



(U 338-E)

Southern California Edison  
Q3 2021 Quarterly Data Report  
Supplemental GIS Submission

November 15, 2021

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## I. INTRODUCTION

Pursuant to 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 (OEIS or Energy Safety) Final Action Statement on SCE's 2021 Wildfire Mitigation Plan (WMP) Update, this supplemental Quarterly Data Report (QDR) includes Southern California Edison Company's (SCE): (1) geospatial database pursuant to the requirements in the September 2021 Geographic Information System (GIS) Data Standard for California Electrical Corporations – v2.1 (GIS Data Schema) and the related Status Report, in Excel, that further denotes what spatial data SCE is providing at this time; and (2) a description of the data included in the geospatial database.

SCE's Q3 2021 supplemental QDR includes similar geospatial data as provided in 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.<sup>1</sup> 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 being provided with the Q3 2021 supplemental QDR. Further description of the geospatial data and responses to the ongoing Guidance-10 deficiency conditions can be found in Section II herein.

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<sup>1</sup> GIS Data Schema, p. 1.

## II. GEOSPATIAL DATA

Class B deficiency Guidance-10 included in 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 supplemental QDR.

This supplemental QDR provides recorded GIS data for the July through September 2021 period and projected GIS data for the October through December 2021 period, where available, pursuant to the latest GIS Data Schema.<sup>2</sup> As noted in the Introduction, SCE is unable to provide all requested data at this time. This supplemental QDR includes the wildfire initiatives included in SCE's 2021 WMP Update. 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.<sup>3</sup>

This supplemental QDR includes the geospatial Initiative,<sup>4</sup> Asset Point, Asset Line, PSPS Event, Risk Event, and Other Required Data datasets. 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.

Additionally, there are a few items of note in this supplemental QDR submission. First, SCE has finished the stand-alone Pole Loading Program (PLP) inspections in Q3 2021; going forward, all pole loading inspections will be performed as needed under other programs in load growth, infrastructure replacement, etc., Second, Distribution Infrared Inspections (IN-3) completed in Q2 2021 and thus no data has been submitted for Q3. Lastly, please note the change in feature class for (SH-14) Long Span Initiative, from line to point, due to difficulties in accurately mapping individual spans.

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

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<sup>2</sup> See the February 4, 2021 GIS Data Reporting Standard for California Electrical Corporations – V2.

<sup>3</sup> Resolution WSD-011, p. 12.

<sup>4</sup> 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 and does not include the following: SH-2 (Undergrounding Overhead Conductor), because no work was or is anticipated to be performed for this initiative over the reporting period, and VM-5 (Quality Control) because the work was operationalized in 2020.

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 and to ensure these new data requirements could advance wildfire risk reduction prior to changing work methods, processes, tools and systems. SCE has made some progress in this area but is still in the process of assessing all of these data requirements. SCE has taken steps to assess and estimate timelines as they pertain to Vegetation Management (VM) photo submission as part of the ongoing quarterly data submittal. SCE is taking these steps as part of implementing improved vegetation management systems and processes. These timelines are based on prioritization of SCE's critical technology implementations. SCE provides a general response in the Status Report that discusses the assessments in further detail. While SCE understands that Energy Safety desires specific timelines to address all data gaps, we are not able to provide all assessments with this supplemental QDR submission. Future submissions will look to include specific information similar to the status of VM photos above.

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 July 1, 2021 through September 30, 2021. 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 2021 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 available at the project scoping level, which has been replicated for each of the resulting work orders (which is the lower level at which dates are managed and the level of detail provided in this GIS submission). These work orders show that SCE completed approximately 479 circuit miles of covered conductor from July 1, 2021 through September 30, 2021.<sup>5</sup> 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, and**

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 its 2021 WMP Update, Q1 and Q2 2021 QDR, and its 2021 Revised WMP Update. Please see Section 7.3.2 of SCE's Revised 2021 WMP Update for current information regarding methods SCE employs to analyze and prioritize work for grid hardening, vegetation management and asset inspection initiatives. In Appendix A, SCE summarizes the analysis that led it to target the areas where its system hardening, vegetation management and asset inspection initiatives were completed from July 1 through September 30, 2021. Please also see Section 4.3 and Appendix 9.8 of SCE's Revised 2021 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 October 1 through December 31, 2021 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 line geometry for covered conductor is available at the project scoping level, which has been replicated for each of the resulting work orders (which is the lower level at which dates are managed and the level of detail provided in this GIS submission). These work orders show approximately 263 circuit miles planned for October 1 through December 31, 2021. 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 the table in Appendix A and Sections 4.3 and 7.3.2 of SCE's Revised 2021 WMP Update with the detail for condition (iii).

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<sup>5</sup> SCE notes that there is a time lag and spatial differences in translating this work order data into the geodatabase. This also applies to the work projected in the following reporting period.

### III. APPENDIX A

#### Appendix A Analysis That Led SCE To Target Specific Areas for Initiatives in 2021

#	Initiative ID	Initiative / Activity	Analysis that Led to Target Specific Area	Cite to 2021 WMP Update
1	IN-1.1	Distribution Ground / Aerial Inspections and remediations	<p>Beginning in inspection year 2020, SCE embarked on an effort to reimage it's asset inspection programs, moving from a strictly compliance-based program to one that prioritizes the inspection of the highest risk assets throughout the service area consistent with regulatory compliance obligations. Specifically, in the Overhead Detailed Inspection (ODI) space, SCE implemented a risk characterization and prioritization schema so that the highest risk assets in SCE's High-Fire Risk Areas (HFRA) would be inspected earlier in the inspection cycle and on a more frequent basis. The primary objective of this program being to identify and mitigate any potential system issues prior to peak fire season.</p> <p>The risk model SCE deployed to prioritize asset inspections was based on the probability of asset failure and the potential consequence of destruction if that particular asset failure were to occur. The 2021 scope is based on the Technosylva model Utilizing this risk model, the HFRA inspection scope was identified and prioritized for operational execution. The structures that were identified as the highest risk were individually identified, plotted, and scheduled for inspection. As opposed to inspecting entire grids as was the practice under the normal compliance-driven program, individual structures were prioritized for inspection based on their risk characteristics, thus allowing the company to inspect the highest risk assets throughout the entire service territory before peak fire season. The objective of this inspection methodology was to reduce the overall system risk in the most vulnerable areas by clustering the highest risk poles together in individual Work Orders for our Electrical System Inspectors (ESIs) to perform detailed inspections. Also included in the work scope is compliance-due structures in HFRA.</p> <p>Additionally, prior to the typical start of the 2021 fire season, SCE has identified Areas of Concern (AOCs) in its HFRA, primarily driven by elevated dry fuel levels that pose increased fuel-driven and wind-driven fire risk. This threat is magnified during periods of high wind, high temperatures and low humidity. In order to mitigate emergent risk, SCE is accelerating inspections, remediation and vegetation trimming (and potentially identifying new inspections) in the identified AOCs. The methodology to identify AOCs is based on several factors including fire history, weather conditions, fuel type, exposure to wind, egress, etc.</p> <p>The methodologies described above were used to target the recorded and projected areas provided in the geodatabase.</p>	Section 7.3.4.9.1
2	IN-1.2	Transmission Ground / Aerial Inspections and remediations	<p>The Transmission High Fire Risk Informed Inspection program utilizes the same approach as the Distribution High Fire Risk Informed Inspection program (IN-1.1) for prioritizing work. The 2021 scope is based on the Technosylva model. Also included in the work scope is compliance-due structures in HFRA.</p> <p>Additionally, prior to the typical start of the 2021 fire season, SCE has identified Areas of Concern (AOCs) in its HFRA, primarily driven by elevated dry fuel levels that pose increased fuel-driven and wind-driven fire risk. This threat is magnified during periods of high wind, high temperatures and low humidity. In order to mitigate emergent risk, SCE is accelerating inspections, remediation and vegetation trimming (and potentially identifying new inspections) in the identified AOCs. The methodology to identify AOCs is based on several factors including fire history, weather conditions, fuel type, exposure to wind, egress, etc.</p> <p>The methodologies described above were used to target the recorded and projected areas provided in the geodatabase.</p>	Section 7.3.4.10.1
3	IN-3	Infrared Inspection of energized overhead Distribution facilities and equipment	<p>The Distribution Infrared Scanning (DIRS) program targets inspecting / scanning 50% of aggregate HFRA each calendar year and 100% of overhead structures in HFRA every two calendar years. The 2021 infrared inspection scope was based on Tier 2 and Tier 3 HFRA and begins a new two-year cycle with the goal to inspect 50% of the overhead circuits. The prioritization scheme for 2021 DIRS scope was designed to ensure high-risk structures are inspected first based on the Technosylva model. The recorded and projected areas included in the geodatabase are based on the methodology described above.</p>	Section 7.3.4.4
4	IN-4	Infrared Inspection, Corona Scanning, and High Definition imagery of energized overhead Transmission facilities and equipment	<p>For 2021 scope, SCE used the Technosylva consequence scores and the POI scores to select the highest risk transmission circuit miles in and adjacent to its HFRA. The final projected scope and prioritization may be adjusted based on operating constraints including but not limited to circuit loading and ambient temperature. The recorded and projected areas included in the geodatabase are based on this risk-ranking sequenced by the highest risk circuits and operational constraints such as weather, e.g., because high ambient temperature can make it difficult to detect temperature differentials, inspections are scheduled and performed during cooler days of the year.</p>	Section 7.3.4.5
5	IN-5	Generation Inspections and Remediations	<p>In 2020, SCE adopted a two-year cycle (2020-2021) where 50% of the assets targeted for inspections in 2020 were higher priority facilities in Tier 3 HFRA. Operational efficiencies and constraints are factored into the scheduling and execution of the work 2021 scope is based on the remaining targeted assets in Tier 2 and Tier 3.</p> <p>Additionally, prior to the typical start of the 2021 fire season, SCE has identified Areas of Concern (AOCs) in its HFRA, primarily driven by elevated dry fuel levels that pose increased fuel-driven and wind-driven fire risk. This threat is magnified during periods of high wind, high temperatures and low humidity. In order to mitigate emergent risk, SCE is accelerating inspections, remediation and vegetation trimming (and potentially identifying new inspections) in the identified AOCs. The methodology to identify AOCs is based on several factors including fire history, weather conditions, fuel type, exposure to wind, egress, etc. The methodologies described above were used to target the recorded and projected areas provided in the geodatabase.</p>	Section 7.3.4.9.2

#	Initiative ID	Initiative / Activity	Analysis that Led to Target Specific Area	Cite to 2021 WMP Update
6	VM-1	Hazard Tree Management Program	SCE determines the trees to mitigate based on a two-step process, first selecting higher risk locations and then selecting higher risk trees within these locations. SCE prioritized higher risk locations based on HFRA tier, Tree Caused Circuit Outages (TCCI), and density of vegetation surrounding SCE's facilities, combined with REAX consequence scores. SCE also takes into account operational constraints such as permitting, access and weather conditions in scheduling and executing work. Hazard Trees may also be mitigated as a result of the AOCs described above. These methodologies were used for the recorded and projected areas included in the geodatabase.	Section 7.3.5.16.1
7	VM-2	Expanded Pole Brushing	The recorded and projected areas included in the geodatabase are based on a geographical grid approach and prioritizing poles subject to PRC 4292 taking into account operational efficiencies and constraints.	Section 7.3.5.5.1
8	VM-3	Expanded Clearances for Legacy Facilities	2021 scope considers the HFRA tier level, voltage levels and existing vegetation buffer was utilized to risk rank the locations. The approach combined desktop review and field visits. Tier 3 locations, facilities with higher voltage levels and areas with less existing vegetation buffer were considered higher risk. SCE also takes into account operational constraints such as permitting, access and weather conditions in scheduling and executing work. Expanded clearances may also be mitigated as a result of the AOCs described above. The methodologies described above were used for the recorded and projected areas included in the geodatabase.	Section 7.3.5.5.2
9	VM-4	Dead and Dying Tree Removal	Dead and Dying Tree Removal and associated mitigations cover SCE's full HFRA each year. SCE schedules and executes this work based on operational and resource efficiency and constraints. SCE does prioritize and mitigate hazards posed by dead trees or those that are identified as significantly compromised upon brief visual inspection taking into account constraints such as permitting, access and weather conditions. This methodology was used for the recorded and projected areas included in the geodatabase.	Section 7.3.5.16.2
10	SH-1	Covered Conductor	Beginning in 2019, SCE used the risk scores from the WRM to scope and prioritize the circuit segments for replacing bare conductor with covered conductor. The underlying Potential of Ignition (POI) and consequence score models have undergone several refinements and SCE continues to incorporate these enhanced risk scores into its deployment strategy to the extent practicable. In late 2020, SCE transitioned from using the Reax ignition consequence model to Technosylva and although this refined risk modeling primarily affects 2020 covered conductor scope and beyond it has resulted in some reprioritization of the 2021 circuit-segments. Additionally, the PSPS Action Plan may further reprioritize covered conductor scope over the projected period. In scheduling and executing covered conductor, SCE also considers other factors such as permit requirements, environmental constraints, outages and crew efficiencies. This methodology was used for the recorded and projected areas included in the geodatabase.	Section 7.3.3.3.1
11	SH-6	Circuit Breaker Relay Hardware for Fast Curve	The program identified electrical circuits in HFRA that had old mechanical relays or could reduce risk through relay upgrades and/or fast curve settings. While scoping the projects via job walks and desk top reviews, the locations were evaluated for scope complexity and grouped accordingly. To facilitate successful execution and provide the greatest opportunity for the fastest and most impactful risk reduction, the group of projects with multiple relays and least complexity was released first and largely completed in previous years. 2021-2020 scope focuses on relays that require extensive engineering or that have operational considerations. Prioritization is based on construction and scheduling feasibility rather than region. This methodology was used for the recorded and projected areas included in the geodatabase.	Section 7.3.3.2
12	SH-8	Transmission Open Phase Detection	The Transmission Open Phase Detection (TOPD) effort targets Transmission lines in HFRA. To minimize the complexity, we targeted lines with two terminals and single conductor (wire) per phase. The Transmission lines selected were within a geographical area to avoid impacting multiple locations across SCE's service territory. Pilot locations also needed to have existing Protection devices (Relays) with the ability to harness open phase detection settings/logic files as developed. Finally, engineering judgement and knowledge of existing relay schemes was used to identify the locations for 2021. This methodology was used for the recorded and projected areas included in the geodatabase.	Section 7.3.3.17.1
13	SH-10	Tree Attachment Remediation	The recorded and projected areas included in the geodatabase were prioritized based on Reax risk scores, conductor type, and tree mortality.	Section 7.3.3.3.2
14	SH-11	Legacy Facilities	The recorded and projected areas included in the geodatabase are based on Reax consequence scores of the closest available overhead structure along with the legacy asset's age, last major overhaul date, and operating voltage. Other factors (e.g., unique asset characteristics, HFRA Tier, years since last assessment).	Section 7.3.3.17.2
15	SH-13	C-Hooks Insulator Attachment Hardware Replacements	The recorded and projected areas included in the geodatabase are based on cumulative risk scores at the circuit level, driven by structure POI scores and fire consequence scores from Technosylva.	Section 7.3.3.15.1
16	SH-14	Long Span Initiative Remediation	SCE used risk-ranking from the WRRM to prioritize long span mitigations in all HFRA tiers based on the type of span issue and risk score. The highest risk locations are prioritized by using the probability of the issue leading to an ignition and the fire consequence score (e.g., Reax/Technosylva).	Section 7.3.3.12.1
17	SH-15	Vertical Switches	SCE the following factors in prioritizing replacement of vertical distribution switches: 1) an appropriate switch design form factor is available for the specific location, 2) equipment condition based on prior inspection findings, 3) the location's Technosylva risk score, and 4) the geographical proximity with other switch replacements.	Section 7.3.3.17.3