



(U 338-E)

Southern California Edison Q1 2022 Quarterly Data Report

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I. INTRODUCTION

Pursuant to California Public Utilities Commission (CPUC or Commission) Resolution WSD-011, Attachment 3, as modified by the February 16, 2021 Compliance Operational Protocols (Compliance Protocols), and the Office of Energy Infrastructure Safety's (ENERGY SAFETY or Energy Safety) Final Action Statement on SCE's 2021 Wildfire Mitigation Plan (WMP) Update, this Quarterly Data Report (QDR) includes Southern California Edison Company's (SCE) (1) geospatial database pursuant to the requirements in the January 2022 Geographic Information System (GIS) Data Standard for California Electrical Corporations (GIS Data Schema), Version 2.2 and the related Status Report, in Excel, that further denotes what spatial data SCE is providing at this time; (2) non-spatial data, in Excel, pursuant to the non-spatial Tables 1-12 template; and (3) a description of the data included in the geospatial database and non-spatial Tables 1-12.

SCE's Q1 2022 QDR includes improved geospatial data (HFTD, Point Lat/Long, alignment across other WMP QDRs) as compared to previous quarterly submissions. SCE appreciates Energy Safety's acknowledgment that utilities are at different stages of their data journey and that the GIS Data Schema is intended to be a phased approach including ongoing changes to the schema. SCE is committed to providing more data and details in subsequent QDR submissions to meet the updated GIS Data Schema requirements.¹ The confidential geodatabase is being submitted through Energy Safety's service. Pursuant to the California Code of Regulations, Title 14, Article 3, Section 29200, please see SCE's application for confidential designation of the data previously provided with the Q4 2021 QDR. Further description of the geospatial data and responses to Guidance-10 deficiency conditions can be found in Section II.

In addition, SCE includes the non-spatial data, in Excel pursuant to Resolution WSD-011, Attachment 2.3 within Tables 1-12. New data is being provided for recorded Q1 2022 and annual year 2021, where applicable. SCE is also utilizing the new table formats per the 2022 WMP Update Guidelines for Tables 2, 7.1, 7.2, and 12. In some instances, this has resulted in modifications to prior reported periods. Additionally, SCE includes corrections to data errors that have been identified through further quality review of calculations and data. All new and corrected data are displayed in red font. Section III of this QDR includes a description of the data included in these tables.

If SCE identifies material updates SCE will provide them in subsequent QDR submittals or earlier, as applicable and to the best of its ability.

¹ Energy Safety released its Final GIS Data Schema, Version 2.2 on January 14, 2022.

II. GEOSPATIAL DATA

Class B deficiency Guidance-10 included in CPUC Resolution WSD-002 requires SCE to submit geospatial data according to the current data taxonomy and schema and to provide details regarding (1) locations where grid hardening, vegetation management, and asset inspections were completed over the prior reporting period, clearly identifying each initiative and supported with GIS data; (2) the type of hardening, vegetation management and asset inspection work done, and the number of circuit miles covered, supported with GIS data; (3) the analysis that led it to target that specific area and hardening, vegetation management or asset inspection initiative; and (4) hardening, vegetation management, and asset inspection work scheduled for the following reporting period. The GIS Data Schema includes additional geospatial data requirements beyond the four items above. Below, SCE explains the geospatial data it is providing in this Q1 2022 QDR.

This QDR provides recorded GIS data for the January through March 2022 period and projected GIS data for the April through June 2022 period, where available, pursuant to the v2.2 GIS Data Schema.² As noted in the Introduction, SCE is working to improve the quality of each subsequent submission to ENERGY SAFETY but would like to call out the following data issues in our Q1 submission. SCE is continuing to QC these issues in order to provide more accurate data in future submissions.

- Small variations exist between some GIS GDB and QIU filings due to missing IDs, naming conventions, missing lat/longs and formatting differences between data files.
- Fields such as Parcel APN and Line Deenergized are not tracked for multiple WMP activities and contain mostly null values
- VMPLogID is mostly null across feature classes rather than the schema instructed “N/A”
- Dates provided for all WMP Planned work are subject to change depending on operating constraints, changes in priority, and resource availability.

In addition to the more global occurrences above, there are some more minor issues associated with the specific WMP activities listed below that SCE is working to address:

- Veg Inspection Line feature classes missing circuit geometry for approximately <5% of all circuits inspected. SCE is exploring the root cause of this issue and will work to correct this for future submissions.
- Grid Hardening IN 1.1 Dist Remediations contains missing lat/longs for <1% of records
- Asset Inspection IN 1.2 Trans Ground Inspections contains missing Circuit IDs for <2% records
- Asset Inspection IN 4 Trans IR Inspection contains missing Circuit IDs for approximately 10% of all records
- Grid Hardening SH 11 Legacy Facilities Line Feature Class is missing 2 out of 3 Circuit IDs

SCE appreciates Energy Safety’s acknowledgment of comments from the IOUs regarding the volume and scope of quarterly data reporting requirements and how Energy Safety plans to continue to work with stakeholders to ensure the GIS Data Schema requirements can be met.³

² See Energy Safety’s January 2022 GIS Data Reporting Standard Version 2.2.

³ Resolution WSD-011, p. 12.

This QDR includes the geospatial Initiative⁴, Asset Point, Asset Line, and Other Required Data datasets. There were no SCE PSPS events in Q1 2022. SCE is not providing metadata in this submission given that we first must focus on obtaining as much data as possible pursuant to the requirements and Energy Safety has informed that further refinements to the GIS Data Schema will be issued. Additionally, some data elements within the datasets SCE is providing are not available due to either our inability to correlate data from multiple systems within the available times or because SCE does not currently capture the requested data.

SCE appreciates that Energy Safety, through its comprehensive updated GIS Data Schema, intends to obtain and standardize significant amounts of wildfire-related data. SCE also understands Energy Safety's desire to understand our current systems and data availability. To this end, SCE also provides updated responses in the Status Report in the Excel file template that generally describe the status of the requested data fields, actions we plan to take if a particular data field is not being provided at this time, the timeline for completing those actions, and whether the data is confidential. SCE describes its approach to the updated Status Report template below.

SCE also notes that it does not capture several data elements that still require time for our teams and subject matter experts to assess with respect to the labor, operational, system and technical requirements. SCE has made some progress in this area but is still in the process of assessing all of these data requirements. Where available SCE provides detail at the Feature Class level within the accompanying GIS Status Report. While SCE understands that Energy Safety desires specific timelines to address all data gaps, we are not able to provide all assessments with this QDR submission.

Similar to its previous QDR, the requested spatial data is being provided in the geodatabase. Additionally, SCE is submitting an updated Status Report based on the datasets, described above. SCE notes that it continues to take a phased approach to improve the data being provided. SCE looks forward to continued collaboration with Energy Safety, utilities, and other stakeholders to refine and improve the GIS Data Schema. Responses to the specific Guidance-10 conditions are detailed below.

i. locations where grid hardening, vegetation management, and asset inspections were completed over the prior reporting period, clearly identifying each initiative and supported with GIS data

Please see the geodatabase that includes grid hardening, vegetation management and asset inspection initiative data completed in HFRA from January 2022 through March 2022. As noted above, SCE also provides in the geodatabase other feature class datasets in support of Energy Safety's direction to provide as much information as practicable and is readily available. The additional datasets include Asset Line, Asset Point, PSPS Event, Risk Event, and Other Required Data.

ii. the type of hardening, vegetation management and asset inspection work done, and the number of circuit miles covered, supported with GIS data

SCE is providing data associated with its system hardening, vegetation management, and asset inspection initiatives described in our 2022 WMP Update. The specific WMP initiatives are shown in the table in Appendix A. Most wildfire initiatives are not planned, managed, or executed based on the number of circuit miles (or miles) and thus line geometry for these initiatives is not available. This is consistent with Resolution WSD-011, Attachments 2.1 and 2.3 that describe how the number of circuit miles unit of measurement is not applicable for certain types of work. The limited initiatives that do have line geometry, circuit miles or miles are available in the geodatabase. SCE notes that line geometry for covered conductor is not currently available. In place of this, SCE has provided ENERGY SAFETY with a Point feature

⁴ The Initiative dataset includes grid hardening, vegetation management (projects & inspections), and asset inspections initiatives where work was performed and/or projected to be performed in HFRA over the reporting periods.

class, while it continues to develop a more accurate method of providing installations of covered conductor across its territory as a Line feature class. For circuit-based distribution and transmission inspections, the entire circuit geometry has been *included*.

iii. the analysis that led it to target that specific area and hardening, vegetation management or asset inspection initiative

SCE first provided its risk-based analyses for how it determines and targets deployment for its wildfire-related initiatives in its July 27, 2020 Remedial Compliance Plan (RCP) to Guidance-3 and provided updates in the 2021 WMP Update process and most recently in its 2022 WMP Update. Please see Sections 7.1.2, 7.3.3, 7.3.4 and 7.3.5 of SCE's 2022 WMP Update for current information regarding methods SCE employs to analyze and prioritize work for grid hardening, vegetation management and asset inspection initiatives⁵. Please also see Chapter 4 of SCE's 2022 WMP Update that describes SCE's improvements to its risk modeling.

iv. hardening, vegetation management, and asset inspection work scheduled for the following reporting period, with the detail in (i) – (iii).

Please see the geodatabase that includes grid hardening, vegetation management and asset inspection initiatives planned in HFRA from April through June 2022 pursuant to the latest GIS Data Schema. Similar to part (ii) above, limited initiatives have line geometry (i.e., circuit miles or miles). Initiatives with line geometry are available in the geodatabase. SCE notes that it provided point geometry for covered conductor for work completed in January through March 2022.). Also, line geometry for planned circuit-based distribution and transmission inspections includes the entire circuit geometry, not just partial geometry of the circuit. Please see SCE's response to part (iii) for the detail for condition (iii).

⁵ Risk prioritization is followed to the best of SCE's abilities to plan / schedule wildfire mitigation work; however operational realities (e.g., permitting, customer acceptance, etc.) and operational efficiencies (e.g., when a higher risk segment is adjacent to a lower risk segment, both circuits may be covered while the crew is working that location) may alter the execution plans of some activities.

III. NON-SPATIAL DATA TABLES 1-12

Introduction:

SCE’s approach to updating Tables 1-12 of the non-spatial data requirements for this Q1 2022 QDR includes 1) updating data with actuals for tables that require Q4 quarterly updates and for tables that require annual updates, and 2) corrections to data errors that have been identified through discovery and further quality review of calculations and data.

Table 1: Recent Performance on Progress Metrics

Table 1 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of Progress Metrics as defined by the 2022 WMP Guidelines. Updates to current and previous findings are in red font. For this Q1 2022 submission, many of these updates are a result of the new format being used for Table 2 (see below). The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data changed or is not available.

Metric Type 1 asks for inspection counts for different inspection category types for transmission and distribution in circuit miles. SCE accounts for completed inspections by noting the counts of assets inspected instead of noting by circuit miles. In order to present completed inspections in the requested format, SCE uses a calculated average span length multiplied by the number of structures inspected. Additionally, rows were added to inspection types (1c, ii-iv) in order to provide additional detail of inspection data collected as part of SCE’s detailed inspection program. The drivers and programmatic inspection changes can be seen in SCE’s 2022 WMP Update in Section 7.3.4.1 for Distribution and Section 7.3.4.2. for Transmission.

Metric Type 2 asks for the number of spans inspected for vegetation compliance. SCE accounts for completed vegetation compliance inspections by circuit miles. In order to present completed vegetation compliance inspections in the requested format, SCE divides the recorded circuit miles inspected by the calculated average span length.

Metric Type 3, customer outreach metrics, requires information not accounted for or maintained by SCE as SCE has no jurisdiction over evacuation orders. SCE previously diligently requested and followed up with local governments and law enforcement and was only able to obtain information from one county. Even then, the information provided included high-level estimations of evacuation counts estimated by the local government and law enforcement entity for a very limited set of fires. Because of this, SCE is unable to obtain the requested data, analyze it, and report on evacuation related requirements in this table. SCE anticipates this to be a recurring challenge going forward.

See Table 1 “Recent performance on progress metrics” for more detail.

Table 2: Recent Performance on Outcome Metrics

Table 2 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of Outcome Metrics, which SCE has incorporated via the new format of Table 2 per the 2022 WMP Update Guidelines. In some cases, this has resulted in modifications to prior reported periods, which may also impact Table 1 for metrics that appear in both tables. Updates to current and previous findings are in red font. Comments are included in the table to provide additional details about the data provided or indicate if the data was corrected or is not available or not applicable for the past seven years or through Q1 2022. The information provided in conjunction with the “utility-ignited” wildfire statistics should not be construed as an admission of any wrongdoing or liability by SCE. SCE further notes that to the extent the damages metrics were obtained from other agencies, SCE does not guarantee the accuracy of such information. Additionally, in many instances, the cause of wildfires is still under investigation and even where an Authority Having Jurisdiction (AHJ) has issued a report on the cause, SCE may dispute the conclusions of such a report.

See Table 2 “Recent performance on outcome metrics” for more detail.

Table 3: List and Description of Additional Metrics

Metrics and underlying data are critical components for WMP development, execution, and evaluation, but we continue to emphasize that the near-term focus should be on efficient implementation of our planned activities, while the assessment of whether the activities are having the desired and expected impact on risk reduction should be measured over a longer time horizon. A clear distinction is necessary between metrics that can help monitor compliance with approved WMPs and those that can help evaluate effectiveness of these approved plans and inform future WMP updates.

As in 2019-2021, we provide annual Program Targets for each WMP activity which establish goals to evaluate compliance. As stated in previous filings and submittals, tracking Program Targets for approved WMPs is the best means of determining progress and assessing WMP compliance in the near term.

In its response to Guidance-5, SCE proposed five outcome-based metrics, to gauge the effectiveness of the portfolio of its wildfire mitigation activities. These outcome-based metrics are:

1. CPUC reportable ignitions in HFRA (total and by key drivers including CFO, wire-to-wire contact, tree-caused circuit interruptions, and EFF)
2. Faults in HFRA (total and by the key drivers mentioned above)
3. Wire-down incidents in HFRA
4. Number of impacted customers and average duration of PSPS events
5. Timeliness and accuracy of PSPS notifications

Most of SCE’s proposed WMP activities are selected to improve these metrics over time, while the remainder are enabling activities to support and supplement those WMP activities. Table SCE-1 updated since the 2022 WMP Update submission, demonstrates how each of SCE’s 2022 WMP activities map to the five outcome-based metrics.

**Table SCE-1
Activity to Metric Mapping**

Activity	Initiative	Ignitions	Faults	Wire Downs	PSPS # Impacted & Average Duration	PSPS Notification Timeliness & Accuracy	Enabling
SA-1	Weather Stations				X	X	
SA-3	Weather and Fuels Modeling System				X	X	
SA-8	Fire Science				X	X	
SA-9	Distribution Fault Anticipation (DFA)	X	X	X			
SA-10	High-Definition (HD) Cameras				X		
SH-1	Covered Conductor	X	X	X	X		
SH-2	Undergrounding Overhead Conductor	X	X	X	X		
SH-4	Branch Line Protection Strategy	X		X			

Activity	Initiative	Ignitions	Faults	Wire Downs	PSPS # Impacted & Average Duration	PSPS Notification Timeliness & Accuracy	Enabling
SH-5	Installation of System Automation Equipment – RAR/RCS				X	X	
SH-6	Circuit Breaker Relay Hardware for Fast Curve	X		X			
SH-7	Circuit Evaluation for PSPS-Driven Grid Hardening Work				X		
SH-8	Transmission Open Phase Detection	X					
SH-10	Tree Attachment Remediation	X	X	X			
SH-11	Legacy Facilities	X	X	X			
SH-12	Microgrid Assessment				X		
SH-13	C-Hooks	X	X	X			
SH-14	Long Span Initiative (LSI)	X	X	X			
SH-15	Vertical Switches	X	X				
SH-16	Vibration Dampers	X	X	X			
SH-17	Rapid Earth Fault Current Limiter (REFCL)	X	X	X			
IN-1.1	Distribution Ground / Aerial Inspections and remediations	X	X	X			
IN-1.2	Transmission Ground / Aerial Inspections and remediations	X	X	X			
IN-3	Infrared Inspection of energized overhead distribution facilities and equipment	X	X	X			
IN-4	Infrared Inspection, Corona Scanning, and High Definition imagery of energized overhead Transmission facilities and equipment	X	X	X			
IN-5	Generation Inspections and Remediations	X	X	X			
IN-8	Inspection Work Management Tools						X
IN-9	Transmission Conductor & Splice Assessment	X	X	X			
VM-1	Hazard Tree Management Program	X	X	X			
VM-2	Expanded Pole Brushing	X	X	X			
VM-3	Expanded Clearances for Legacy Facilities	X	X	X			
VM-4	Dead and Dying Tree Removal	X	X	X			
VM-6	VM Work Management Tool (Arbora)						X

Activity	Initiative	Ignitions	Faults	Wire Downs	PSPS # Impacted & Average Duration	PSPS Notification Timeliness & Accuracy	Enabling
PSPS-2	Customer Care Programs (Includes CRCs, CCVs, Battery Backup Programs, Well Water and Water Pumping Backup Generation, Resiliency Zones)						X
DG-1	Wildfire Safety Data Mart and Data Management (WISDM / Ezy)						X
DEP-2	SCE Emergency Responder Training						X
DEP-1.2	Customer Education and Engagement - Community Meetings						X
DEP-1.3	Customer Education and Engagement - Marketing Campaign						X
DEP-4	Customer Research and Education						X
DEP-5	Aerial Suppression						X

Table 3 provides the performance metrics and units SCE uses to evaluate performance within each of these outcome-based metrics, including historical performance over the past seven years (2015-2021) including recorded data through Q1 2022.

As described in SCE’s response to Guidance-5, there might be annual variances in these metrics driven by uncontrollable factors such as weather, and effectiveness of WMP activities can be best assessed using longer-term trends in these outcome-based metrics. It will also be important to consider factors such as overall risk exposure, the population size of the assets, scope of work completed, and fire suppression by third party agencies when using these outcome-based metrics. These metrics cannot be used to measure progress or compliance per approved plans in the short term. To appropriately evaluate the effectiveness of its WMP activities, SCE is developing suitable quantitative and repeatable methods to measure and normalize these outcome-based metrics. We look forward to collaborating with Energy Safety, utilities, and other stakeholders to agree on how these metrics should be appropriately measured and used to draw pertinent conclusions.

CPUC Reportable Ignitions in HFRA, Faults in HFRA, and Wire Downs incidents in HFRA

Large variations in weather events, including temperature, rainfall, fuel moisture and wind, can heavily impact outcome-based metrics including faults, wire-down events and ignitions, and can often skew direct comparisons of these metrics year over year.

SCE is monitoring the number of faults at the circuit level and ignitions and wire-down events at the structure level and by key driver (CFO, EFF, and other) both before and after the deployment of select WMP wildfire activities. By observing the key drivers of these events down to the circuit or individual structure level, SCE is building the capability to better evaluate the effectiveness of wildfire activities that were deployed to mitigate those specific drivers, as well as help align future deployment of mitigations to target specific drivers identified at those locations.

SCE continues to focus on maturing its modeling capabilities to provide forecasts of future ignitions across

HFRA, incorporating the benefits of wildfire activities to reduce ignitions as well as normalizing exogenous factors such as weather, to provide a forecasted range of ignitions in future years across HFRA. In its 2022 WMP Update, SCE incorporated the estimated benefits of wildfire activities, including covered conductor, vegetation mitigation, inspection mitigation, in reducing the Probability of Ignition (POI) at each individual pole or structure level, and includes this reduction of ignition risk when forecasting expected ignitions. At this time, SCE does not incorporate weather normalization into its WMP ignition forecasts due to the complexity of determining the causal relationship between aberrant weather and ignition probability and fire spread.

SCE is currently evaluating different approaches to normalize exogenous factors, including but not limited to, weather and 3rd party suppression efforts. As SCE continues to focus on prudent and effective grid operations, inspections & maintenance, improvements to standards and timely equipment upgrades, it is recognized that although these actions will not entirely eliminate risk, they are expected, in aggregate, to result in overall improvements in outcome metrics, such as faults, wire-downs and ignition events associated with SCE's electrical infrastructure.

Number of impacted customers during and average duration of PSPS events

As more sectionalization equipment, covered conductor, and other grid hardening activities are deployed, de-energization thresholds can be raised, reducing the number of circuits and circuit segments that will need to be de-energized during extreme weather conditions. Improved weather and fire modeling capabilities along with enhanced operational protocols can also help reduce the frequency and duration of PSPS events. However, to assess the effectiveness of the WMP activities in reducing the frequency and scope of PSPS de-energizations, the total number of customers affected or the duration of outages during any period need to be normalized for the intensity of weather events, how widespread the weather events were, and the duration of the events as these can influence the number of circuits or circuit segments that have to be de-energized. In addition to weather, these metrics have to account for customer density on impacted circuits and other factors outside SCE's control. SCE is currently evaluating how metrics such as windspeed, FPI, etc., can be used to appropriately normalize the number of impacted customers and duration of PSPS events. The historical performance through Q1 2022 can be found in Table 3.

Timeliness and accuracy of PSPS notifications

SCE provides information on the timeliness and accuracy of PSPS notifications in post-event reports. SCE is re-evaluating the calculation of these metrics and benchmarking with the other IOUs to understand best practices. SCE welcomes Energy Safety's guidance as well.

Table 4: Fatalities Due to Utility Wildfire Mitigation Initiatives

Table 4 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of fatalities associated with utility wildfire mitigation initiatives as defined by the 2021 WMP Guidelines.

See Table 4 "Fatalities due to utility wildfire mitigation initiatives" for more detail.

Table 5: OSHA-Reportable Injuries Due to Utility Wildfire Mitigation Initiatives

Table 5 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of OSHA-reportable injuries associated with utility wildfire mitigation initiatives as defined by the Guidelines. SCE does not use OSHA-reportable contractor and public incidents, as there is no direct employment relationship and no requirement to report to OSHA. However, SCE does monitor CPUC-reportable incidents, which have similar thresholds for identification and reporting (i.e., fatality or personal injury rising to the level of in-patient hospitalization, and in connection with utility assets). To provide a more complete data set, SCE provides data in Table 5 related to the "Contractor" and "Member of the Public" rows that correspond to CPUC-reportable incidents.

See Table 5 "OSHA-reportable injuries due to utility wildfire mitigation initiatives" for more detail.

Table 6: Weather Patterns

Table 6 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of weather patterns as defined by the Guidelines. The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data is not available.

The first row in Table 6 is populated with historical data on Red Flag Warning (RFW) by circuit mile days per year. The RFW circuit-mile days are based on all overhead distribution and transmission circuits that traverse through the National Weather Service (NWS) Fire Weather Zone (FWZ) from a historical database of RFW events from the NWS. The overhead lengths of distribution and transmission circuits are calculated within each FWZ polygon (area divided geospatially into over approximately 1,000 space areas). All circuit lengths within that FWZ polygon are then multiplied by the number of days (or fraction of days) that a particular polygon had an RFW in effect.

See Table 6 “Weather patterns” for more detail.

Table 7.1: Key Recent and Projected Drivers of Risk Events

Table 7.1 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, which SCE has incorporated via the new format of Table 7.1 per the 2022 WMP Update Guidelines. In some cases, this has resulted in modifications to prior reported periods. Moreover, ignition data no longer appears in Table 7.1, but solely in Table 7.2. Updates for Q1 2022 and data corrections made to previous quarters can be found in red text font. Forecasts for this table will be provided with SCE’s forthcoming 2022 WMP Update submission.

The comment section for each metric in the table provides details of the source and data that was used or corrected or explanations for why certain data is not available.

To calculate the recent drivers of risk events, SCE utilized the following data sources:

- SCE’s Outage Management System (OMS) and Outage Data and Reliability Metrics (ODRM) interface
- Wire-down data to determine if the conductor failure led to a wire-down event
- Repair work records from SCE’s asset data in systems, applications & products (SAP) to identify failures

For purposes of this QDR, transmission lines refer to all lines at or above 65 kV, and distribution lines refer to all lines below 65 kV. Transmission faults and wire-downs are typically on transmission lines 65 kV and above but may include some lower voltages (from an operational perspective, SCE also treats its 55 kV lines as transmission).

To populate outage data for each driver, SCE used ODRM outage cause codes. ODRM database records and catalogs outage impacts and causes, determined by the cooperation of field, operations, and engineering employees.

For forecasts, SCE first creates a baseline forecast for wire-down and outages based on timeseries forecasting. Time-series forecasting uses historical patterns to create a forecast and can capture variation over smaller periods compared to other forecasting methods. Then, the baseline forecast is subjected to the same methodologies used for RSEs, whereby SCE estimated the mitigation effectiveness of programs by risk drivers and determined the risk reduction, given the exposure and scope of the program, to incorporate the effects of SCE’s various wildfire programs into the forecasts.

See Table 7.1 “Key recent and projected drivers of risk events” for more detail.

Table 7.2: Key Recent and Projected Drivers of Ignition Probability by HFTD Status

Table 7.2 provides a seven-year history (2015-2021) of key recent and projected drivers of ignitions by HFTD tier, which SCE has incorporated via the new format of Table 7.2 per the 2022 WMP Update Guidelines. Updates to current findings and the new “System” subtotals are in red font. Forecasts for this table (i.e., 2022 projections) will be provided with SCE’s forthcoming 2022 WMP Update submission.

The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data was corrected or is not available.

For purposes of this QDR, transmission lines refer to all lines at or above 65 kV, and distribution lines refer to all lines below 65 kV. Transmission faults and wire-downs are typically on transmission lines 65 kV and above but may include some lower voltages (from an operational perspective, SCE also treats its 55 kV lines as transmission).

To populate the ignitions per year for each driver, SCE used CPUC reportable data filed for 2015 through 2021. The CPUC reportable data contains date and time, latitude and longitude, voltage, location, suspected initiating event, and driver and sub-driver (e.g., animal contact, balloon contact, and transformer failure) categories. SCE mapped the suspected initiating event to the driver and sub-driver categories for 2015 through 2021.

For forecasts, SCE first creates a baseline forecast for ignitions based on time-series forecasting. Timeseries forecasting uses historic patterns to create a forecast and can capture variation over smaller periods compared to other forecasting methods. Then the baseline forecast is subjected to the same methodologies used for RSEs, whereby SCE estimated the mitigation effectiveness of programs by risk drivers and determined the risk reduction given the exposure and scope of the program to incorporate the effects of SCE’s various wildfire programs into the forecasts.

See Table 7.2 “Key recent and projected drivers of ignitions by HFTD region” for more detail.

Table 8: State of Service Territory and Utility Equipment

Table 8 provides a seven-year history (2015-2021), where applicable, of state of service area and utility equipment as defined by the 2022 WMP Guidelines.

The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data was corrected or is not available.

Table 8 lists the current baseline state of SCE’s service area in terms of overhead circuit miles for distribution and transmission lines, substations (only in-service, not including third-party owned), and critical facilities. The table also lists the number of customers in WUI zones and by HFRA tier/zone. HFTD Zone 1 cells only reflect portions of SCE’s HFRA that are outside of HFTD Tier 2 and Tier 3 areas. Zone 1 areas that are wholly contained within Tier 2 and Tier 3 areas are reflected in those respective tiers. The WUI area delineation is based on a GIS layer published by the University of Wisconsin-Madison.

It is important to note, that GIS models are updated frequently to reflect changes within SCE's service area and for data clean-up. SCE does not have the ability to analyze and calculate information in previous years. As such, only 2020 information was obtained from GIS. 2015-2018 data is not available, and 2019 data is the same as what was provided in SCE’s 2020 WMP filing.

Previously, SCE has noted that it does not record all customers that are designated as AFN customers and as such, data provided for the AFN population only included SCE customers enrolled in MBL and/or Low-Income

(i.e., enrolled in the CARE/FERA) programs. However, SCE has been engaged efforts to provide additional AFN categories and will do so as part for 2021 data as part of its forthcoming 2022 WMP Update submission.

See Table 8 “State of service area and utility equipment” for more detail.

Table 9: Location of Actual and Planned Utility Equipment Additions or Removal Year Over Year

Table 9 provides a two-year history (2020-2021), where applicable, as well as projections through 2022 of location of actual and planned utility equipment additions or removal, year over year, as defined by the 2022 WMP Guidelines. The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data is not available.

Table 9 provides planned additions, removals, and upgrades of utility equipment by the end of the three-year plan term. SCE does not routinely follow planned additions, removals, or upgrades by circuit mile, population density, or WUI. While SCE has a number of planned distribution and situational awareness projects over the next few years, the projects are not far enough along in the project lifecycle to have a complete list of affected structures (new or existing), circuit path/route geometries, and/or geospatial coordinates associated with them. Therefore, SCE is unable to map the distribution projects in GIS and subdivide as requested. The planned work with a well-developed scope and geospatial properties are typically major, longer lifecycle transmission and substation projects that have detailed engineering and/or a Certificate of Public Convenience and Necessity (CPCN) or Permit To Construct (PTC) from the Commission. Therefore, the only planned work that SCE included here are (1) transmission projects that have known, planned geospatial geometries (circuit path/route) that can be uploaded to GIS tools and then divided by population density, WUI, and HFTD Tier/Zone and (2) known, planned substation projects (of which SCE has one in the next three years, Safari Substation).

The WUI area delineation is based on a GIS layer published by the University of Wisconsin-Madison.

See Table 9 “Location of actual and planned utility equipment additions or removal year over year” for more detail.

Table 10: Location of Actual and Planned Utility Infrastructure Upgrades Year over Year

Table 10 provides a two-year history (2020-2021), where applicable, as well as projections through 2022 of location of actual and planned utility infrastructure upgrades year over year as defined by the 2022 WMP Guidelines. The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data is not available.

Table 10 provides planned upgrades of utility equipment by the end of the three-year plan term. For the reasons explained in the Table 9 section above, the only planned work included in Table 10 are transmission and substation projects that have known, planned geospatial geometries.

The WUI area delineation is based on a GIS layer published by the University of Wisconsin-Madison.

See Table 10 “Location of actual and planned utility infrastructure upgrades year over year” for more detail.

Table 11: Recent use of PSPS and other PSPS Metrics

Table 11 provides a seven-year history (2015-2021) including recorded data through Q1 2022, where applicable, of recent use of PSPS and other PSPS metrics as defined by the 2022 WMP Guidelines. As of Q2 2021, SCE is currently unable to provide planned outage data metrics due to transition to SCE’s Customer Service Re-Platform (CSRP). In ENERGY SAFETY data request set ENERGY SAFETY-SCE-22, Question 001, SCE indicated this data would begin to be available for reporting as part of our Q1 2022 submission. However, as of the date of this submission, SCE’s IT team is continuing to work on providing this data

accurately and without error. SCE will continue to work to provide this data to ENERGY SAFETY as soon as it is readily and reliably available for both current and retroactive reporting. This affects rows 2a., 2c., 2d., 2e., and 2f. The comment section for each metric in the table provides details of the source and data that was used or explanations for why certain data was corrected or is not available.

Table 11 represents the frequency, scope, and duration of PSPS events in total. A combination of data from SCE's OMS and data recorded by documentation specialists during actual PSPS events was used for the historical information including data through Q1 2022.

Please see Table 11 for updates to SCE's use of PSPS protocols and other related metrics.

Table 12: Mitigation Initiative Financials

Table 12 initially provided 2020 recorded costs and 2021 through 2022 forecasts by initiative.

In this Q1 2022 submission, SCE has populated Table 12 using the 2022 WMP Update Guidelines format, providing annual actuals through 2021. The 2022 forecast will be provided with SCE's 2022 WMP Update. The activity structure as presented also reflects SCE's forthcoming 2022 WMP Update, which has introduced a few new activities and/or resulted in some minor activity grouping changes.

Regarding the Territory and HFTD split requested per the 2022 WMP Update Guidelines, SCE has taken three approaches.

- (1) Wildfire activities – SCE deploys its wildfire activity spend to mitigate risk in the HFTD. Accordingly, spend for wildfire activities is shown as entirely within HFTD (i.e., Territory spend = HFTD spend).
- (2) Vegetation management to achieve clearances around electric lines and equipment – SCE is complying with the 2022 WMP Update Guidelines by setting forth these costs broken down by HFTD and Non-HFTD. SCE notes, however, that this estimate reflects SCE's attempt to reasonably allocate these costs across its service area pursuant to respective tree counts and trim cadences in the HFTD and Non-HFTD areas, respectively. From an operational perspective, though, the same vegetation management contract crews often work in both HFTD and Non-HFTD areas, sometimes on the same days, making it difficult to precisely calculate the costs incurred in different areas. SCE further notes that from a regulatory cost recovery perspective, the CPUC's SCE 2021 General Rate Case Final Decision (D.21-08-036) authorized a Vegetation Management Balancing Account (VMBA) that does not differentiate between HFTD and Non-HFTD areas. Accordingly, SCE records all vegetation management line clearance costs in the VMBA, irrespective of where the trims take place.
- o All other non-wildfire activities – Similar to vegetation line clearing, SCE does not track the HFTD vs. Non-HFTD split of its non-wildfire activities. For these other non-wildfire activities, SCE has not developed the means to estimate a split. Accordingly, all spend for these activities is simply shown in the Territory column, though this is not to imply that no spend occurs in the HFTD area.