 19% said they did not check). SCE.com is the most widely used update source (53%), followed distantly by those who called the SCE phone center (27%) and checked social media (12%). The source usefulness of SCE.com regarding update information in 2021 is 56%, directionally lower than in 2020 (66%).

- Satisfaction with SCE.com for information provided during events declined (from 68% in 2020 to 52% in 2021). The bulk of this decline occurred among non-HFRA customers who claim to have experienced a PSPS outage (from 75% in 2020 to 49% in 2021), but might be confusing normal (maintenance) outages with PSPS events.
- Customers more often received power restoration notices in 2021 (increased directionally from 43% in 2020 to 53% in 2021 systemwide but significantly in HFRAs from 52% to 65%). The usefulness of these notices, however, declined (from 76% in 2020 to 61% in 2021 systemwide – and 60% to 51% in HFRAs).
- Satisfaction with SCE.com for information provided after events also declined (from 61% to 50% in HFRAs).
- Finally, overall satisfaction with SCE's PSPS communications generally held steady (from 65% to 53% Systemwide and 55% to 54% in HFRAs).

Appendix B

Updates to 2021 de-energization, all clear, and restoration times

PSPS Event Date	County	Circuit Name	Segment Number	Isolation Device	De-energization Date/Time	All Clear Declaration Date/Time	Restoration Date/Time
2021.01.12	Ventura	ANTON		RAR0217	1/15/2021 09:10	1/15/2021 14:43	1/15/2021 17:05
2021.01.12	Ventura	ANTON		RAR1992	1/15/2021 09:11	1/15/2021 14:43	1/15/2021 16:27
2021.01.12	Ventura	ANTON		RAR0217	1/17/2021 10:54	1/17/2021 11:40	1/17/2021 15:52
2021.01.12	Ventura	ANTON		RAR1992	1/17/2021 10:54	1/17/2021 11:40	1/17/2021 12:25
2021.01.12	San Bernardino	BADGER		RCS4207-5	1/19/2021 08:25	1/19/2021 19:13	1/19/2021 22:28
2021.01.12	Ventura	BELPAC		CB	1/18/2021 11:21	1/18/2021 11:19	1/18/2021 17:19
2021.01.12	Los Angeles;Ventura	BIG ROCK		RCS0849-2	1/15/2021 09:43	1/15/2021 15:25	1/15/2021 18:05
2021.01.12	Kern	CONDOR		RCS0519	1/19/2021 01:37	1/20/2021 00:32	1/20/2021 06:48
2021.01.12	Ventura	ENCHANTED		CB	1/19/2021 08:32	1/20/2021 13:28	1/20/2021 18:07
2021.01.12	Los Angeles;Ventura	ENERGY		RAR0490	1/14/2021 08:48	1/17/2021 12:34	1/17/2021 14:52
2021.01.12	Los Angeles;Ventura	ENERGY		GS1321-4	1/18/2021 10:37	1/18/2021 15:26	1/18/2021 16:21
2021.01.12	Los Angeles;Ventura	ENERGY		GS7920-1	1/18/2021 10:46	1/18/2021 15:26	1/18/2021 17:41
2021.01.12	Los Angeles;Ventura	GUITAR		RAR0402	1/15/2021 04:48	1/15/2021 11:22	1/15/2021 15:13
2021.01.12	Los Angeles;Ventura	GUITAR		RCS0317	1/19/2021 12:12	1/20/2021 13:57	1/21/2021 11:41
2021.01.12	Riverside	HONEYCRISP		GS1423-2	1/19/2021 11:40	1/19/2021 19:13	1/19/2021 20:48
2021.01.12	San Bernardino	IMPALA		RAR0819	1/19/2021 05:31	1/20/2021 07:14	1/20/2021 14:44
2021.01.12	Los Angeles	KINSEY		RAR0302	1/19/2021 13:27	1/19/2021 20:37	1/20/2021 01:29
2021.01.12	Los Angeles	KINSEY		RAR0452	1/19/2021 13:27	1/19/2021 20:37	1/19/2021 22:20
2021.01.12	Los Angeles	LOPEZ		RAR0048	1/19/2021 09:08	1/20/2021 10:58	1/20/2021 17:33
2021.01.12	Los Angeles	LOUCKS		CB	1/15/2021 02:55	1/15/2021 10:13	1/15/2021 11:04
2021.01.12	Los Angeles	LOUCKS		CB	1/19/2021 01:23	1/20/2021 08:12	1/20/2021 11:25
2021.01.12	Los Angeles	LYONS		CB	1/19/2021 14:17	1/19/2021 23:54	1/20/2021 01:37
2021.01.12	Los Angeles	MARCUS		RCS9780	1/19/2021 02:01	1/20/2021 11:31	1/20/2021 14:11
2021.01.12	Ventura	MIDDLE ROAD		CB	1/19/2021 08:33	1/20/2021 02:52	1/20/2021 09:00
2021.01.12	Los Angeles	RACER		CB	1/19/2021 01:43	1/19/2021 23:33	1/20/2021 02:15
2021.01.12	Fresno;Madera	SAGINAW		CB	1/19/2021 01:13	1/19/2021 19:13	1/20/2021 11:39
2021.01.12	~~San Bernardino~~	~~SWEETWATER~~		~~RCS1451-1~~	~~1/15/2021 13:40~~	~~1/15/2021 07:03~~	~~1/15/2021 13:51~~
2021.01.12	Riverside	TAHQUITZ		RAR0141	1/19/2021 08:34	1/19/2021 16:04	1/20/2021 16:09
2021.01.12	Ventura	WHITECLIFF		CB	1/19/2021 09:21	1/19/2021 22:37	1/20/2021 01:20
2021.01.12	Ventura	YOSEMITE		PH1401236E	1/18/2021 21:57	1/20/2021 05:52	1/20/2021 08:31
2021.01.12	Ventura	YOSEMITE		BF35351	1/18/2021 20:49	1/20/2021 05:52	1/20/2021 08:49
2021.01.12	Ventura	YOSEMITE		BF35181	1/18/2021 21:00	1/20/2021 05:52	1/20/2021 08:39
2021.01.12	Ventura	YOSEMITE		BF35180	1/18/2021 21:11	1/20/2021 05:52	1/20/2021 08:39
2021.01.12	Ventura	YOSEMITE		BF35179	1/18/2021 21:33	1/20/2021 05:52	1/20/2021 08:32
2021.04.12	Mono	BIRCHIM			4/13/2021 15:09	4/13/2021 17:42	4/14/2021 00:39
2021.10.11	Los Angeles	Energy	8,9		10/11/21 17:27	10/11/21 21:19	10/12/21 14:30
2021.10.11	~~Los Angeles~~	~~Energy~~	~~9~~		~~10/11/21 17:27~~	~~10/11/21 21:19~~	~~10/11/21 23:08~~
2021.10.22	MONO	TUFA	1,2		10/22/21 9:26	10/22/21 11:18	10/22/21 16:28
2021.11.21	~~Ventura~~	~~MORGANSTEIN~~	~~1~~		~~11/21/21 10:47~~	~~11/21/21 12:36~~	~~11/21/21 13:21~~
2021.11.21	Ventura	MORGANSTEIN	1,2,3		11/21/21 10:47	11/21/21 12:36	11/21/21 15:45
2021.11.21	~~San Bernardino~~	~~IMPALA~~	~~Partial 4~~		~~11/21/21 09:40~~	~~11/22/21 9:50~~	~~11/21/21 12:10~~
2021.11.21	~~San Bernardino~~	~~IMPALA~~	~~3~~		~~11/21/21 09:40~~	~~11/22/21 4:37~~	~~11/22/21 12:35~~
2021.11.21	San Bernardino	IMPALA	2, 3, 4, 5		11/21/21 09:40	11/22/21 4:37	11/22/21 13:45
2021.11.21	Los Angeles/Ventura	ENERGY	7,8,9		11/21/21 6:11	11/22/21 05:38	11/22/21 12:21
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~3~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/21/21 11:47~~
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~2,4,5,6,7,8,9~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/21/21 15:17~~
2021.11.21	Los Angeles	CUTHBERT	1,2,3,4,5,6,7,8,9		11/21/21 9:43	11/21/21 11:03	11/21/21 19:38
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~Partial 3~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/22/21 12:30~~
2021.11.21	Los Angeles	SAND CANYON	8		11/21/21 21:36	11/22/21 05:38	11/22/21 11:06
2021.11.24	~~San Bernardino~~	~~ACOSTA~~	~~6~~	~~RAR0800~~	~~11/24/21 14:57~~	~~11/26/21 05:58~~	~~11/26/21 13:07~~
2021.11.24	San Bernardino	ACOSTA	2,4,5,6	RCS0879-1	11/25/21 00:58	N/A	11/25/21 20:04
2021.11.24	Ventura	ANTON	1,2,3,4,5,6,7	CB	11/25/21 10:32	11/25/21 18:51	11/26/21 12:27
2021.11.24	Los Angeles	BROADCAST	1, 2	CB	11/24/21 16:56	11/25/21 07:45	11/26/21 10:15
2021.11.24	Los Angeles, Ventura	ENERGY	1,2,3	CB	11/25/21 05:43	11/25/21 23:10	11/26/21 15:25
2021.11.24	Los Angeles, Ventura	ENERGY	4,5,6,10	RAR0490	11/25/21 03:49	11/25/21 23:10	11/26/21 15:29
2021.11.24	Los Angeles, Ventura	ENERGY	6,7,8,9	RCS8085-2	11/24/21 16:20	11/24/21 05:58	11/26/21 15:52
2021.11.24	Riverside	IDA	Partial 1, 2,3,4	PS0486	11/25/21 12:36	11/25/21 21:47	11/26/21 03:06
2021.11.24	Riverside, San Bernardino	LARCH	3	RCS0849	11/25/21 02:04	11/25/21 18:46	11/25/21 23:54
2021.11.24	Los Angeles	LOPEZ	3	RAR0296	11/25/21 05:03	11/25/21 16:59	11/25/21 18:06
2021.11.24	Los Angeles	LOPEZ	3	RAR3825	11/25/21 05:05	11/25/21 16:59	11/26/21 08:39
2021.11.24	Los Angeles	PLATEAU	3	RAR1173	11/25/21 08:28	11/25/21 23:53	11/26/21 00:24
2021.11.24	~~Los Angeles~~	~~SAND CANYON~~	~~4,5,6~~	~~RCS0238~~	~~11/24/21 13:51~~	~~11/24/21 17:00~~	~~11/24/21 19:57~~
2021.11.24	Riverside	WINERY	4	RAR1360	11/25/21 05:19	11/25/21 20:16	11/26/21 00:33

Footnote:

[1] As noted in footnote 1 in POSTSR1, SCE has continued to validate certain metrics provided in its 2021 post-event reports. A green cell denotes that this metric was identified as an update or an addition to the post-event report and an orange cell denotes that this should be removed from the post-event report.

Appendix C

SCE_POSTSR2A_3_1_2022.gdb.zip, SCE_POSTSR2B_3-1-2022.xlsx,

SCE_POSTSR3_3-1-2022.xlsx, SCE_POSTSR4_3-1-2022.xlsx

This appendix will be filed via mixed media with the Commission's docket office and can be accessed at: https://on.sce.com/PSPSPostSeasonReporting

Appendix D

Redlined Version of SCE's Amended 2021 Post Season Report

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.	Rulemaking 18-12-005

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) AMENDED 2021 POST-SEASON REPORT

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Dated: **March 17, 2022**

SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) AMENDED 2021 POST-SEASON REPORT

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.	Rulemaking 18-12-005

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) AMENDED 2021 POST-SEASON REPORT

INSTRUCTIONS

1. Requirements in italics apply to PG&E, SCE and SDG&E only.
2. Respond to all applicable questions in the template in a single document.
3. Response to each question should be no longer than two pages and as brief as possible.
4. Follow the section heading and subheading organization used in the template in your response.
5. Submit your response in a Word and a PDF format. Both files should follow the file name convention and syntax below:
   <Utility Abbreviation>_POSTSR1_<Submission Date>
   PGE_ POSTSR1_3-1-2022
   PacifiCorp_ POSTSR1_3-1-2022
6. Responses must be filed to the service list of R.18-12-005 no later than March 1, 2022

I.

SECTION I. BACKGROUND: OVERARCHING REGULATION

1. Each electric investor-owned utility must file a comprehensive [prior year] Post-Season Report, no later than March 1 of each year, in R.18-12-005 or its successor proceeding. The report must follow a template provided by SED no later than 60 days after SED posts a [prior year] Post-Season Report template on the Commission's website. Parties may file comments on these reports within 20 days after they are filed, and reply comments within 10 days after the final date to file comments.

   [Authority: Decision (D.) 21-06-034; Guidelines at p. A15, Section K-3]

2. The [prior year] Post-Season Report must include, but will not be limited to:
   f. Annual report, as applicable, required by Ordering Paragraph 66 of D.21-06-014.

[Authority: D.21-06-034; Guidelines at p. A15, Section K-3.f]

3. To the extent a required item of information is also required to be included in the electric investor-owned utility's Wildfire Mitigation Plan, the [prior year] Post-Season Report may refer to the electric investor-owned utility's Wildfire Mitigation Plan rather than repeat the same information; such reference must specify, at minimum, the page and line number(s) for where the required information is contained within the electric investor-owned utility's Wildfire Mitigation Plan. In cases where this reference is to data, a summary table of the data shall be provided in the report.

[Authority: D.21-06-034; Guidelines at p. A17, Section K-3]

II.

AMENDMENTS TO POST-EVENT REPORTS

A. Regulatory Requirements

1. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company must provide aggregate data, as identified above [D.21-06-014, Ordering Paragraph (OP) 65], in an annual report, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report and must contact the Commission's Safety and Enforcement Division if the utility requires additional guidance to ensure adequate reporting on the requirement to provide information on affected customers in the 10-day post-event reports.

[Authority: D.21-06-014; OPs 65 and 66]

*2. Pacific Gas and Electric Compan**y** (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) must address, among other things, each element of Resolution ESRB-8 reporting requirements, as clarified herein, in the 10-day post-event reports, including the below [OP 65] and, if no information is available, PG&E, SCE, and SDG&E must respond to these Resolution ESRB-8 reporting requirements by indicating the reason this information is not available.*

[Authority: D.21-06-014; OPs 65 and 66]

B. Directions

1. *Provide any information missing [including, but not limited to the specific topics listed below] from any Post-Event Report for Public Safety Power Shutoffs (PSPS) in 2021 by:*

    a. *Identify the date name of the PSPS.*
    b. *Identify the Section of the Post-Event Report template for which the missing information will be added.*
    c. *Provide the missing information under that heading.*

    [Authority: D.21-06-014; OPs 65 and 66]

Response: Subsequent to the filing of SCE's 10-day post-event reports for 2021 PSPS events, SCE conducted a review, aided by Palantir, of certain key PSPS metrics included in its 2021 reports.[1] Through this review as well as other routine data validation efforts, SCE identified the following corrections and updates to post-event report metrics.

[1] As indicated in SCE's post-event report for the November 24, 2021 PSPS event filed on December 10, 2021, SCE has continued to validate certain metrics pertaining to the November 24, 2021 PSPS event, as well as other 2021 PSPS events. SCE has not sought to proactively validate all the data points in these post-event reports. Rather, SCE has undertaken a good faith and reasonably diligent review process which looked at post-event reporting metrics, such as missed customer notifications and de-energized customer counts – data that SCE believes has the largest potential customer impacts. SCE reviewed its data sources and methods for calculating these core metrics and is making specified corrections where it was able to validate the information. These corrections and updates are reflected in this 2021 post-season report, consistent with SCE's understanding of how to update and supplement post-event report data in the post-season reports. In addition, given the significance of errors in its last two November 2021 reports, SCE intends to partially amend these post-event reports.

Table II-1
Total customers de-energized metric updates

PSPS event date	Post-event report section(s)	Description	Updated metric
Jan. 12, 2021	Executive Summary; 13. Each electric investor-owned utility shall enumerate and explain the cause of any false communications in its post event reports by citing the sources of changing data.	Total customers de-energized	110,608
Oct. 15, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers de-energized	104
Nov. 21, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 2. Decision-Making Process 5. Explanation of alternatives to de-energization considered and evaluation of each alternative; Section 10. Mitigation to Reduce Impact	Total customers de-energized	5,197
Nov. 24, 2021	Introduction; Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers de-energized	79,697

Notification metric updates

SCE provides in the tables below updates identified for certain notification metrics in its 2021 post-event reports.[2]

[2] SCE is aware of a delayed cancellation notification to the City of Moorpark for the October 15th PSPS event that was not listed as a "notification failure" in the post-event report due to a difference in interpretation of the new cancellation notice requirement from D.21-06-034 Appendix A.H.2, p.A11. SCE has identified providing timely notifications of a decision to cancel or to remove from scope as an area of improvement and will continue to make every effort to notify impacted public safety partners and other entities within two hours of cancellation. *See also* response in Section IV.9.

Table II-2
September 30, 2021 Post-event report

September 30, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	3
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	4
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	6
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	6

Table II-3
October 11, 2021 Post-event report

October 11, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	13
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.[3]	127
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	5
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	9
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	5
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	~~53,120~~32

[3] Cancellation notices may not have been sent to customers within the recommended 2-hour window, but due to limitations in available 2021 data, SCE is unable to determine how many cancellation notices were sent more than two hours after the decision to cancel or to remove from scope. The missed cancellation notice numbers provided here show how many of the customers who had been notified, but not de-energized received no cancellation notice at all. SCE is addressing the identified data limitations through the development of the Central Data Platform (CDP) via Palantir-Foundry. This CDP will be in use starting in 2022 and will capture and log notification type, timing, and customer type. This new automation capability will improve adherence to the CPUC's 2-hour reporting guideline for cancellation notifications. Additionally, to support post-event and post-season reporting, automation with standardized logic has been developed for each data element within the reporting templates and will flow directly from the decisions made and actions taken during PSPS events.

Table II-4 *October 15, 2021 Post-event report*			
October 15, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	31
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	35
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	4
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	12
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	27
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	27
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	~~28,639~~11

Table II-5
October 16, 2021 Post-event report

October 16, 2021			
Post-event report section	Notification sent to	Description	Updated metric
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	16
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	319

Table II-6
October 22,2021 Post-event report

October 22, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	3
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	12

Table II-7 *November 21, 2021 Post-event report*			
November 21, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	82
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	137
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	486
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	921
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	4,219
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	2,685
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	~~141,679~~10,086

Table II-8 *November 24, 2021 Post-event report*[4]			
November 24, 2021			
Post-event report section	**Notification sent to**	**Description**	**Updated metric**
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not who did not receive any notifications before de-energization	1,505
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive 1- to 4-hour imminent notifications.	1,798
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	Critical Facilities and Infrastructure	Facilities who did not receive cancellation notification within two hours of the decision to cancel.	797
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive any notifications before de-energization	28,257
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 1- to 4-hour imminent notifications.	61,776
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive 24- to 48-hour advance notifications.	55,608
Section 5. Notification - Table 10: Breakdown of Notification Failure Description	All other affected customers	Customers who did not receive cancellation notification within two hours of the decision to cancel.	~~368,062~~44,174

Damages and hazards updates

[4] SCE experienced a significant number of delayed or missed notifications during its largest PSPS event in November 2021. Additional details on this are included in Section IV.8 of this report.

SCE provides in the tables below updates in redline identified for certain damages and hazards reported in its 2021 post-event reports.

Table II-9
11.21.2021 Post-event report

Damage and Hazards				
Circuit Name	**County**	**Structure Identifier**	**Tier 2/3 or Non-HFTD**	**Type and Description of Damage or Hazard**
Cuthbert	Los Angeles	798284E, 798290E, 7982~~8~~93E	Tier 3	~~Damaged/broken potheads and sagging lines~~ Installed cover to protect against heavy palm tree debris, replaced crossarm and deteriorated primary bails resag wire.
Sutt	San Bernardino	4552445E	Tier3 Tier 2	~~Damaged/displaced crossarm~~ Damaged Support Structure: Replaced missing hardware and straightened crossarm

Table II-10
11.24.2021Post-event report

Damage and Hazards				
Circuit Name	**County**	**Structure Identifier**	**Tier 2/3 or Non-HFTD**	**Type and Description of Damage or Hazard**
~~Sutt~~	~~San Bernardino~~	~~4552445E~~	~~Tier 2~~	~~Broken crossarm~~
Langer	Ventura	127~~566~~543E	Tier 2	Tree came down on service line
Timber Canyon	Ventura	1358862E	Tier ~~2~~3	Damaged 480 Bank
Balcom	Ventura	874217E	Tier ~~2~~3	Damaged secondary
De Mille	Los Angles	1997221E	Tier ~~2~~3	Damaged secondary
Buckhorn	Ventura	4434827E	Tier ~~2~~3	Broken tap
Stores	San Bernardino	4358534E	Tier 2	Broken tap

Total customers PSPS notified and total customers cancelled updates

SCE provides in the tables below updates identified to total customers PSPS notified and total customers cancelled metrics in its 2021 post-event reports.

Table II-11
Total Customers PSPS Notified

PSPS event date	Post-event report section(s)	Description	Updated metric
Apr. 12, 2021	Executive Summary; Regulatory Requirements 10. Evaluation of alternatives to de-energization that were considered, and mitigation measures used to decrease the risk of utility-caused wildfire in the de-energized area and an explanation of how the utility determined that the benefit of de-energization outweighed the potential public safety risks:; 16. A description of how sectionalizing, i.e., separating loads within a circuit, was considered and implemented and the extent to which it impacted the size and scope of the de-energization event.	Total customers PSPS notified	454
Jun. 14, 2021	Notification, Communication, and Information Sharing Q8	Total customers PSPS notified	3,954
Oct. 11, 2021	Section 1. Executive Summary; Table 1: PSPS Event Summary; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	12,033
Oct. 15, 2021	Section 1. Executive Summary; Table 1: PSPS Event Summary	Total customers PSPS notified	3,478

Table II-11 (continued)
Total Customers PSPS Notified

PSPS event date	Post-event report section(s)	Description	Updated metric
Oct. 16, 2021	Table 1: PSPS Event Summary	Total customers PSPS notified	335
Oct. 22, 2021	Table 1: PSPS Event Summary; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	601
Nov. 21, 2021	Table 1: PSPS Event Summary	Total customers PSPS notified	25,137
Nov. 24, 2021	Table 1: PSPS Event Summary; Section 3. De-Energized Time, Place, Duration and Customers; Section 10. Mitigation to Reduce Impact	Total customers PSPS notified	203,124

Table II-12
Total Customers Cancelled[5]

PSPS event date name	Post-event report section(s)	Description	Updated metric
Oct. 11, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	13,42634,524
Oct. 15, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	3,72717,183
Oct. 16, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	335679
Oct. 22, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	632(1)
Nov. 21, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	23,00346,364
Nov. 24, 2021	Table 1: PSPS Event Summary; Section 5. Notification - 7. Enumerate and explain the cause of any false communications, citing the sources of changing data, Cancelled Notice	Total customers cancelled	152,261143,833

[5] "Cancelled" refers to customers who were sent a "PSPS All Clear-Event Avoided" notice.

2. *Community Resource Centers:*

   Provide aggregate data, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

   a. *Address and describe each Community Resource Center during a de-energization event.*

Response: In 2021, SCE activated 22 Community Resource Center (CRCs) sites for a total of 50 days and deployed Community Crew Vehicles (CCVs) to 31 sites for a total of 66 days in multiple counties. Each CRC and CCV was operated by staff who could provide customers event-specific information and information about SCE's resiliency programs, update customer contact information, and enroll customers in outage alert notifications. Each CRC and CCV also had available bottled water and light snacks, ice and ice vouchers, access to a restroom, a power source to charge personal mobile or medical devices, and customer resiliency kits that customers may take on the go. These kits have preparedness information, a solar phone battery, and a flashlight or a battery-backed LED lightbulb. In January, SCE also provided blankets and firewood at the Tehachapi CRC. During the COVID-19 pandemic, SCE enforced social distancing and complied with SCE's or the respective community's COVID-19 public health protocols, whichever was stricter. Each activated location was reviewed with local community site management and county OEM input and agreement. Table II-12 provides aggregate data on CRCs activated and CCVs deployed to communities impacted by a PSPS event in 2021.

Table II-13
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CCV	Los Angeles	1/14/2021	2	1/14: 12 - 10 PM 1/15: 8 AM - 10 PM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	1/14/2021	4	1/14: 12 - 10 PM 1/15-1/17: 8 AM - 10 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Ventura	1/14/2021	4	1/14: 6 PM - 10 PM 1/15-1/17: 8 AM - 10 PM	Boys & Girls Club of Moorpark	200 Casey Rd., Moorpark, CA 93021
CCV	Los Angeles	1/15/2021	1	8 AM - 10 PM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CCV	Orange	1/15/2021	3	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CCV	Riverside	1/15/2021	1	1 PM - 10 PM	Idyllwild Community Center	25925 Cedar St., Idyllwild, CA 92549
CCV	San Bernardino	1/15/2021	3	8 AM - 10 PM	Cal State University San Bernardino	5500 University Pkwy., San Bernardino, CA 92407
CRC	Kern	1/18/2021	2	8 AM - 10 PM	Bear Valley Police Dept.	25101 Bear Valley Rd., Tehachapi, CA 93561
CCV	Los Angeles	1/18/2021	3	8 AM - 10 PM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CRC	Los Angeles	1/18/2021	4	1/18-1/20: 8 AM - 10 PM 1/21: 8 AM - 11 AM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	1/18/2021	3	8 AM - 10 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Orange	1/18/2021	2	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CRC	Riverside	1/18/2021	2	8 AM - 10 PM	Idyllwild Community Center	25925 Cedar St., Idyllwild, CA 92549
CCV	Riverside	1/18/2021	2	8 AM - 10 PM	Calimesa City Hall	908 Park Ave., Calimesa, CA 92320
CCV	San Bernardino	1/18/2021	2	8 AM - 10 PM	Cal State University San Bernardino	5500 University Pkwy., San Bernardino, CA 92407
CCV	Ventura	1/18/2021	3	8 AM - 10 PM	Fillmore Active Adult and Community Center	533 Santa Clara Ave., Fillmore, CA 93015
CRC	Ventura	1/18/2021	3	8 AM - 10 PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CCV	Los Angeles	1/19/2021	2	8 AM - 10 PM	Mayor's Discovery Park	1800 Foothill Blvd., La Canada, CA 91011
CCV	Santa Barbara	1/19/2021	2	8 AM - 10 PM	Carpinteria Middle School	5351 Carpinteria Ave., Carpinteria, CA 93013
CCV	Los Angeles	1/20/2021	1	8 AM - 10 PM	The Centre Pointe	20970 Centre Pointe Pkwy, Santa Clarita, CA 91350
CCV	Inyo/Mono	4/13//2021	1	8 AM - 10 PM	Millpond Recreation Area	Hwy 395 & Sawmill Road, Bishop, CA 93514
CRC	Santa Barbara	6/14/2021	2	6/14: Noon - 10 PM 6/15: 8 AM - 10 PM	Residence Inn	6350 Hollister Ave, Goleta, CA 93117
CRC	Santa Barbara	6/14/2021	2	6/14: Noon - 10 PM 6/15: 8 AM - 10 PM	Independent Living Resource Center	423 W Victoria St., Santa Barbara, CA 93101

Table II-13 (continued)
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CRC	Ventura	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 12PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CRC	Ventura	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Fillmore Active Adult Community Center	533 Santa Clara Ave., Fillmore, CA 93015
CRC	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Acton Community Center	3748 Nickels St., Acton, CA 93510
CRC	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Residence Inn	25320 The Old Rd., Stevenson Ranch, CA 91381
CCV	Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Calabasas City Hall	100 Civic Center Way, Calabasas, CA 91302
CCV	Kern/Los Angeles	10/11/2021	2	10/11: 10AM - 10PM 10/12: 8AM – 10AM	Frazier Mountain Park	3801 Park Dr, Frazier Park, CA 93225
CCV	Ventura	10/15/2021	1	8AM - 5PM	Simi Valley Senior Center	3900 Avenida Simi, Simi Valley, CA 93063
CCV	Los Angeles	11/21/2021	1	8 AM - 10 PM	Michael Landon Community Center	24250 Pacific Coast Hwy., Malibu, CA 90265
CCV	Los Angeles	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Agua Dulce Women's Club	33201 Agua Dulce Canyon Rd., Agua Dulce, CA 91390
CCV	Los Angeles	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CCV	Orange	11/21/2021	1	8 AM - 10 PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CCV	Riverside	11/21/2021	1	8 AM - 10 PM	Riverside County Fire Station	30515 10th St., Nuevo, CA 92567
CRC	Riverside	11/21/2021	1	8 AM - 10 PM	Holiday Inn Express & Suites	1864 Oak Valley Village, Beaumont, CA 92223
CCV	Riverside	11/21/2021	1	8 AM - 10 PM	Centennial Park	7330 Jurupa Rd., Jurupa Valley, CA 92509
CRC	San Bernardino	11/21/2021	1	8 AM - 10 PM	Jessie Turner Community Center	15556 Summit Ave., Fontana, CA 92336
CRC	Ventura	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Santa Paula Community Center	530 W. Main St., Santa Paula, CA 93060
CRC	Ventura	11/21/2021	2	8 AM - 10 PM 8 AM - 3 PM	Ventura Beach Marriott	2055 Harbor Blvd., Ventura, CA 93001
CRC	Kern	11/24/2021	2	11AM - 10PM 8AM - 12PM	Bear Valley Police Dept.	25191 Bear Valley Rd, Tehachapi, CA 93561
CRC	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Acton Community Center	3748 Nickels St, Acton, CA 93510

Table II-13 (continued)
CRC & CCV Locations Activated in 2021

Type	County	Deployment Start Date	Duration (days)	Hours of Operation	Facility Name	Address
CCV	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8AM - 4:30PM	Chatsworth Lake Church	23449 Lake Manor Dr., Chatsworth, CA 91311
CRC	Los Angeles	11/24/2021	1	11AM - 10PM	Residence Inn	25320 The Old Road, Stevenson Ranch, CA 91381
CRC	Los Angeles	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	San Fernando Community Center	208 Park Ave, San Fernando, CA 91340
CCV	Orange	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 2PM	Library of the Canyons	7531 E. Santiago Canyon Rd., Silverado, CA 92676
CRC	Riverside	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	San Jacinto Community Ctr.	625 Pico Ave, San Jacinto, CA 92583
CRC	Riverside	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	James A Venable Community Center	50390 Carmen Ave, Cabazon, CA 92230
CCV	San Bernardino	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Cal State University San Bernardino	5500 University Park, San Bernadino, CA 92407
CRC	San Bernardino	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Jessie Turner Community Center	15556 Summit Ave., Fontana, CA 92336
CCV	Ventura	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Moorpark City Hall	799 Moorpark Ave, Moorpark City, CA 93021
CRC	Ventura	11/24/2021	3	11AM - 10PM 8AM - 10PM 8Am - 4:30PM	Fillmore Active Adult & Community Center	533 Santa Clara St., Fillmore, CA 93015
CCV	Los Angeles	11/25/2021	2	5PM - 10PM 8AM - 4:30PM	Bluffs Park	24250 Pacific Coast Hwy., Malibu, CA 90265

[Authority: D.21-06-014, OPs 65 and 66]

3. *Notification:*

Provide aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

Response: SCE provided updates to its notification metrics in Section II.B.1 above.

a. Identify who the utility contacted in the community prior to de-energization and whether the affected areas are classified as High Fire Threat District Tier 1, Tier 2, or Tier 3 (as defined in General Order 95, Rule 21.2-D22);

Response: SCE does not have any updates to the information included in its 2021 post-event reports on who the utility contacted in the community prior to de-energization.

b. Explain why notice could not be provided at least two hours prior to a de-energization, if such notice was not provided;

[Authority: D.21-06-014, OPs 65 and 66]

Response: Rapidly changing weather conditions cannot always be forecasted based on information available through weather modeling. As such, it is not always feasible to identify all circuits that may potentially be in scope for de-energization two hours in advance. This information can include wind trends and speeds as identified by weather stations in the area of concern and/or live field observations. As a result, in situations when weather conditions change rapidly, it may be necessary to de-energize customers without any required prior notifications. SCE provided explanations in its post-event reports for any notifications that could not be provided at the required intervals or at all prior to de-energization. As noted above, SCE identified through its data validation and review process the need for updates to certain notification metrics in its 2021 post-event reports and the need for additional improvements to its notifications process. SCE has initiated the PSPS IMT Process Automation & Customer Notifications project, which is focused on IT improvements in customer notifications, such as the automation of reports and customer notifications.

4. Restoration:

Provide aggregate data, as identified in OP 65, in an annual report, including aggregate data that may not have been available at the time the utility filed the 10-day post-event report:

a. Provide a detailed description of the steps the utility used to restore power.

[Authority: D.21-06-014, OPs 65 and 66]

Response:

Table II-14
Aggregate Restoration Times for 2021 PSPS Events [6]

PSPS event date name	Date / Time of First Circuit Restoration	Date / Time of Last Circuit Restoration
01.12.2021	01/15/2021 16:56	01/21/2021 18:30
04.12.2021	04/14/2021 00:39	04/14/2021 00:39
09.30.2021	09/30/2021 15:51	09/30/2021 15:51
10.11.2021	10/12/2021 11:18	10/12/2021 14:30
10.15.2021	10/15/2021 17:10	10/16/2021 08:57
10.22.2021	10/22/2021 16:28	10/22/2021 16:28
11.21.2021	11/21/2021 14:51	11/22/2021 13:45
11.24.2021	11/25/2021 12:02	11/26/2021 19:48

After a circuit has been de-energized pursuant to SCE's PSPS protocol, PSPS IMT personnel continue monitoring the Period of Concern (POC) and begin developing restoration plan(s) to return the circuit(s) or circuit segments to service as soon as the POC expires, Fire Weather Conditions have subsided, and it is safe to do so. If multiple circuits have been de-energized, the restoration plans include prioritization for circuits that have been de-energized (prioritization can include first off, first on, need for water resources, essential customers, critical care customers, etc.). PSPS IMT personnel monitor all circuits that are de-energized and will watch for winds to decrease below thresholds, which triggers circuit patrols for re-energization. Upon receiving the All-Clear declaration and approval from the PSPS IMT Incident Commander to begin restoration of a circuit, restoration notifications are sent to impacted customers, and circuits or circuit segments under PSPS protocols are patrolled and re-energized. The patrols are intended to ensure there is no damage to SCE facilities before power can be safely restored. In most cases, field crews are standing by for patrol, so that patrols can typically take placewithin eight hours. However, visual inspections of the power lines usually take place during daylight hours for safety and accuracy. Consequently, patrol and restoration operations may be limited or prolonged during overnight hours. SCE strives to restore all power within 24 hours of de-

[6] *See* Appendix B for a detailed list of updates to 2021 de-energization, all clear and restoration times.

energization when possible. For multiday events, with gaps of even a few hours, field crews will attempt to restore customers before a second POC begins, even if this requires a repeat de-energization. Some circuits will require a helicopter patrol. When possible, customers on difficult-to-patrol circuits are switched to more accessible circuits for restoration, so that circuits with no customers on them will be the last in line for restoration.

PSPS IMT personnel perform ongoing assessments of restoration plans to monitor progress and address any delays to re-energization that may occur.

III.

DECISION-SPECIFIED

A. Education and Outreach

1. Include the results of the most recent education and outreach surveys not yet previously reported on, as an attachment to the Post-Season Report. See D.21-06-034, Sections E-1.1. – E.1.4. for specific requirements on the surveys.

[Authority: D.21-06-034, Guidelines at p. A7, Section E-1]

Response: In response, as we did for the 2020 customer research, SCE is filing our 2021 Pre- and Post- wildfire season survey results which also include an assessment of our performance "before, during, and after" a wildfire from the Residential and Business customers' perspective.

As in 2020, SCE and the other IOUs administered a common (virtually identical) core questionnaire in two phases: a pre-wildfire season survey in July / early August 2021 (1-2 months earlier than in the prior year), and a post-wildfire season survey (including the pre-questions again as well as more detailed PSPS experience-related questions) in late November / December 2021 – with the objective to measure the communications and outreach effectiveness prior to and coincident with when wildfire activity is most expected to be greatest. Each IOU added custom questions if desired, developed its own sampling plan / approach, and utilized its

own preferred research vendor to implement the surveys – and determined which "prevalent" languages to offer the surveys in.

The 2021 survey results are included in Appendix A.

B. Medical Baseline and Access and Functional Needs

1. Description of Programs Provided to AFN Customers During PSPS Events

1. Describe in detail all programs and/or types of assistance, including:
   a. Free and/or subsidized backup batteries
   b. Self-Generation Incentive Program Equity Resiliency Budget
   c. Community Microgrid Incentive Program [sic] ["Microgrid Incentive Program" per D.21-01-018]
   d. Hotel vouchers
   e. Transportation to CRCs
   f. Any other applicable programs or pilots to support resiliency for persons with access and functional needs and vulnerable populations.

2. Identify and describe the costs and associated funding source(s) for all partnerships, each unique program and form of assistance (e.g., backup batteries as distinct from hotel vouchers), and any other efforts aimed at mitigating the impacts of public safety partners events on persons with access and functional needs and vulnerable populations.

3. Funding source(s) shall specify applicable utility balancing accounts or other accounting mechanisms, and non-utility funding sources, if applicable.

4. Identify any communities or areas not served by utility partnerships with CBOs that provide assistance to persons with access and functional needs or vulnerable populations in preparation for or during a public safety partners event;

[Authority: D.21-06-034, Guidelines at p. A16, Sections K-3.d]

Response: In the below table, SCE is providing data on each type of assistance provided in 2021 to support resiliency for customers with AFN.[7]

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[7] SCE does not have data to report for Microgrids at this time. The Joint IOUs have filed a Microgrid incentive program implementation plan. *See* R.19-09-009, *available at* https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M428/K469/428469637.PDF. The CPUC has yet to make a decision on the Microgrid OIR.

Table III-15

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
Critical Care Backup Battery Program (CCBB)	The CCBB Program provides a free portable back-up battery to eligible customers enrolled in the Medical Baseline (MBL) Program, enrolled in either the California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) programs and reside in a HFRA. The program supports customers with AFN who are electricity dependent and rely on electrically operated medical devices.	$19,724,057 Program expenditures in 2021 represent the costs associated with program administration, procurement and deployment of free portable backup batteries, and creation and implementation of marketing and outreach to increase awareness of the Critical Care Battery Backup program. A total of 6,021 free portable backup batteries were deployed in 2021.	SCE did not request funding for this activity in its 2021 General Rate Case (GRC). Therefore, any incremental amounts associated with this activity are tracked in its Wildfire Mitigation Plan Memorandum Account (WMPMA) for potential future cost recovery.
Portable Power Station Rebates	Residential customers who live in an area designated as a Tier 2 or Tier 3 high fire risk area can receive up to five (5) $75 rebates for purchasing qualified Electric Portable Power Stations (e.g., portable batteries) per residential address. While the CCBB Program is the main backup battery program for customers with AFN,	Total Cost: $177,331 Total number of Portable Power Station Rebates (1,761)[8] Program expenditures in 2021 represent the costs associated with site host operations, program administration, incentive expenditure, and implementation of marketing and outreach to increase	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its WMPMA for potential future cost recovery.

[8] Represents total number of rebates. Customers may be eligible to collect more than one rebate per service account.

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	this offering is also available to all customers enrolled in CARE, FERA and MBL who live in HFRAs, including customers who use accessible technology or participate in the CCBB Program, etc.	awareness of SCE Marketplace.	
Portable Generator Rebates	SCE's online marketplace offers rebates for portable generators and is available to customers who live in an area designated as Tier 2 or Tier 3 high fire risk areas. Residential customers enrolled in MBL or income qualified programs, such as CARE and FERA, could receive a $500 rebate. Other residential customers located in an area designated as Tier 2 or Tier 3 high fire risk zones, are eligible to receive a $200 rebate.	Total Costs: $322,098 Total number of Portable Generator Rebates (666) Program expenditures in 2021 represent the costs associated with site host operations, program administration, incentive expenditure, and implementation of marketing and outreach to increase awareness of SCE Marketplace.	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its WMPMA for potential future cost recovery.
Self-Generation Incentive Program (SGIP) Resiliency Equity Budget	The SGIP is a Statewide program that provides eligible customers with financial incentives for the installation of new qualifying technologies installed to meet all, or a portion of, the electric energy needs of a facility. To help	Total Costs in 2021: $60.06 million 2021 Incentive costs: $55.28 million. 2021 Administrative costs: $4.78 million 2021 Resiliency Incentives paid: $24.54 million which is	Self-Generation Program Incremental Cost Memorandum Account (SGPICMA)

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	address the need for resiliency and better prepare our customers for outages and PSPS, SGIP offers incentives for the installation of self-generating energy storage systems designed to offset the customer's energy use and work as back-up battery to provide power when an outage occurs. The incentives for "Resiliency" qualified projects covers close to 100% of residential and roughly 85% of non-residential battery cost. The eligibility requirements to qualify for these incentives differ between residential and non-residential customers.	included in the $55.28 million noted above. Total number of Self-Generation Incentive Program resiliency projects completed in 2021 and incentive payments have been made (870) There is an overall budget for the program which is collected and paid from Public Purpose funds. The assigned budget is used to pay Incentive and Administrative costs. The incentive portion is spread across several subcategories or buckets, one being the Resiliency budget. We do not track Administrative costs at the subcategory level, only at the program level.	
211 Partnership (Transportation, hot meal delivery or shelf stable food, and/or shelter)	SCE offers transportation, shelter, hot meal deliveries, and shelf stable food to customers with AFN through its partnership with 211.	Total Cost: $1,554,332 In 2021, 211 provided one meal delivery for a disabled veteran and secured shelter for a customer enrolled in the MBL Program. 211 did not receive any requests for transportation in 2021. SCE, in collaboration with 211, now offers year-round care coordination and	SCE did not request funding for this activity in its 2021 GRC. Therefore, any incremental amounts associated with this activity are tracked in its Fire Risk Mitigation Memorandum Account for potential future cost recovery.

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
		specialized referrals for customers with AFN. This involves direct referrals to CBOs, yearly check-ins and resiliency planning by 211 staff (e.g., Care Coordinators, Resource Specialists, etc.) trained to provide services to individuals with AFN. Care Coordination gives customers access to 10,000 CBOs across SCE's service area. When customers contact 211 during a PSPS, 211 will screen SCE customers to determine any AFN that may arise. 211 provides customers with AFN 24/7 live support which includes reporting accurate and up-to-date information about the active PSPS and connects customers to transportation, shelf-stable food, meal delivery, or shelter as needed.	
Hotel Discounts	SCE provides additional assistance to customers by encouraging local hotels to provide discounts to customers experiencing a PSPS activation. Customers can	Total Cost: $0	N/A

Program/Service	Description of Program/Service	Cost and Cost Description	Funding Source
	review a list of participating hotels listed on SCE's website and can interact directly with the hotel to book rooms at a discounted rate.		

In accordance with CPUC D.21-06-034 Phase 3 OIR Decision Guidelines, SCE, along with SDG&E, and PG&E, leveraged the Federal Emergency Management Administration's (FEMA) Developing and Maintaining Emergency Operations Plans Comprehensive Preparedness Guide (CPG) 101 6 Step Planning Process to develop each IOU's respective Access and Functional Needs (AFN) Plan for Public Safety Power Shutoff Support (2022 AFN PSPS Plan).[9] Following the FEMA 6 Step Planning Process, SCE collaborated with external stakeholders from the Statewide Joint IOU AFN Advisory Council and identified a gap in providing accessible communications for individuals who are Deaf, Blind, Deaf-Blind, and Hard-of-Hearing. SCE is addressing this gap in 2022 and will work with a third-party vendor to prepare and send PSPS notifications and educational outreach materials in American Sign Language and with English voice and Text (in refresh Braille reader format). In addition, SCE will be increasing its number of CBO partners that represent AFN communities to be part of SCE's CBO Marketing & Outreach Effort. The objective of this CBO effort is to educate and create awareness with constituents around Wildfire and Safety Preparedness, before, during, and after a wildfire.

C. Mitigation

1. For each proactive de-energization event that occurred during the prior calendar year:

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[9] *See* SCE's 2022 Access and Functional Needs Plan for Public Safety Power Shutoff Support Pursuant to Commission Decision in Phase Two and Phase Three of R.18-12-005 filed on January 31, 2022, *available at* https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M449/K511/449511922.PDF

a. i. Circuit-by-circuit analysis of mitigation provided from backup power and microgrid pilots.

[Authority: D.21-06-034, Guidelines at p. A15, Section K-3.a.i.]

Response: In preparation for the 2021 PSPS season, SCE planned backup generation activities across a variety of use cases. Principal among these were underground load blocks, in which SCE engineered and modified circuity to interconnect mobile generators to serve areas of very low fire risk, should the upstream feed be interrupted. SCE prepared five circuits with this capability.

SCE also prepared eight resiliency zone customers and two CRCs with backup generation capability in order to supply goods and services to communities during a de-energization. Finally, SCE may deploy temporary mobile generators for critical facilities to assist maintaining electric service for essential life safety and public services emergencies. These case-by-case decisions are made by the IMT in coordination with county emergency management offices, based on the unique circumstances associated with each event.

SCE retained over forty mobile generator units for the duration of the season to help ensure availability when needed. The table below contains details for SCE's 2021 deployment of backup generation. No microgrids were completed in 2021, although SCE did start to deploy a behind-the-meter microgrid for a community resiliency pilot in Fontana, which is anticipated to be completed in Q1 2022.

Table III-16

Event Date	Circuit	Mitigation	Approximate Customer Count
10.11.2021	Trumpet	Critical Care Customer Backup Generator	1
11.21.2021	Impala	Underground Load Block Backup Generator	428

11.24.2021	Impala	Underground Load Block Backup Generator	428
11.24.2021	Energy	Underground Load Block Backup Generator	121[10]
11.24.2021	Galena	Critical Care Customer Backup Generator	1
11.24.2021	Pick	Customer Resource Center Backup Generator	1 meter – 79 visitors served
11.24.2021	Fingal	Customer Resource Center Backup Generator	1 meter – 233 visitors served
11.24.2021	Poppy Flats	Resiliency Zone Backup Generator	1 meter – unknown visitors served

D. Public Safety Partners

1. Identification of all requests for selective re-energization made by public safety partners during a de-energization event, whether each such request was granted or denied, and the reason for granting or denying each such request.

[Authority: D.21-06-034, Guidelines at p. A16, Section K-3.c.]

Response: SCE did not receive requests for selective re-energization made by public safety partners during de-energizations events in 2021.

E. Transmission

1. Description of the impact of de-energization on transmission.

Response: SCE's interconnected bulk transmission system is designed and operated to maintain reliability under various conditions. At a minimum, SCE's grid is operated to withstand all single- and selected double-contingencies while adhering to emergency equipment thermal and voltage limits. On any given day, SCE bulk transmission equipment may be in a

[10] This is an updated metric that was not provided in the November 24, 2021 post-event report.

planned outage state, and SCE ensures that its grid can still withstand next contingency (single and select double), while adhering to thermal and voltage limits, under these conditions. Whenever a forced equipment outage occurs and that piece of equipment cannot be returned to service, SCE will coordinate necessary mitigating actions with its Balancing Authority (California Independent System Operator—CAISO) in order to readjust the grid to withstand the next potential worst contingency. If mitigating actions are not performed in a timely manner, reliability may be reduced—and potentially making the grid more susceptible to greater impacts upon next contingency conditions.

2. Evaluation of how to mitigate and prepare for those impacts in future potential de-energization events.

Response: SCE begins to evaluate bulk transmission lines and weather scenarios 4-7 days prior to potential de-energization of those lines. This process starts by determining the forecasted windspeeds on those transmission lines and comparing them with their associated PSPS thresholds. Next, we consider the forecasted Fire Potential Index (FPI), as well as circuit health conditions to determine the likelihood of these transmission lines being de-energized for the PSPS event. We then develop various scenarios of these potential de-energized transmission line(s) to define likely de-energization "scenarios." For example, those transmission lines with the highest forecasted windspeeds and highest forecasted FPI would be grouped into one scenario, while others that traverse a corridor in the same county may be grouped into another scenario. After defining these scenarios, we determine what transmission equipment outages are planned during the PSPS event. We then perform contingency analysis based on forecasted load during the PSPS event with the planned transmission equipment outages, along with the various transmission line de-energization scenarios, to determine potential impacts. If potential impacts are found that can be mitigated by rescheduling planned transmission equipment outage(s), then those will be evaluated for reschedule potential. Once rescheduling of planned transmission outages are determined, we then perform contingency analysis again to evaluate any potential unmitigated impacts. The PSPS Operations group then communicates any potential thermal and

voltage violations and discusses mitigating action plans with the Grid Control Center (GCC) real-time personnel, as well as with the CAISO. Mitigating actions will then be discussed amongst PSPS Operations, GCC, and CAISO—and implemented prior to the start of the PSPS event, when required.

3. Identify and describe all studies that are part of such analysis and evaluation.

Response: PSPS load flow studies are performed with either or both an off-line and/or real-time study. Typically, PSPS Operations utilizes SCE's State Estimator Real-Time Contingency Analysis (RTCA) tool to perform studies pre- and during-event. The State Estimator RTCA tool can take a "snapshot" of the grid, and then modified off-line to model planned outages, load and generation adjustments, as well as intertie flow adjustments. Additionally, this tool is used to extract data (using a data historian) to trend all necessary real-time data points including load, Megawatts (MW) and Mega Volt Amp Reactance (MVAr) flows, voltages, circuit breaker status, etc., to accurately simulate scenarios for the PSPS event. Once all necessary modeling and adjustments have been made, the RTCA function is enabled to perform all contingencies. Once all contingencies have been simulated, all thermal and voltage violations are evaluated. PSPS Operations then summarizes those violations that are not automatically mitigated for (such as from Remedial Action Schemes, etc.), and shares the results with GCC and CAISO, when applicable.

4. Identify all efforts to work with publicly owned utilities and cooperatives to evaluate the impacts of de-energization on transmission.

   [Authority: D.21-06-034, Guidelines at pp. A15-A16, Section K-3.b.]

Response: PSPS Operations will communicate (as far in advance as possible) any potential impacts with neighboring entities identified in the pre-PSPS event timeframe. In the days leading to the PSPS event, PSPS Operations will communicate to SCE's Outage Coordination group (within the GCC) any transmission outages it deems "high likelihood" of de-energizing based on forecasted windspeeds at/near wind speed thresholds of those transmission lines. The Outage Coordination group will in turn submit these potential transmission line

outage(s) as PSPS transmission outages to the CAISO and any impacted publicly owned utilities and cooperatives in advance of the PSPS event for their awareness and to plan for mitigating actions, where required. The GCC will also schedule a call with the CAISO and PSPS Operations to ensure all outage submittals have been received and mitigations will be in place prior to the start of the event. SCE is currently in the process of enhancing communications to any potentially impacted utilities as well as critical facilities interconnected at the transmission level.

IV.

SAFETY AND ENFORCEMENT DIVISION-SPECIFIED QUESTIONS

Brief response no longer than two pages.

1. Discuss how your meteorology and fire science predictive models performed over the year. What changes will you make to improve performance?

Response:

Weather Modeling:

During the past year, SCE made major upgrades to its in-house weather modeling capabilities. Two additional High Performance Computing Clusters (HPCCs) were purchased in 2021 to help implement the Next Generation Weather Modeling System (NGWMS) which consisted of three specific enhancements: 1) More robust ensemble forecasting to include more members and the use of the European weather model, 2) Higher model output resolution from 2 km to 1 km, and 3) the use of machine learning to provide better estimates of wind speeds at select site specific locations. Since the NGWMS was implemented less than 6 months ago, there has not been the opportunity to perform an extensive evaluation on how these enhancements have improved SCE's overall forecasting ability. However, what is certain is that having more models provides additional guidance to provide better weather forecasts with a higher degree of confidence.

SCE has four primary meteorology predictive models run in house: 1) a 2-KM deterministic Weather Research and Forecasting (WRF) model driven by the National Centers for Environmental Prediction (NCEP) Global Forecast System (GFS), 2) a 2-KM WRF ensemble of models driven by the NCEP North American Mesoscale Model (2-KM NAM Ensemble), 3) a 1-KM WRF ensemble of models driven by the NCEP GFS and European Global Models (1-KM EC/GFS Ensemble), and 4) a machine learning forecast system. Because weather forecasts are inherently uncertain, SCE runs these multiple weather modeling systems to account for varying scenarios.

Table IV-14 provides an annual summary of the forecast evaluation for each of the meteorology predictive models listed above. While these new sources of forecast guidance were not available all year, they have generally shown better ability to discriminate which circuits will reach monitoring criteria from those that will not with a higher hit rate and lower false positive rate.

Table IV-17

Forecast (Day Of)	Sustained Bias (MPH)	Gust Bias (MPH)	Sustained MAE (MPH)	Gust MAE (MPH)
2-KM Deterministic	4.5	5.8	9.4	11.9
2-KM NAM Ensemble	5.7	7.9	9.1	11.6
1-KM EC/GFS Ensemble*	1.7	1.7	7.2	7.4
Machine Learning*	-3.6	-5.8	6.4	8.3

Table IV-14 - Annual forecast verification statistics for day-of forecasts by raw meteorology predictive models ordered by source. *The 1-KM EC/GFS Ensemble and Machine Learning came online late in 2021 and thus do not sample all PSPS. Bias is calculated as forecasts minus observations, whereas MAE represents the mean absolute error of the forecast.

Fire Spread Modeling:

Technosylva is the preferred vendor for SCE's fire spread modeling capabilities with associated software applications consisting of the Wildfire Risk Reduction Model (WRRM) and

FireCast/FireSim. Multiple enhancements were made to improve the output of these applications to include updating the "static" fuels layer and providing more advanced metrics.

In 2020-2021, the fuels layer underwent a major update which included the use of remote sensing technology to depict vegetation types and amounts more accurately across the landscape. Since this layer directly influences calculations of fire spread and intensity, the updated layer provided more realistic estimations of simulated fire perimeters. For example, Figure IV-1 shows two fire simulations for the Alisal Fire using a before and after updated fuels layer. This layer has continued to be periodically refreshed throughout 2021 to account for new burn scars and other land disturbances which have altered the vegetation.

Figure IV-1

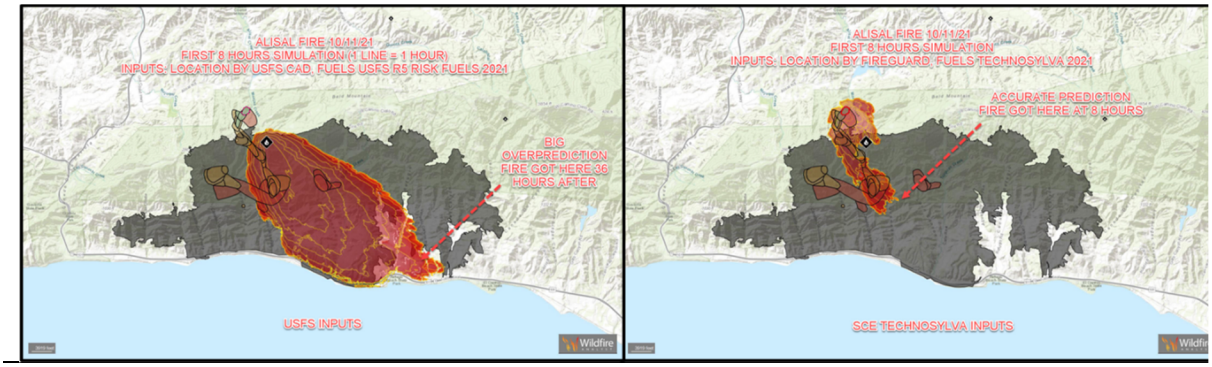

Figure IV-1 - Fire simulations for the Alisal Fire using the fuels layer before and after being updated. The 8-hour simulation on the left uses the old fuels layer and grossly overestimates the fire perimeter, while the 8-hour simulation on the right uses the updated fuels layer and depicts a more accurate perimeter size. Grey area on both images depicts the final perimeter of the fire.

In addition to having a more accurate assessment of surface and canopy fuels, several new metrics were introduced to both FireCast and WRRM to include the Fire Behavior Index, Rate of Spread, and Flame Length (Figure IV-2). These new metrics are useful for understanding the characteristics of fires related to propagation and intensity. As such, they help identify areas where the most intense fire activity could occur based on either past or future weather conditions.

Figure IV-2

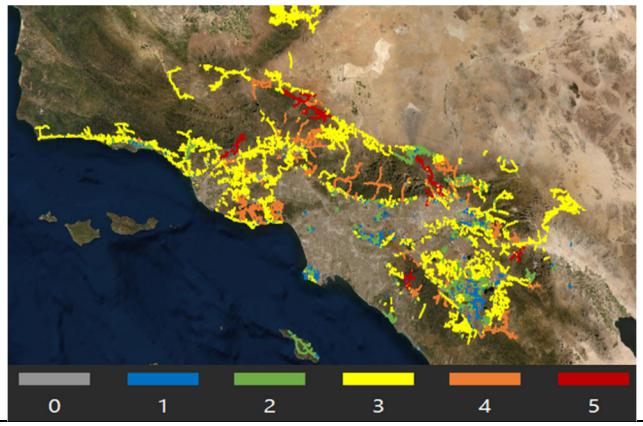

Figure IV-2 - Image showing the Fire Behavior Index levels by circuit.

2. <u>What were the challenges in quantifying risks and benefits in terms of determining the scope (size and duration) of the PSPS you conducted?</u>

Response: The scope and duration of PSPS is primarily determined based on the weather, fuel and asset considerations reflected in our activation and de-energization thresholds. The risks and benefits are inherent in these thresholds with challenges around forecasting accuracy, FPI calibration, and asset health.

SCE also uses a PSPS Risk vs. Benefit Comparison Tool to provide an event-based quantitative comparison of risk scores to further inform de-energization decision making. Challenges in developing the PSPS Risk vs. Benefit Comparison Tool quantitative outputs centered on operationalizing FireCast simulations (over 100 million) and establishing conservative, justifiable, and independently validated assumptions on public harm (safety, reliability, financial) co-incident with PSPS de-energization. All assumptions, references and design of the Risk vs. Benefit Comparison Tool are documented in the post-event reports, and SCE will continue to refine and enhance these calculations. Other challenges experienced during PSPS operations in 2021 included the availability of FireCast model information for those circuits that were not originally in scope. These circuits were subsequently brought into scope for potential de-energization based on emergent weather conditions. FireCast modeling inputs are dependent on the information provided as part of SCE's initial PSPS forecast. Therefore, some

circuits not originally identified in scope for a PSPS event could not be included in the Firecast Model inputs. SCE continues to refine and update its forecasting models through the addition of new models and machine learning algorithms which are expected to further improve forecasting for PSPS event scope to address this data challenge.

3. **How did you build a resilient emergency management team? Discuss in terms of personnel staffing, training, exercising, and changes to business practices.**

Response: SCE has been building and expanding our incident response capabilities for nearly a decade. SCE's Business Resiliency staff is made up of professional emergency managers who have come from local, State, and Federal emergency management agencies as well as related other private sector companies. These professional emergency managers work across SCE to find the appropriate personnel to staff Incident Management Team (IMT) and Incident Support Team (IST) roles in support of all types of hazards we might face in our service territory. Personnel are selected for their areas of expertise, their ability to respond to incidents, and their position within the company. Upon selection, all IMT / IST personnel go through comprehensive Incident Command System training, position-specific training that goes into their roles and responsibilities and completes either an exercise or shadows a real-world activation. SCE's Business Resiliency team routinely collects feedback on performance and areas for improvement, and regularly assesses staffing depth, positions, and capabilities to ensure the company response staff are prepared and fulfilling expectations.

4. **Explain your policies (provide a copy of written policies) regarding public safety partner (PSP) liaisons in your emergency operations center (EOC) and utility liaisons to state, local, and tribal government EOCs.**

Response: SCE prescribes to both the Federal National Incident Management System and the State of California Standardized Emergency Management System, which utilize the

Incident Command System for incident response operations. SCE regularly trains and exercises team members in the Liaison Officer (LNO) and Agency Representative (AREPs) positions of the ICS system. These team members are then available to respond to external agency Emergency Operations Centers (virtually or in person) as applicable during major emergencies.

SCE maintains an open line of communication with local jurisdiction during emergencies through the Business Resiliency Duty Manager at the county level and the Liaison Officer at the local government level to better understand the need for EOC representation overall. SCE also hosts daily coordination calls for impacted public safety partners and critical facilities and extends an invitation to public safety partners to its EOC (currently virtual) during each call.

Requests for AREPs to local jurisdiction EOCs are evaluated on a case-by-case basis through our Local Public Affairs organization in consultation with the Business Resiliency Duty Manager. AREPs that are deployed maintain contact to the SCE EOC through the Liaison Officer and provide enhanced coordination during emergencies as trained.

5. Recap the lessons learned from all of your de-energization exercises, the resulting action items, their implementation, and observed consequences.

Response: In 2021, SCE conducted several table-top simulation exercises, and incorporated learnings from these activities into our PSPS processes. As part of this process, SCE identified that a generator request process was not followed correctly. The process was thoroughly briefed at an October 6, 2022 meeting to help ensure all personnel were aware and familiar with this process.

6. Discuss how you fully implemented the whole community approach into your de-energization exercises.

Response: SCE utilizes objectives and scenarios in exercises that touch upon whole community concerns. In particular, the scenarios help to ensure that personnel are being tested on a wide range of potential issues and concerns from customers and community members of every

type. Furthermore, SCE invited stakeholders from throughout the communities we serve to participate in the exercise design, development, and execution. Invitations were extended to representatives from jurisdictions throughout the service territory, personnel from community-based organizations, and representatives from critical infrastructure and other utilities. Their input was solicited in exercise design and development, and their feedback incorporated as much as possible. Feedback and lessons learned from real world events was also incorporated to the fullest extent possible.

7. Discuss the complaints you received (as documented in POSTSR4) and any lessons learned and implementation of changed business practices.

Response: SCE has received over 3,500 complaints related to its 2021 PSPS events.[11] The vast majority of these complaints were in response to SCE's November 24, 2021 PSPS event (over 3,300). The vast majority (i.e., over 85%) of the total complaints received for 2021 PSPS events were through social media channels such as Facebook, Instagram and Twitter. These complaints typically came from customers generally dissatisfied with PSPS outages, such as expressing frustration related to PSPS in general (including timing of the event over the Thanksgiving holiday), duration, and frequency of events, timing of restoration, and/or providing comments regarding dissatisfaction with SCE generally. The remaining complaints were received through SCE's Call Center, Business Customer Division, Consumer Affairs, Local Public Affairs or at an activated CRC or CCV site during a PSPS event. Complaints received through these channels included concerns over accuracy of notifications, health, safety, and food loss. Where appropriate, SCE worked to resolve complaints by providing information such as available customer support programs and information on SCE's claims process.

SCE recognizes the challenges faced by individuals that were de-energized during the event that took place over the Thanksgiving holiday and has identified opportunities for

[11] *See* POSTSR 4 that provides a list of complaints received for SCE's 2021 PSPS events.

improvement to the notifications process for PSPS events. SCE identified delayed and missed notifications particularly during the rapidly escalating Thanksgiving PSPS event. SCE is working on improvements to its customer notifications including automation. *See* response to question 8 for additional details on SCE's evaluation and planned improvements to its notification process.

8. How did your PSPS notifications, to both customers and public safety partners/local governments, perform over the year? What changes will you make to improve performance?

Response: SCE made numerous changes to its PSPS notifications to both customers and public safety partners to improve performance in 2021. These changes included improvements to messaging and improvements to processes to reduce over-notification. For example, SCE reviewed the language used in the PSPS notifications for (a) text messages, (b) voice messages, and (c) emails for each of the notifications provided to Public Safety Partners and customers. Based on feedback gathered, SCE re-wrote the various notification messages to improve clarity and comprehension. SCE tested these new messages and cadence via focus group meetings with residential and business customers. SCE mapped the customer experience from first notification through event all-clear, including the cadence, content, language, and delivery methods, and developed a plan for customer experience improvements. In addition, SCE also changed the cadence of notifications to customers on the monitored circuit list to factor in data from two consecutive weather reports in order to send notifications more accurately to customers.

SCE also made changes to the notifications sent to local and tribal governments and other stakeholders including Community Choice Aggregators and Community Based Organizations serving the AFN community. The biggest change was moving from a primarly manual process to an automated system to send the notifications. This change resulted in a significant decrease in the amount of time required to send the notifications. SCE also revised the spreadsheet

containing information on the circuits in scope for PSPS so that the agencies receiving the updates could more easily identify changes from the previous versions.

SCE is currently working to incorporate lessons learned from the 2021 PSPS events to drive additional improvements to its notifications in 2022. SCE experienced a significant number of delayed or missed notifications in 2021, especially during PSPS events in late November 2021, as detailed in Section II, Amendments to Post Event Reports. A major factor for missed and delayed notifications during SCE's largest PSPS event in November 2021 was rapidly escalating wind speeds beyond initial forecasts. The size, scale, and speed of the event as it escalated leading up to November 25 strained the limits of our pre-automation processes and resulted in delays in processing weather forecasts and pre-event notifications. These processing delays were exacerbated by our efforts to send pre-event notifications at the segment level to account for circuit segments with covered conductor and corresponding higher de-energization thresholds. During the period of concern, the quickly increasing intensity of this event made it difficult to determine real-time circuit status and corresponding customer impacts to support in-event notifications and external reporting and briefing activities.

SCE's PSPS IMT Process Automation & Customer Notifications project, which was initiated in 2021, focuses on IT improvements in customer notifications, such as the automation of reports and customer notifications and will improve the issues experienced in the late-November PSPS event. Through this project, SCE identified opportunities to further integrate the workflows between the operational (grid-focused) team and the customer-facing (notification and communications) team to improve adherence to timing and reporting guidelines for PSPS notifications. This resulted in a project to use Palantir's Foundry system to build automation into the process to eliminate most of the manual efforts and handoffs. Key process changes and automations were delivered in December 2021 that streamline PSPS processes for forecasting scope and notifications. These capabilities and others such as Risk Analysis, Situational Awareness, and post-event reporting will continue to be enhanced through Palantir throughout 2022.

9. **How did your Public Safety Specialists and Public Affairs Representatives deconflict and synchronize operational direction given to local governments' Office of Emergency Services? What lessons did they learn in 2021 and what corrective actions are planned?**

Response: SCE does not have a Public Safety Specialist position. Instead, a similar function is performed by SCE's Fire Management staff. SCE utilizes specialized Fire Management staff to monitor, respond to, and report on all fires affecting or having the potential to affect SCE infrastructure. These personnel represent SCE by serving as a Cooperator in the field fire incident management structure. Fire Management staff assist in coordinating SCE's response to fires by providing information to manage the bulk electric system, repairing damage, restoring the electric system, and providing safe access to begin restoration work. These personnel maintain close working relationships with fire and emergency management agencies throughout the service area and serve as consultants and subject matter experts on fire risk management.

In addition to the Fire Management staff described above, when SCE activates an Incident Management Team (IMT) for a PSPS, a Laision Officers (LNO) is also activated. The primary responsibility of the LNO is to coordinate and resolve issues between SCE's IMT and local and tribal governments. SCE also activates Agency Representatives (AREPs) to work with local and tribal government officials as required. Additionally, SCE's Government Relation Managers and Customers Service Account Managers help to respond to local and tribal government issues. SCE's Business Resiliency personnel also coordinate with County Offices of Emergency Management. Local and Tribal governments are provided a dedicated phone number and email to contact SCE's LNO and Business Resiliency staff.

During response activations, SCE's Fire Management Staff and other SCE IMT personnel are actively engaged with local and tribal government officials to ensure alignment

between SCE's IMT and local and tribal government and emergency services officials on operational matters.

SCE is working with University of California San Diego and piloting artificial intelligence (AI) Fire detection and confirmation using SCE's 166 Alert Wildfire Cameras, and additional cameras located in SCE's service area. In 2021, SCE identified an opportunity to more effectively share and collaborate on this situational awareness and AI fire detection and confirmation technology with fire and emergency management agencies. SCE met with a fire agency to give a demonstration of AI fire confirmation technology, which was well received. SCE plans to continue to provide similar in-depth demonstrations to fire and emergency management agencies in SCE's service area.

In 2021, SCE also identified an opportunity to improve the accuracy and speed in sending notifications to impacted local and tribal governments through the Palintir/Foundry Platform. SCE expects to use this system in time for the 2022 Fire Season.

10. <u>What process did your Public Safety Specialists follow to provide situational awareness and ground truth to your EOC? How did the EOC incorporate their input?</u>

Response: See response to question 9 above.

Appendix A

METRICS TO DETERMINE EFFECTIVENESS OF COMMUNICATIONS AND OUTREACH EFFORTS

METRICS TO DETERMINE EFFECTIVENESS OF COMMUNICATIONS AND OUTREACH EFFORTS

METHODOLOGY

SCE administered its pre- and post- wildfire season surveys on a large scale to the general public (Residential and Business customers) systemwide and in high fire risk areas (HRFAs). To use the research to evaluate our communications and outreach efforts with both English- and non-English speaking customers (exception: indigenous languages could not be captured through the surveys), the 2021 surveys were offered in 19 "prevalent" languages within our territory – Arabic, Armenian, Chinese-Cantonese and Mandarin, Farsi, French, German, Japanese, Khmer, Korean, Punjabi, Russian, Spanish, Tagalog, Vietnamese, Hindi, Hmong, Portuguese, and Thai – plus English (a reduction from the 25 "prevalent" languages plus English included in 2020).

Since we are not able to target individual customers with any certainly based on their languages spoken or preferred, SCE used a self-selection / self-identifying methodology as part of the email and phone survey administration to reach language-dependent customers, supplemented by direct questions within the survey about language / communications preferences. Even applying this open-ended approach, we projected and subsequently proved in 2020 that the actual number of non-English survey completes (sample sizes) would likely be quite small and not statistically significant for most of the lower-incidence languages.

Survey invitations were delivered to Residential and Business customers via email (to a self-administered web survey) and / or by phone (to an interviewer-administered telephone survey), with 70% of completed interviews expected from email and 30% via phone. Email invitations greeted potential respondents in all 20 languages with a jump link in the email to a web survey in the language of the respondent's choice. The Computer-Assisted Telephone Interview (CATI) phone center is capable of administering the questionnaire in all of the

languages, but all interviewers / languages are not available at all times. Upon encountering a language barrier with a potential survey respondent, the interviewer attempted to identify the language and stored the record for re-contact at a later date. If the language could not be identified, a surname-based, pre-coded flag was used to assign the record for re-contact.

All participants were offered entry to a sweepstakes to encourage participation. Across all quotas, the prizes offered were: Two grand prize winners of $500 (1 each for Residential and Business), and enough $100 winners to make the odds of winning 1:100.

Target sample sizes for the various surveys were established prior to implementation. Residential pre- quotas were exceeded Systemwide (2,500) and in the HFRAs (1,000). Business pre- quotas (750) were not met (due to sample limitations and a suspected high number of COVID-related closures). The quotas for the post- surveys were adjusted based on the pre-survey experience.

Actual sample sizes achieved were as follows:

- **Residential** –
  - Systemwide: Pre-: 2,270 (210 non-English) Post-: 2,316 (191 non-English)
  - HFRAs: Pre-: 2,392 (111 non-English) Post-: 2,272 (85 non-English)
  - Non-HFRAs: Pre-: 1,612 (172 non-English) Post-: 1,627 (167 non-English)
- **Business** –
  - Systemwide: Pre-: 943 (94 non-English) Post-: 780 (85 non-English)
  - HFRAs: Pre-: 591 (30 non-English) Post-: 655 (40 non-English)
  - Non-HFRAs: Pre-: 713 (83 non-English) Post-: 641 (74 non-English)

All Residential and Business pre- surveys were completed between July 7 and August 3, 2021. Post- surveys were fielded between November 23 and December 28.

The average length of the Residential pre- survey was about 11 minutes and the post-survey 14-15 minutes. Business surveys averaged about 9 minutes for the pre- and 12-13 minutes for the post-.

2021 SURVEY RESULTS

Comparisons are made below between the results for the 2021 Pre-/Post- surveys and for this year versus the prior year (2021 versus 2020).

RESIDENTIAL

Need for Wildfire comms in languages other than English

- Results for both 2020 and 2021 indicate clearly that only a tiny minority of Residential customers chose to take the survey in a non-English language (6.4% of all surveys – or 608 of a total 9,522 – spread across just 15 of the available [25/19] languages offered).
- When asked directly in the survey to choose their preferred language for wildfire communications from SCE, less than 1 in 10 (9.25% – or 881 of 9,522) indicated a preference for a language other than English.
- To further investigate this issue of language dependency, an additional question was asked of these respondents who prefer a non-English language option about receiving WF comms from SCE in English only:
  - 3.1% of all Residential customers report they cannot understand English and need wildfire communications in some other language.
    - Most of these (2.1%) require a Spanish language option
    - The balance (1%) require communications in a language other than English OR Spanish.

After two survey years it appears that language dependency for Residential customers is a relatively minor concern across SCE's territory (and even less so in the HFRAs) in reaching customers with wildfire-related communications – and it is especially not critical for WF comms to be offered in such a wide array of "prevalent" languages beyond English and Spanish.

SUMMARY OF FINDINGS

Changes in PSPS metrics among Residential customers territory-wide and in HFRAs between the pre- and post- surveys in 2021 are less substantial than those found between pre- and

post- surveys in 2020 – and performance comparisons are down between 2020 and 2021. These findings suggest the 2020 WF communications were more effective and generated a stronger, more supportive response.

Recall of SCE WF Communications

- The 2021 post- survey found half of all Residential customers (51%) recall seeing SCE WF communications – a significant increase from 48% in the pre- survey. Recall among customers in HFRAs, however, was unchanged (55% to 56%), indicating the lift in recall occurred among customers in non-HFRAs.
- In 2020, there was higher recall of SCE WF comms overall than in 2021 – and a substantial pre- to post- increase among customers in HFRAs (+9 pct. pts. to 65%) and those in non-HFRAs (+4 pct. pts. to 51%) which fueled a systemwide increase of 6 pct. pts. (from 49% to 55%).

SCE WF Communications Sources

- Emails and letters from SCE continue to be the most common sources of WF communications for customers; however, both fell in their usefulness pre- to post-.
- Four SCE WF communications sources grew in their recall incidence between the 2020 pre- and post- surveys – and none declined. In 2021, one rose and one declined.
- Satisfaction with SCE.com as a source of information about preparing for wildfires dropped between the 2020 pre- and post- surveys (systemwide – and among customers in HFRAs and non-HFRAs alike). In 2021, these satisfaction levels were maintained (unchanged) pre- to post-.

Other WF Communications Sources

- Among a wide variety of "other" sources of WF comms, local news reports followed by city/county government and CalFire are the most common – most are considered useful by a majority of customers.
- Perhaps due to fewer wildfire or PSPS events in 2021, the pre-/post- rise in the use of "other sources used to obtain information about wildfire safety and preparedness" identified in 2020 was not repeated in 2021 (where none of these other sources rose).

Wildfire Preparedness

- Self-reported preparedness levels held steady, but preparedness actions taken have declined.
  - At the end of 2020, 57% of customers systemwide and 67% in HFRAs reported being Completely or Somewhat prepared. By mid-2021, these percentages were 54% and 59%, respectively.
  - Between the 2020 pre- and post- surveys, customers territory-wide reported a higher incidence on 5 preparedness actions – and in HFRAs, the increased activity stretched to 10 actions. Between the 2021 pre- and post- surveys, there was a much less enthusiastic response: Systemwide, action on two items declined (and none increased) – and in HFRAs, action increased for 5 items but declined for 2.

Ratings of SCE's WF Efforts

- Ratings of SCE on WF matters have slipped and did not improve during the 2021 wildfire season.
  - At the end of 2020, 61% of customers systemwide and 57% of customers in HFRAs were satisfied with SCE's overall wildfire safety and preparedness efforts. In mid-2021, these pre- ratings dropped to 57% and 53% – and both further declined to 54% and 51% by the end of 2021.
  - Agreement with 9 wildfire-related image statements about SCE is asked pre- and post-. In 2020, attitudes improved on 3 statements systemwide and on 1 statement in HFRAs, while none declined. In 2021 six declined systemwide and one declined in HFRAs, while none increased – showing that weakened attitudes occurred mostly in the non-HFRAs.

PSPS Awareness and Satisfaction

- Awareness of "PSPS" has eroded from 2020 levels – and there was no lift in PSPS awareness between the 2021 pre- and post- surveys
  - PSPS Awareness at the end of 2020 was 69% systemwide and 84% in HFRAs.
  - PSPS Awareness in mid-2021 (July pre- survey) was 60% systemwide and 67% in HFRAs – and remained mostly unchanged by the end of 2021 (57%; 65%, respectively).
- Satisfaction with SCE.com's PSPS information also eroded from 2020 levels – and there was either no lift or a drop in 2021.

- Satisfaction with SCE.com's PSPS information at the end of 2020 was 71% systemwide and 65% in HFRAs.
- In mid-2021, satisfaction was down to 67% systemwide and 57% in HFRAs – and by the end of 2021, it was at 60% systemwide and 48% in HFRAs.

PSPS Notifications and Events – 2021 Post- versus 2020 Post-

- Fewer non-HFRA customers received PSPS alerts in 2021 than in 2020. However, the same percentage of HFRA customers report having received an alert (47%).
  - Customers who receive alerts report more often receiving Texts (56% in HFRAs)
- Customers in HFRAs more often say they experienced a PSPS event (24% in 2020 vs. 33% in 2021).
- Customers in HFRAs more often checked SCE.com (increased from 37% to 47%) for updates during events, while fewer checked with local news stations (decreased from 12% to 8%). Unfortunately, the source usefulness of SCE.com declined from 63% to 47% systemwide and from 54% to 44% in HFRAs.
- Satisfaction with SCE.com for information provided during events declined (from 60% to 45% systemwide, and from 48% to 39% in HFRAs).
- Customers more often received power restoration notices (increased from 51% to 67% in HFRAs), but the usefulness of these notices declined (from 58% to 47% in HFRAs).
- Satisfaction with SCE.com for information provided after events also declined (from 51% to 42% in HFRAs).
- Finally, overall satisfaction with SCE's PSPS communications declined (from 62% to 52% Systemwide and 53% to 46% in HFRAs).

BUSINESS

Need for Wildfire comms in languages other than English

- Results for both 2020 and 2021 indicate clearly that a minority of Business customers chose to take the survey in a non-English language (8.8% of all surveys – or 239 of a total 2729 – across all of the available languages).

- When asked directly in the survey to choose their preferred language for wildfire communications from SCE, just 6.1% (167 of 2,729) indicated a preference for a language other than English.
- To further investigate this issue of language dependency, an additional question was asked of these respondents who prefer a non-English language option about receiving wildfire communications from SCE in English only:
  - 1.05% of all Business customers report they cannot understand English and need wildfire communications in some other language (29 out of 2,729)
  - Spanish, Korean, or Chinese Mandarin address the vast majority of these 29 customers.

As with Residential customers, after two survey years it appears that language dependency for Business customers is a relatively minor concern across SCE's territory (and even less so in the HFRAs) in reaching customers with wildfire-related communications – and it is especially not critical for WF comms to be offered in such a wide array of "prevalent" languages beyond English and Spanish.

SUMMARY OF FINDINGS

Changes in PSPS metrics among Business customers territory-wide and in HFRAs between the pre- and post- surveys in 2021 are relatively minor – and results are comparable to those found pre- to post- in 2020.

Recall of SCE WF Communications

- The 2021 post- survey found half of all Business customers (48%) recall seeing SCE WF communications – unchanged from 51% in the pre- survey. Recall among customers in HFRAs was also unchanged (57% to 57%).
- In 2020, there was an increase in recall of SCE WF comms (51% to 56%), which was concentrated in HFRAs (HFRA recall +6 pct. pts.; no change in non-HFRAs).

SCE WF Communications Sources

- Emails and letters from SCE continue to be the most common sources of WF communications for customers – and the source usefulness ratings of each were unchanged.

- In 2021, recall of texts from SCE rose between the pre- and post- surveys (5% to 9%). Source usefulness of texts from SCE improved *directionally* (71% to 85%).
- Among the 17% or so of all businesses who recalled SCE.com as a WF comms source, satisfaction with it as a source of information about preparing for wildfires was unchanged at high levels between the 2021 pre- and post- surveys (91% vs 83%).

Other WF Communications Sources

- At most, 1/3 of business customers (34%) cite any of a wide variety of "other" sources of WF comms. Local news reports (34%) lead, followed by city/county government (27%) and CalFire (20%) as the most common. Source usefulness ratings of all of these are at least 59%.
- These 2021 survey results are comparable to those of the 2020 survey.

Wildfire Preparedness

- Self-reported preparedness levels held steady, as did preparedness actions.
  - Net Preparedness systemwide (completely plus somewhat) was unchanged at 55%, though it did rise in non-HFRAs (47% to 52%).
  - A few preparedness actions rose (purchase of new lanterns or flashlights +7 pct. pts. to 27%, visits to SCE.com +4, and use of the SCE app +2 to 7%), but net "I have not taken any action" was unchanged (33% to 32%).

Ratings of SCE's WF Efforts

- Ratings of SCE on WF matters eroded among Residential customers but held steady among Businesses.
  - At the end of 2020, 59% of Business customers systemwide and 57% in HFRAs were satisfied with SCE's overall wildfire safety and preparedness efforts. In the mid-2021 pre- survey, these ratings were comparable at 56% and 52%, respectively. Further, agreement held steady (at 56% and 54%, respectively) by the end of 2021.
  - The same pattern occurred in agreement with 9 statements about SCE's WF efforts. Agreement in mid-2021 was comparable to that found at the end of 2020 – and held steady between the 2021 pre- and post- surveys. These findings were found both systemwide and in HFRAs.

PSPS Awareness and Satisfaction

- Awareness of "PSPS" among Business customers held steady from 2020 levels – and was unchanged between the 2021 pre- and post- surveys.
  - PSPS Awareness at the end of 2020 was 72% systemwide and 81% in HFRAs.
  - PSPS Awareness in mid-2021 (July pre- survey) was 67% systemwide and 79% in HFRAs – and remained unchanged by the end of 2021 (67% and 80%).
- Satisfaction with SCE.com's PSPS information held steady from 2020 levels systemwide, but had declined in HFRAs by mid-July 2021. With completion of the 2021 post- survey, systemwide satisfaction held steady but had recovered in HFRAs.
  - Satisfaction with SCE.com's PSPS information at the end of 2020 was 62% systemwide and 60% in HFRAs.
  - In mid-2021, satisfaction was unchanged at 61% systemwide but had dropped to 46% in HFRAs. By the end of 2021, it was at 64% systemwide and recovered to 58% in HFRAs.

PSPS Notifications and Events – 2021 Post- versus 2020 Post-

- Fewer non-HFRA Business customers received PSPS alerts in 2021 than in 2020. However, the same percentage of HFRA customers report having received an alert (47%).
  - Customers who received alerts in 2021 are less likely to say the alert arrived via email (46% vs. 55% in 2020) – especially in HFRAs (56% vs. 66% in 2020).
  - In HFRAs, those receiving alerts more often report having received them via texts (47% vs. 40% in 2020) and by way of a recorded phone message from SCE (34% vs. 26% in 2020).
- Business customers in HFRAs more often say they experienced a PSPS event in 2021 (24% in 2020 vs. 33% in 2021).
- Most customers checked for updates during PSPS outages (just 19% said they did not check). SCE.com is the most widely used update source (53%), followed distantly by those who called the SCE phone center (27%) and checked social media (12%). The source usefulness of SCE.com regarding update information in 2021 is 56%, directionally lower than in 2020 (66%).

- Satisfaction with SCE.com for information provided during events declined (from 68% in 2020 to 52% in 2021). The bulk of this decline occurred among non-HFRA customers who claim to have experienced a PSPS outage (from 75% in 2020 to 49% in 2021), but might be confusing normal (maintenance) outages with PSPS events.
- Customers more often received power restoration notices in 2021 (increased directionally from 43% in 2020 to 53% in 2021 systemwide but significantly in HFRAs from 52% to 65%). The usefulness of these notices, however, declined (from 76% in 2020 to 61% in 2021 systemwide – and 60% to 51% in HFRAs).
- Satisfaction with SCE.com for information provided after events also declined (from 61% to 50% in HFRAs).
- Finally, overall satisfaction with SCE's PSPS communications generally held steady (from 65% to 53% Systemwide and 55% to 54% in HFRAs).

Appendix B

Updates to 2021 de-energization, all clear, and restoration times

PSPS Event Date	County	Circuit Name	Segment Number	Isolation Device	De-energization Date/Time	All Clear Declaration Date/Time	Restoration Date/Time
2021.01.12	Ventura	ANTON		RAR0217	1/15/2021 09:10	1/15/2021 14:43	1/15/2021 17:05
2021.01.12	Ventura	ANTON		RAR1992	1/15/2021 09:11	1/15/2021 14:43	1/15/2021 16:27
2021.01.12	Ventura	ANTON		RAR0217	1/17/2021 10:54	1/17/2021 11:40	1/17/2021 15:52
2021.01.12	Ventura	ANTON		RAR1992	1/17/2021 10:54	1/17/2021 11:40	1/17/2021 12:25
2021.01.12	San Bernardino	BADGER		RCS4207-5	1/19/2021 08:25	1/19/2021 19:13	1/19/2021 22:28
2021.01.12	Ventura	BELPAC		CB	1/18/2021 11:21	1/18/2021 11:19	1/18/2021 17:19
2021.01.12	Los Angeles;Ventura	BIG ROCK		RCS0849-2	1/15/2021 09:43	1/15/2021 15:25	1/15/2021 18:05
2021.01.12	Kern	CONDOR		RCS0519	1/19/2021 01:37	1/20/2021 00:32	1/20/2021 06:48
2021.01.12	Ventura	ENCHANTED		CB	1/19/2021 08:32	1/20/2021 13:28	1/20/2021 18:07
2021.01.12	Los Angeles;Ventura	ENERGY		RAR0490	1/14/2021 08:48	1/17/2021 12:34	1/17/2021 14:52
2021.01.12	Los Angeles;Ventura	ENERGY		GS1321-4	1/18/2021 10:37	1/18/2021 15:26	1/18/2021 16:21
2021.01.12	Los Angeles;Ventura	ENERGY		GS7920-1	1/18/2021 10:46	1/18/2021 15:26	1/18/2021 17:41
2021.01.12	Los Angeles;Ventura	GUITAR		RAR0402	1/15/2021 04:48	1/15/2021 11:22	1/15/2021 15:13
2021.01.12	Los Angeles;Ventura	GUITAR		RCS0317	1/19/2021 12:12	1/20/2021 13:57	1/21/2021 11:41
2021.01.12	Riverside	HONEYCRISP		GS1423-2	1/19/2021 11:40	1/19/2021 19:13	1/19/2021 20:48
2021.01.12	San Bernardino	IMPALA		RAR0819	1/19/2021 05:31	1/20/2021 07:14	1/20/2021 14:44
2021.01.12	Los Angeles	KINSEY		RAR0302	1/19/2021 13:27	1/19/2021 20:37	1/20/2021 01:29
2021.01.12	Los Angeles	KINSEY		RAR0452	1/19/2021 13:27	1/19/2021 20:37	1/19/2021 22:20
2021.01.12	Los Angeles	LOPEZ		RAR0048	1/19/2021 09:08	1/20/2021 10:58	1/20/2021 17:33
2021.01.12	Los Angeles	LOUCKS		CB	1/15/2021 02:55	1/15/2021 10:13	1/15/2021 11:04
2021.01.12	Los Angeles	LOUCKS		CB	1/19/2021 01:23	1/20/2021 08:12	1/20/2021 11:25
2021.01.12	Los Angeles	LYONS		CB	1/19/2021 14:17	1/19/2021 23:54	1/20/2021 01:37
2021.01.12	Los Angeles	MARCUS		RCS9780	1/19/2021 02:01	1/20/2021 11:31	1/20/2021 14:11
2021.01.12	Ventura	MIDDLE ROAD		CB	1/19/2021 08:33	1/20/2021 02:52	1/20/2021 09:00
2021.01.12	Los Angeles	RACER		CB	1/19/2021 01:43	1/19/2021 23:33	1/20/2021 02:15
2021.01.12	Fresno;Madera	SAGINAW		CB	1/19/2021 01:13	1/19/2021 19:13	1/20/2021 11:39
2021.01.12	~~San Bernardino~~	~~SWEETWATER~~		~~RCS1451-1~~	~~1/15/2021 13:40~~	~~1/15/2021 07:03~~	~~1/15/2021 13:51~~
2021.01.12	Riverside	TAHQUITZ		RAR0141	1/19/2021 08:34	1/19/2021 16:04	1/20/2021 16:09
2021.01.12	Ventura	WHITECLIFF		CB	1/19/2021 09:21	1/19/2021 22:37	1/20/2021 01:20
2021.01.12	Ventura	YOSEMITE		PH1401236E	1/18/2021 21:57	1/20/2021 05:52	1/20/2021 08:31
2021.01.12	Ventura	YOSEMITE		BF35351	1/18/2021 20:49	1/20/2021 05:52	1/20/2021 08:49
2021.01.12	Ventura	YOSEMITE		BF35181	1/18/2021 21:00	1/20/2021 05:52	1/20/2021 08:39
2021.01.12	Ventura	YOSEMITE		BF35180	1/18/2021 21:11	1/20/2021 05:52	1/20/2021 08:39
2021.01.12	Ventura	YOSEMITE		BF35179	1/18/2021 21:33	1/20/2021 05:52	1/20/2021 08:32
2021.04.12	Mono	BIRCHIM			4/13/2021 15:09	4/13/2021 17:42	4/14/2021 00:39
2021.10.11	Los Angeles	Energy	8,9		10/11/21 17:27	10/11/21 21:19	10/12/21 14:30
2021.10.11	~~Los Angeles~~	~~Energy~~	~~9~~		~~10/11/21 17:27~~	~~10/11/21 21:19~~	~~10/11/21 23:08~~
2021.10.22	MONO	TUFA	1,2		10/22/21 9:26	10/22/21 11:18	10/22/21 16:28
2021.11.21	~~Ventura~~	~~MORGANSTEIN~~	~~1~~		~~11/21/21 10:47~~	~~11/21/21 12:36~~	~~11/21/21 13:21~~
2021.11.21	Ventura	MORGANSTEIN	1,2,3		11/21/21 10:47	11/21/21 12:36	11/21/21 15:45
2021.11.21	~~San Bernardino~~	~~IMPALA~~	~~Partial 4~~		~~11/21/21 09:40~~	~~11/22/21 9:50~~	~~11/21/21 12:10~~
2021.11.21	~~San Bernardino~~	~~IMPALA~~	~~3~~		~~11/21/21 09:40~~	~~11/22/21 4:37~~	~~11/22/21 12:35~~
2021.11.21	San Bernardino	IMPALA	2, 3, 4, 5		11/21/21 09:40	11/22/21 4:37	11/22/21 13:45
2021.11.21	Los Angeles/Ventura	ENERGY	7,8,9		11/21/21 6:11	11/22/21 05:38	11/22/21 12:21
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~3~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/21/21 11:47~~
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~2,4,5,6,7,8,9~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/21/21 15:17~~
2021.11.21	Los Angeles	CUTHBERT	1,2,3,4,5,6,7,8,9		11/21/21 9:43	11/21/21 11:03	11/21/21 19:38
2021.11.21	~~Los Angeles~~	~~CUTHBERT~~	~~Partial 3~~		~~11/21/21 9:43~~	~~11/21/21 11:03~~	~~11/22/21 12:30~~
2021.11.21	Los Angeles	SAND CANYON	8		11/21/21 21:36	11/22/21 05:38	11/22/21 11:06
2021.11.24	~~San Bernardino~~	~~ACOSTA~~	~~6~~	~~RAR0800~~	~~11/24/21 14:57~~	~~11/26/21 05:58~~	~~11/26/21 13:07~~
2021.11.24	San Bernardino	ACOSTA	2,4,5,6	RCS0879-1	11/25/21 00:58	N/A	11/25/21 20:04
2021.11.24	Ventura	ANTON	1,2,3,4,5,6,7	CB	11/25/21 10:32	11/25/21 18:51	11/26/21 12:27
2021.11.24	Los Angeles	BROADCAST	1, 2	CB	11/24/21 16:56	11/25/21 07:45	11/26/21 10:15
2021.11.24	Los Angeles, Ventura	ENERGY	1,2,3	CB	11/25/21 05:43	11/25/21 23:10	11/26/21 15:25
2021.11.24	Los Angeles, Ventura	ENERGY	4,5,6,10	RAR0490	11/25/21 03:49	11/25/21 23:10	11/26/21 15:29
2021.11.24	Los Angeles, Ventura	ENERGY	6,7,8,9	RCS8085-2	11/24/21 16:20	11/24/21 05:58	11/26/21 15:52
2021.11.24	Riverside	IDA	Partial 1, 2,3,4	PS0486	11/25/21 12:36	11/25/21 21:47	11/26/21 03:06
2021.11.24	Riverside, San Bernardino	LARCH	3	RCS0849	11/25/21 02:04	11/25/21 18:46	11/25/21 23:54
2021.11.24	Los Angeles	LOPEZ	3	RAR0296	11/25/21 05:03	11/25/21 16:59	11/25/21 18:06
2021.11.24	Los Angeles	LOPEZ	3	RAR3825	11/25/21 05:05	11/25/21 16:59	11/26/21 08:39
2021.11.24	Los Angeles	PLATEAU	3	RAR1173	11/25/21 08:28	11/25/21 23:53	11/26/21 00:24
2021.11.24	~~Los Angeles~~	~~SAND CANYON~~	~~4,5,6~~	~~RCS0238~~	~~11/24/21 13:51~~	~~11/24/21 17:00~~	~~11/24/21 19:57~~
2021.11.24	Riverside	WINERY	4	RAR1360	11/25/21 05:19	11/25/21 20:16	11/26/21 00:33

Footnote:

[1] As noted in footnote 1 in POSTSR1, SCE has continued to validate certain metrics provided in its 2021 post-event reports. A green cell denotes that this metric was identified as an update or an addition to the post-event report and an orange cell denotes that this should be removed from the post-event report.

Appendix C

SCE_POSTSR2A_3_1_2022.gdb.zip, SCE_POSTSR2B_3-1-2022.xlsx,

SCE_POSTSR3_3-1-2022.xlsx, SCE_POSTSR4_3-1-2022.xlsx

This appendix will be filed via mixed media with the Commission's docket office and can be accessed at:

https://on.sce.com/PSPSPostSeasonReporting