Review of 2023 SCE Wildfire Mitigation Targets:

Independent Evaluator Annual Report on Compliance (IE ARC)

Prepared for: Southern California Edison (SCE)

NuConsult Services. LLC

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Pursuant to Public Utilities Code Section 8386.3(c)(2)(B)(ii), the content of the IE ARC is the work product of NuConsult Services LLC.

Executive Summary

Southern California Edison (SCE) contracted NuConsult Services LLC (NuConsult) to be their Independent Evaluator (IE). The timeline for this review process is a compromise between allowing adequate depth of research while still providing a timely review to stakeholders to allow for findings to be incorporated as part of continuous improvement. The scope of this review is as follows:

1) Confirm completion of their 2023 wildfire mitigation initiatives (Initiatives)[1], as stated in their Wildfire Mitigation Plan (WMP); and, in the case of field verifiable Initiatives, confirm that the Initiatives were completed per SCE's procedures and protocols. Program effectiveness is not within the scope of this review.
2) Review the associated Quality Assurance / Quality Control program, and
3) A Financial Verification review limited to whether allocated funds were used or made available to meet WMP targets. The scope limited review to the following:
    a. Did the finance and accounting team reasonably believe the funding request was for fulfilling a WMP step?
    b. Did the team release allocated funds according to the plan?
    c. For underfunded programs, are funds still allocated and available as planned, or have they been released? If not released, why?

The depth of the review was constrained by the timeline for the project, and this report will reference times when additional information would have been informative. It is important to state that references to unfulfilled information requests are not considered to be a noncompliance events nor should it be inferred that SCE was uncooperative. Any references to additional information requests are noted in the report to inform stakeholders and support continuous improvement efforts.

Key finding includes the following:

- Any notable IE findings for field verifiable initiatives are listed in Table 2.
- Any notable IE findings regarding the funding of initiatives are noted in Table 4.
- All QA/QC findings are listed in Section 7
- The evaluation of Initiatives SH-2, SH-16, SA-1, and SH-10, along with the QA/QC assessment, revealed a pattern regarding documentation, the use of tracking systems, and no cohesive coordination with the work management system. This trend suggests that improving record-keeping and organizational processes may be a valuable area for enhancement.
- The evaluation of Initiatives SH-8, SH-18, IN-5, and SH-17 was limited to the scope of this review. Stakeholders may benefit from further review of the implementation of these initiatives with a broader and more notable, deeper scope, to include efficacy, helpful in continuous improvement evaluations of WMP efforts.

[1] NuConsult reviewed the Initiatives listed in the spreadsheet "*2023 WMP Initiatives Verification Type_CORRECTED II.xlsx*".

1. INTRODUCTION

Southern California Edison's (SCE) service area spans a wide expanse of Southern California, catering to over 16 million residents. It covers diverse landscapes including mountain ranges, deserts, the second largest metropolitan area in the United States, and remote rural areas. The vegetation in this region varies from dense forests and chaparral to sparse desert vegetation. As a result, SCE's service territory includes multiple areas designated by the California Public Utilities Commission (CPUC) as High Fire Threat Districts (HFTDs), encompassing both Tier 2 "elevated" and Tier 3 "extreme" risk zones.

In recent times, California has experienced a concerning increase in the severity and frequency of catastrophic wildfires, as reported by the California Department of Forestry and Fire Protection (CAL FIRE). This upsurge can be attributed to a combination of factors such as extended periods of drought, escalating temperatures linked to climate change, historical policies on fire suppression, challenges in forest management, and widespread bark beetle infestations. Notable wildfires have been traced back to the equipment and operations of utility companies. To confront these issues, California has implemented laws and regulations requiring electric companies to formulate and carry out WMPs annually. These plans oblige the companies to frequently update on their progress with the WMP initiatives and submit to evaluations by a Qualified Independent Evaluator (IE). The IE's role is to independently assess whether the companies are meeting their commitments to wildfire mitigation effectively.

These plans outline the utilities' strategies and actions to mitigate wildfire risks associated with their electrical infrastructure and operations. The plans must be regularly updated, and the utilities' progress is evaluated by the IE to ensure effective implementation of wildfire mitigation measures.

The WMPs typically include the following key components:

- Identifying and prioritizing high fire-risk areas
- Hardening electrical infrastructure (e.g., installing covered conductors, undergrounding lines)
- Vegetation management and fuel reduction
- Enhanced inspection and maintenance programs
- Situational awareness and weather monitoring
- Operational practices (e.g., Public Safety Power Shutoffs)
- Community outreach and coordination with emergency services

The Office of Energy Infrastructure Safety (Energy Safety) is responsible for reviewing and approving the WMPs submitted by electrical corporations in California. Utilities must demonstrate their commitment to reducing wildfire risks through comprehensive and effective mitigation strategies outlined in their WMPs.

SCE contracted NuConsult Services LLC (NuConsult) to be their IE in order to: 1) Confirm completion of their 2023 wildfire mitigation initiatives (Initiatives), as stated in their Wildfire Mitigation Plan (WMP); and, in the case of field verifiable Initiatives, confirm that the Initiatives were completed per SCE's procedures and protocols; 2) Review the associated quality assurance

/ quality control (QA/QC) program, and 3) Review spending on the Initiatives for any gaps that may have resulting in SCE missing their targets.

Various types of evidence were reviewed, including information from data management systems and interviews with SCE's subject matter experts (SMEs). With oversight by the Energy Safety, the IE was able to freely request any evidence for the review that pertained to the Initiatives.

1.1. Initiative Review Methodology and Approach

SCE initially provided high-level evidence of completion for each Initiative. In most cases this included a spreadsheet of the population of data that supported the achievement of the respective 2023 quantitative target stated in the WMP. A small number of Initiatives had qualitative targets. From this population of data a sample size was chosen, according to the rules outlined in Section 1.2. (Per guidance from Energy Safety, each row of the spreadsheet was considered a data point that may be sampled.)

SCE's Initiatives are divided Into field verifiable and non-field verifiable. While a desktop review of evidence of completion was within the scope of all Initiatives, only the field verifiable Initiatives were scoped to include a high-level review of alignment with protocols and procedures.

SCE provided evidence of completion for NuConsult's review as well as such evidence upon request. Additionally, Interviews with SCE's SMEs were liberally granted.

1.2. Sample Size

The IE decided to use the sample size method used in previous IE Reviews, and Energy Safety approved. This method was based on the North American Electric Reliability Corporation (NERC) *ERO Sampling Handbook Revision 1.0*[2], and recognized by the Generally Accepted Government Auditing Standards (GAGAS or "the Yellow Book", which is the US federal government's General Accounting Office's auditing guidebook) and the Institute of Internal Auditors (IIA). Table 1 shows the sample size per population according to this Yellow Book method.

Table 1 Sample size per population size

Population	Sample Selection
1-9	All Elements
10-19	9 Samples
20-40	16 Samples
41-100	23 Samples
101-1000	29 Samples
1001+	33 Samples

[2] ERO Sampling Handbook, Revision 1.0, North American Electric Reliability Corp. (2015). Available at https://www.nerc.com/pa/comp/Documents/Sampling_Handbook_Final_05292015

In addition to the samples selected per Table 1, alternate samples were selected, in case any of the samples within the original sample size could not be used (e.g. because of access issues). Approximately an additional 30% of samples were selected as alternate samples.

1.3. Modified Stratified Sampling Method

A modified stratified sampling method was used to target the highest risk circuits and ensure geographical diversity amongst all other samples chosen.

Table 6-5 in the WMP identifies the highest risk circuits, these are provided in Appendix A. If these circuits were present in the Initiative's population, then they would be chosen at random to fill the sample size and alternate samples.

After targeting these highest risk circuits, the remining population was broken down by High Fire Threat District (HFTD) Tier. The HFTD map used by SCE is provided in Figure 1. The stratified sampling was based on geography, as shown in Figure 2, and started with Tier 3, proceeded to Tier 2, and subsequently to non-HFTD areas. Note: Initiative SH-6 was not included in this sampling process due to time constraints.

Map of High Fire Threat District (HFTD) and SCE territory. SCE Territory boundary outlined in black. (WMP's Figure SCE 5-05)

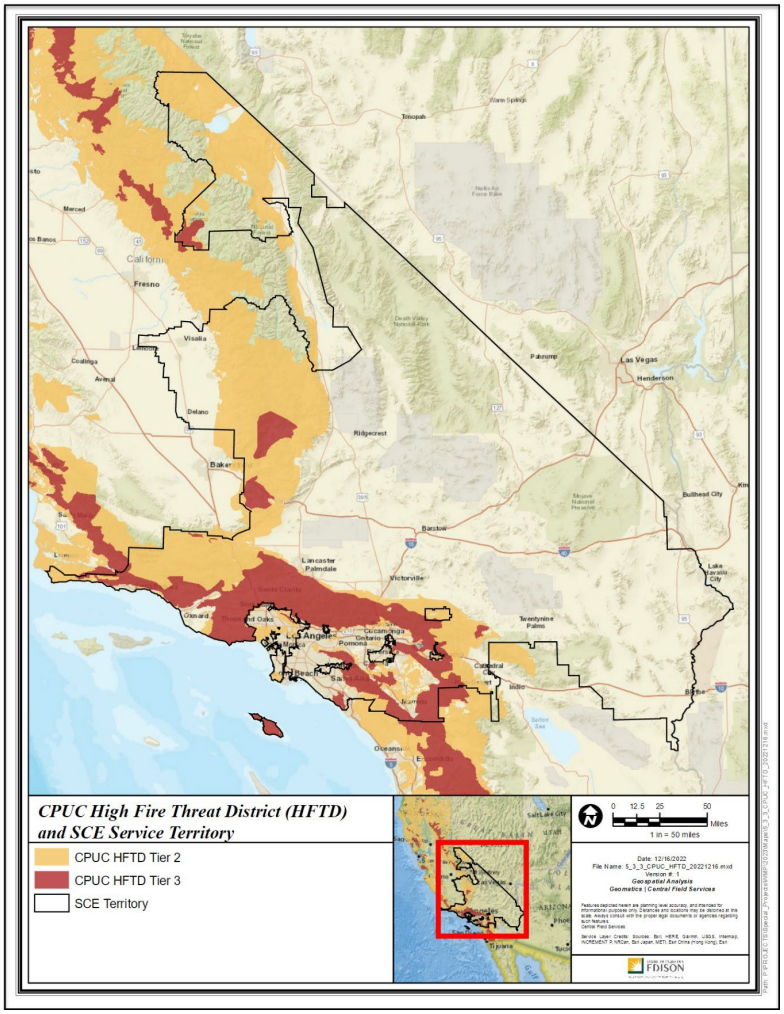


Figure 2: Geographical division used for the stratified sampling

2. IE Findings Summary: Mitigation Effectiveness of Initiatives

The IE was tasked with identifying SCE completion of the 2023 WMP initiatives for the 2023 WMP Plan. The following table summarizes only the specific initiatives that the IE found were not completed per the plan, either because the IE was unable to document of completion the item, or because the plan was not clear, and the IE findings included narrative for explanation.

Table 2: Mitigation Effectiveness of Initiatives

Initiative Identifier	Initiative Name	Comments
SH-10	Tree Attachment Remediation	*IE Findings*: SCE reports completion of 560 attachment remediations. For the attachments the IE field verified the listed mitigations were accomplished. Installing a new Utility pole is required when there is not a pole nearby that can accommodate the equipment, in that case SCE will install a fire-resistant pole per current SCE policy and as stated in the WMP. In instances where an existing pole is available moving the equipment accomplishes the intended mitigation of this initiative. *IE comments*: Appendix F of the WMP lists expected mitigation benefits from this initiative. The IE does not believe that the fire-resistant pole would measurably impact the Mitigation Effectiveness numbers found in the appendix, however it is outside the scope of this review to ascertain the impact of not using fire-resistant poles on the analysis SCE used to arrive at the mitigation effectiveness numbers.
SH-2	Undergrounding Overhead Conductor	*IE Findings*: The IE finds it reasonable to consider this risk mitigation complete and makes no objection to the risk reduction stated in Table 8-3 of the WMP. The heading of SCE's evidence sheet *(IE09-SCE-2023 Q.77 SH-2 Answer.pdf)* states that the work on both Structures was completed on 19 December 2023. SCE was not able to provide any additional documentation, and the IE was not able to independently verify this work was completed in 2023. *IE Comments*: The IE notes this lack of availability and uniformity in documentation may support the observed trend that keeping paperwork and tracking systems in order may be an area for improvement.

Initiative Identifier	Initiative Name	Comments
SH-8	Transmission Open Phase Detection (TOPD)	*IE Findings*: SCE installed TOPD at 5 locations that serve HFRA circuitry. The installed equipment is capable of alarm and trip functionality. At one of the 5 locations, these functions are not currently in service. This finding is consistent with SCE attempt to fully comply with and meet WMP 2023 goals and targets. *IE Comments*: It is not within the scope of this review to assess if the state of the trip functionality on 1 of 5 units would measurably impact the final analysis of the mitigation effectiveness as described in Table 8-3 and Appendix F of the WMP. If this is of notable concern, a review of the underlying analytics that were used to arrive at the outcomes listed would be required to understand any gap in the mitigation effectiveness.
SH-18	Rapid Earth Fault Current Limiters (REFCL): Grounding Conversion	*IE Findings*: Equipment is installed; however, it is unlikely that any mitigation benefit is achieved unless equipment is commissioned[3]. *IE Comments:* It is important to recognize that functioning grounding conversion provides risk mitigation and other benefits to rate payers. The 2023 WMP does not state the specific type of Grounding Conversion to be completed. It is of note that the change from a pad mounted to a pole top conversion by SCEs own description is likely to be less beneficial to rate payers.
IN-5	Generation Inspections & Remediations	*IE Findings*: SCE states that 225 Generation Inspections were performed. The information sampled indicates that the Inspections are being performed as stated. IE was not able to confirm, through follow up work-orders or similar documentation, that the full lifecycle of the workflow described in the 2023 WMP was completed.
SH-17	REFCL: Ground Fault Neutralizer (GFN)	*IE Findings*: SCE did not complete construction of GFN at two substations in 2023, however it appears the projects were delayed not stopped, and the construction continued in 2024. A review of the testing and commissioning results for both sites would confirm completion of this initiative.
SH-16	Vibration Damper Retrofit	*IE Findings*: The engineering standard provided comports with industry norms, and the IE concurs with the remediated status. The IE notes however that the Work Order indicating equipment was *installed* when instead the pole was considered *remediated*, is a systemic concern that aligns with the observed trend of keeping paperwork and tracking systems in order may be an area for improvement.

[3] The IE requested evidence of testing and commissioning results.

Initiative Identifier	Initiative Name	Comments
IN-8	Inspection & Maintenance Tools InspectForce	*IE Findings*: SCE contracted and fully funded this program, and delays were not reasonably foreseeable or avoidable. It has been the experience of the IE that the time taken to ensure a well-designed and planned system migration is invaluable to timely and effective adaption of a system. SCE attempting to force vendors to comply with deadlines has a high likelihood of reducing the effectiveness of the tool. It is the opinion of the IE that SCE is conforming to the 2023 WMP despite minor timeline delays.
SA-1	Weather Station	*IE Findings:* SCE states installation of 114 stations was completed in 2023. IE found all stations inspected were installed. *IE Comments*: It is outside the scope of this review to evaluate the mitigation effectiveness listed in Appendix F of the 2023 WMP. It is worth considering that installing any data collection device is only useful to the extent that the data is consistent, timely and valid. The Newhall Orchard station calls into question the consistency and timeliness of the data, and an additional installation, "Brite Valley" calls into question the validity of the data. This station was observed to have the wind speed and direction vane installed close to the poles cross-arm[4]. The IE recommends further review of the data analysis used to establish the mitigation effectiveness and ensure that it is in keeping with the empirical information regarding consist, timely and valid data.

3. IE Findings: Summary Funding Review of Initiatives

The IE was tasked with confirming that the 2023 WMP initiatives for the 2023 WMP Plan were funded as approved by SCE. The following table summarizes only the specific initiatives that the IE found were not funded per the plan, in both cases based upon information provided directly by SCE regarding the funding to budget variances.

[4] Photo of the vane in Appendix C, while it does not appear that the vane is prevented from turning, it is clear that the pole and cross are shielding the device from the wind, which prevents it from measuring wind accurately. SCE was asked about this concern and responded, SCE stated, "There is no standard for "cross-arm interference" and SCE has not observed any concern around cross-arm interference."

Table 3: Funding Review of Initiatives

Initiative Category	Initiative Identifier	Initiative Name	Budgeted vs Spent	Risk Reduction Satisfied
PSPS	8.4.4.1	Public Emergency Communication Strategy	Underrun CAPEX: $3,653k / OPEX: $617k	No
IE Comments		The variance in funding for this initiative indicates that the remedial projects described on page 564 of the ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** were not funded as intended and have been deferred to 2024.		
SCE's Stated Reason for Funding Discrepancy		"Capital: Underrun is because the budget for Centralized Data Platform (CDP) has been shifted to outer years and other related projects."[5]		
Initiative Category	**Initiative Identifier**	**Initiative Name**	**Budgeted vs Spent**	**Risk Reduction Satisfied**
IN-5	IN-5	Equipment inspections, maintenance, and repair	Underrun OPEX: $203K	No
IE Comments		Given that the numbers provided indicate the cost for inspection plus remediation work was an average of $297.78 per generation site, it is unlikely that the stated goal of identifying asset deterioration or other corrective actions for the purpose of remediations to reduce the possibility of faults and potential ignitions was met.		
SCE's Stated Reason for Funding Discrepancy		SCE conducted 225 generation related asset inspections in HFRI which exceeded the WMP target goal of 170. The forecast also included remediation but there were not as many finds as originally budgeted, hence less remediations for the year. Also, inspection costs were lower than expected due to efficiency gains with inspection process (i.e., field crews are familiar with the assets they are inspecting).		

[5] **Complete Language taken from *SCE_2023_ARC_Attachment_B_Cost_Variance_Explanation***
"Capital: Underrun is because the budget for Centralized Data Platform (CDP) has been shifted to outer years and other related projects. The fund breakout is as follow: (1) Approximately $2 million has been shifted to 2024 to continue CDP enhancements (i.e., perform knowledge transition so that resources can maintain the Foundry application and handle enhancements, train business users, and monitor and provide on-call support during PSPS activations). (2) Approximately $1.1 million has been shifted to 2024 for Advanced Distribution Management System (ADMS) to develop, test and implement ADMS-OMS and ADMS-HM integrations with PSPS CDP and support the project activities. (3) Approximately $500k has been shifted to 2024 for Integrated PSPS Event Management System (iPEMS) work which will enhance thresholds, ERT effort and efficiency in building notification campaigns."

4. IE Findings: Summary of Review of QA/QC

The IE was tasked with reviewing SCEs Quality Assurance / Quality Control as related to the WMP implementation. The following table summarizes the IEs findings and comments on the program.

Table 4: Summary of QA / QC Findings and Comments

Category of Review	**Findings and Comments**
Non-Conformance Rate	A total of 204 non-conformances were documented out of 3928 inspections, resulting in a non-conformance rate of 5.19%.
Category of Non-Conformance	Within the 196 non-generation inspections, the top five non-conformances comprised 73% of all issues.
Open Work Order Metrics	IE noted that only 64 out of the 204 non-conformances had been completed and closed by the end of 2023. *IE Additional Comments*: Further clarification from the SCE QA/QC team revealed that the high number of open items stemmed from incomplete paperwork rather than unfinished work. Following this discussion with SCE, 122 work orders were closed This still resulted in 18 non-conformances remaining open from the 2023 quality inspections, accounting for 8.82%.

5. Review of Initiatives

Table 5 and Table 6 summarize the IE's review of completion of all of SCE's 2023 Initiatives. Further *discussion on certain Initiatives can be found in Section 5.3.*

5.1. Summary of field verifiable Initiatives

For field verifiable Initiatives, NuConsult was scoped to review evidence of completion, and provide a high-level confirmation of alignment with SCE's installation protocols and procedures *summarizes the IE's review. Further discussion on certain Initiatives can be found in Section 5.3.*

Table 5: Reporting of all 2023 WMP field verifiable Initiatives

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
SA-1	Weather Station	85 installs	114 installed *See Section* 5.3	• Field Inspection • Vendor Day-1 Data • Online Data	114 (Weather Stations)	29	29/100%	0/0%
SH-1	Covered Conductors	Install 1,100 miles of covered conductor in High Fire Risk Areas (HFRA)	1,220 miles installed	• Field Inspection • SAP Work Order	30,549[6] (Structures)	33	33/100%	0/0%
SH-4	Branch Line Protection Strategy	Install or replace fusing at 500 HFRA locations	Replace or installed at 563 locations	• Field Inspection • SAP Notification	563 (HFRA Locations)	29	29/100%	0/0%
SH-10	Tree Attachment Remediation	Remediate 400 trees in HFRA	560 trees remediated *See Section* 5.3	• Field Inspection • SAP Work Order	560 (Trees)	29	29/100%	2/6.9%
SH-14	Long Span Initiative	400 spans in HFRA	493 spans	• Field Inspection • SAP Notification	493 (Spans)	29	29/100%	0/0%
SH-16	Vibration Damper Retrofit	Retrofit 300 structures with covered conductor in HFRA	396 retrofitted *See Section* 5.3	• Field Inspection • SAP Notification • Emails	396 (Structures)	23	23/100%	0/0%

[6] There were several Initiatives with mileage as the target's unit of measure. In this case, the IE was provided a spreadsheet with a population of structures identified as along the 1,100 miles of transmission lines for covered conductor installation. In this case there were covered conductors installed associated with 30,549 structures identified as part of the 1,220 miles of transmission lines that had covered conductors installed.

5.2. Summary of non-field verifiable Initiatives

For non-field verifiable Initiatives, NuConsult was scoped to review evidence of completion. Table 6 summarizes the IE's review. Further discussion on certain Initiatives can be found in Section 5.3.

Table 6: Reporting of all non-field verifiable Initiatives

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
SA-3	Weather and Field Modelling	Equip 500 weather Stations with machine learning (ML) modelling	619 equipped	• Forecast outputs (weather station)	619 (Stations)	29	29/100%	0/0%
SA-8	Fire Science	Analyse and report on improvements based on historical consequence data	Report completed	• Report Review	1 (Report)	1	1/100%	0/0%
SA-10	High Definition (HD) Cameras	10 installs	10 installed	• Live feed GIS data	10 (Cameras)	9	9/100%	0/0%
SA-11	Early Fault Detection (EFD)	Install at 50 locations	77 locations installed	• JIS data	77 (Location)	23	23/100%	0/0%
SH-2	Undergrounding Overhead Conductor	Convert 11 miles to underground in HFRA	~5.4 miles installed *See Section* 5.3	• JIS data • SAP Work Order	51 (Work Orders)	23	23/100%	2/8.7%[7]

[7] Although the heading of SCE's evidence sheet *(IE09-SCE-2023 Q.77 SH-2 Answer.pdf)* states that the work on the two failed Structures was completed on 19 December 2023, no document-based evidence was provided to support this claim. Therefore, the IE was not able to independently verify this work was completed in 2023 – although the IE takes no objection to SCE taking credit for the associated risk reduction, since the provided as-built drawings are viewed as reasonable evidence of completion.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
SH-5	Remote Controlled Automatic Recloser Settings Update	Install 6 RAR/RCS sectionalizing devices subject to 2022 PSPS analysis	7 devices installed	• SAP Work Order	7 (Devices)	7	7/100%	0/0%
SH-6	Circuit Breaker Relay Fast Curve	Replace or upgrade 75 CB relay units in HFRA with fast curve settings	96 units replaced or upgraded	• SME Interview • Protective Relay Database	96 (Units)	23	23/100%	0/0%
SH-8	Transmission Open Phase Detection (TOPD)	Install TOPD at 5 HFRA locations (alarm & trip functionality)	Installed in 5 locations, but commissioned in only 4 locations See Section 5.3	• SME Interview	9[8] (HFRA Locations)	9	9/100%	0/0%[9]

[8] SCE submitted the SH-8 spreadsheet with nine entries within HFRA, each with a unique work order number. All nine were considered within the population to be sampled.

[9] Regarding the lack of commissioning at Big Creek1-Eastwood, the IE indicates that "installed" does not necessarily include commissioning. Therefore, the IE takes no issue with confirming completion of this fifth location. However, the IE recommends that the authors and approvers of the WMP review the effect of this discrepancy in terms of the risk reduction stated in Table 8-3 of the WMP

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
SH-15	Vertical Switches	Install 9 in HFRA	9 installed	• SAP work order	9 (Switches)	9	9/100%	0/0%
SH-17	REFCL: Ground Fault Neutralizer	Complete construction at two substations (Acton & Phelan)	Completed at one substation (Acton) *See Section* 5.3	• Photos of completed construction	2 (Substation)	1	1/100%	1/50%
SH-18	REFCL: Grounding Conversion	Complete at one location	Construction completed at one location, but not commissioned *See Section* 5.3	• Photos of completed construction	1 (Location)	1	1/100%	0/0%[10]
IN-1.1	Distribution HFRI Inspections & Remediations (Ground and Aerial)	Inspect 187,000 structures in HFRA	203,266 ground inspections 200,112 aerial inspections	• SAP Measurement Doc • SME Interview	203,266 (ground inspections) 200,112 (aerial inspections)	33	33/100%	0/0%

[10] Regarding the lack of commissioning at the Eagle Crest pole top, IE indicates that in this case "completed" may be view similarly to "installed", and therefore it does not necessarily include commissioning. Therefore, the IE takes no issue with confirming completion. However, the IE recommends that the authors and approvers of the WMP review the effect of this discrepancy in terms of the risk reduction stated in Table 8-3 of the WMP.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
IN-1.2	Transmission HFRI Inspections & Remediations (Ground and Aerial)	Inspect 28,000 structures in HFRA	28,744 ground inspections 28,603 aerial inspections	• SAP Measurement Doc • SME Interview	28,744 (ground inspections) 28,603 (aerial inspections)	33	33/100%	0/0%
IN-3	Infrared Inspection of Energized Overhead Distribution Facilities & Equipment	Inspect 5,300 miles in HFRA	5,401 miles inspected	• SME Interview	501[11] (Work Orders)	29	29/100%	0/0%
IN-4	Infrared Inspection, Corona Scanning & High-	Inspect 1,000 miles in HFRA	~1,027 miles inspected	• SME Interview	40[11] (Work Orders)	16	16/100%	0/0%

[11] There were several Initiatives with mileage as the target's unit of measure. The IE was provided a spreadsheet with a population of circuits, each with an associated milage in HFRA. Rather than offering to provide evidence for a specific sampled mile, SCE offered to provide evidence of completed work for a specific sampled circuits. The IE takes no issue with this method of confirming completion; and recommends that future spreadsheets listing evidence contain one line item for each unit of the population claimed completed.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
	Definition (HD) Imagery of Transmission Facilities & Equipment							
IN-5	Generation Inspections & Remediations	Inspect 170 generation related assets in HFRA	225 inspected See Section 5.3	• SME Interview	207 (Work Orders)	29	29/100%	0/0%[12]
IN-8	Inspection & Maintenance Tools Inspect Force	Complete detailed design to migrate the distribution ground inspection application to the single digital platform.	Proof-of-concept was completed See Section 5.3	• SME Interview	na	na	na	Failed
IN-9a	Transmission Conductor & Splice Assessment: Spans with LineVue & X-Ray	Inspect 50 spans with LineVue	70 spans inspected with LineVue	• SAP Work Report	70 (Work Orders)	23	23/100%	0/0%
IN-9b	Transmission Conductor & Splice	Inspect 50 splices with X-Ray	55 splices inspected with X-Ray	• SAP Work Report	55 (Work Orders)	23	23/100%	0/0%

[12] The IE requested photos of each location for clarity. Due to time constraints, SCE was not able to provide the requested information in time for the IE to review. The IE takes no issue at this time with the generation related assets claimed, and recommends a deeper subsequent review.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
	Assessment: Spans with LineVue & X-Ray							
DG-1	Wildfire Safety Data Mart & Data Management (WiSDM / Ezy)	Ezy: Enable LiDAR data management WiSDM: Enable semi-automated data aggregation & validation of Wildfire Data for QDR & external portal	Ezy: Enabled LiDAR data management WiSDM: Enabled semi-automated data aggregation & validation of Wildfire Data for QDR & external portal	• SME interview	na	na	na	0/0%
VM-1	Hazard Tree Management Program	Inspect 412 grids/circuits and prescribe mitigation for hazardous trees with strike potential, in HRFA	427 grids / circuits inspected	• Vegetation Work Mgmt System • SME Interview	427 (Work Orders)	29	29/100%	0/0%
VM-2	Structure Brushing	Inspect & clear (as needed) 63,700	113,570 structures inspected	• Vegetation Work Mgmt System	113,570 (Structures)	33	33/100%	0/0%
VM-3	Expanded Clearances for	Vegetation treatment and	63 sites were treated & maintained.	• Record system (ArcGIS)	63 (Sites)	23	23/100%	0/0%

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
	Legacy Facilities	maintenance to 50 sites						
VM-4	Dead and Dying Tree Removal	Inspect 509 grids / circuits & prescribe mitigation for dead and dying trees with strike potential	526 grids/circuits were inspected	• Work management tracking system (Arbora)	526 (Work Orders)	29	29/100%	0/0%
VM-6	VM Work Management Tool (Arbora)	Enable supplemental Vegetation Management (emergent work) tree maintenance program capabilities in Arbora	Enabled	• SME interview • Work management tracking system (Arbora)	na	na	na	0/0%
VM-7	Detailed inspections & mgmt practices for vegetation clearances around distribution lines & eqpt	Inspect 770 grids	805 grids inspected	• Mitigation records with signoffs	805 (Records)	29	29/100%	0/0%

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
VM-8	Detailed inspections & mgmt practices for vegetation clearances around transmission lines & eqpt	Inspect 416 circuits	440 circuits inspected	• Mitigation records with signoffs	440 (Records)	29	29/100%	0/0%
VM-9	LiDAR Vegetation Inspections – Distribution	Inspect 1,020 miles in HFRA	~1,066 miles inspected	• Encroachment reports • Inspection reports • SME interview	63[13] (Inspection Reports)	23	23/100%	0/0%
VM-10	LiDAR Vegetation Inspections – Transmission	Inspect 1,820 miles in HFRA	~2,113 miles inspected	• Encroachment reports • Inspection reports • SME interview	141[12] (Inspection Reports)	29	29/100%	0/0%

[13] There were several Initiatives with mileage as the target's unit of measure. The IE was provided a spreadsheet with a population of circuits, each with an associated milage in HFRA. Rather than offering to provide evidence for a specific sampled mile, SCE offered to provide evidence of completed work for a specific sampled circuit. The IE takes no issue with this method of confirming completion; and recommends that future spreadsheets listing evidence contain one line item for each unit of the population claimed completed.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
PSPS-2	Customer Care Programs: Critical Care Backup Battery (CCBB) Program	Complete 85% of battery deliveries to eligible customers within 30 calendar days of enrolment, subject to customer availability, reschedule requests, & battery supply constraints.	96% of customers enrolled received their battery within 30 calendar days	• Delivery Data • Energy Management Assistance Partnership System (EMAPS)	3,833 (Delivery Records)	30[14]	30/100%	0/0%
DEP-2	SCE Emergency Responder Training	Fully qualify/re-qualify by 7/1 PSPS response teams	Qualified / re-qualified by 7/1	• Training Records • SME interview	1,462[15] (Training Records)	29	29/100%	0/0%
PSPS-3	Customer Care Programs: Portable Power Station & Generator Rebates	Process 85% rebate claims within 30 business	99% of rebate claims were processed within 30 business days	• Rebate data • Accounting system information	2,784[16] (Rebates)	33	33/100%	0/0%

[14]An error was made in Sample Size for PSPS-2. A sample size of 33 should have been used. The IE notes that the margin of error has increase a small amount due to this error.

[15] The sample size, to verify completion, was randomly selected from the population of 1,462 training records.

[16] The sample size, to verify completion, was randomly selected from the population of 2,784 rebates.

Initiative Identifier	Initiative Name	2023 Target(s)	SCE Claimed Completed for 2023	Verification Method	Population (Units)	Sample Size	Number & Percent Verified	Number & Percent Failed
DEP-5	Aerial Suppression	Provide fire agencies with funding to support quick reaction force (QRF) program	Final payment provided	• Payment vouchers • Quick Reaction Force (QRF) contracts	n/a	n/a	n/a	0/0%
DEP-1	Wildfire Safety Community Meetings	Host at least four wildfire community safety meetings by region in HFRA communities based on the impact of 2022 PSPS events & ongoing mitigation activities	Four meetings hosted	• Recorded Meetings • Meeting Presentations • Confirmation of Meeting details	4 (Meeting Record)	4	4/100%	0/0%
DEP-4	Customer Research and Education	Conduct at least five PSPS-related customer studies	Five PSPS-related customer studies completed	• SME Interview • Survey Documentation	5 (Survey Records)	5	5/100	0/0%

5.3. Comments to IE Review of Initiatives

Unless specified otherwise in this section, the IE agrees with the reported completion of the respective Initiatives. For Initiatives that can be verified in the field, the IE also confirms general adherence to established protocols and procedures.

Photos associated with the following comments can be found in Appendix C.

5.3.1. SH-10 Tree Attachment Remediation

The IE noted the following during their field verification:

- Structure ID 527238E / 4278914E, Structure ID 4956519E / 1872637E, and Structure ID 4956516E / 4977054E had the wrong structure ID. The IE considers this a minor issue.
- Regarding Structure ID 4956820E / 1120725E, the pole with serial # 1120725E was not fire wrapped.
- Regarding Structure ID 4956520E / 1872609E, it was noted that the pole was not fire wrapped. This pole also had a different serial number displayed. The IE's inspector noted that there were uninstalled wire mesh panels on the ground beside the pole (presumably for fire resistance).

In response to the above observations SCE provided additional documentation and clarifications, including revised structure IDs, details on fire wrapping requirements, and corrective actions undertaken or planned.

The IE reviewed this new information and integrated it into this section to ensure the accuracy and completeness. This additional content enhances the transparency of the Initiative's implementation and confirms adherence to established protocols and safety standards.

The WMP states, "This initiative entails removing the electrical equipment attached to trees and installing the equipment on new fire-resistant poles to reduce ignition driver risks." That statement is within the context of the initiative overview of activity statement.

The Tree Attachment Remediation is being implemented to mitigate 2 categories of risk:

1. The structural integrity of a tree cannot be verified using inspection and assessment techniques currently in use for poles.
2. Reduce risk of vegetation contact from objects or an equipment spark within the tree.

IE Finding: SCE reports completion of 560 attachment remediations. For the attachments the IE field verified the listed mitigations were accomplished. Installing a new Utility pole is required when there is not a pole nearby that can accommodate the equipment, in that case SCE will install a fire-resistant pole per current SCE policy and as stated in the WMP. In instances where an existing pole is available moving the equipment accomplishes the intended mitigation of this initiative.

IE comments: Appendix F of the WMP lists expected mitigation benefits from this initiative. The IE does not believe that the fire-resistant pole would measurably impact the Mitigation Effectiveness numbers found in the appendix, however it is outside the scope of this review to ascertain the impact of not using fire-resistant poles on the analysis SCE used to arrive at the mitigation effectiveness numbers.

5.3.2. SH-2 Undergrounding of Overhead Conductor

The IE reviewed the information provided for SH-2 and noted that Structures TD1909554/1112793E & TD1909554/4107308E lacked the SAP screenshot and/or Field Job Information Sheet typically provided as evidence. Instead, the only evidence provided was the as-built drawings, which lacked completion date, personnel responsible for completion, and Work Order Number.

In response to the IE's request for further evidence of completion for these samples, SCE stated that the as-built drawings provided are the final and approved version of the design with additional notes from the construction team that executed the work. They also stated that the risk is associated with the primary voltage overhead lines, and they consider the risk mitigated when those lines are de-energized in favor of new underground lines. They noted that the work performed on structures 1112793E and 4107308E were to replace minor material on the pole.

IE Findings: The IE finds it reasonable to consider this risk mitigation complete and makes no objection to the risk reduction stated in Table 8-3 of the WMP. The heading of SCE's evidence sheet *(IE09-SCE-2023 Q.77 SH-2 Answer.pdf)* states that the work on both Structures was completed on 19 December 2023. SCE was not able to provide any additional documentation, and the IE was not able to independently verify this work was completed in 2023.

IE Comments: The IE notes this lack of availability and uniformity in documentation may support the observed trend that keeping paperwork and tracking systems in order may be an area for improvement.

5.3.3. SH-8 Transmission Open Phase Detection

The 2023 WMP target for SH-8 is to "install TOPD at five locations that serve HFRA circuitry with both alarm and trip functionality". An SME interview was held on 14 June 2024.

During this interview SCE confirmed the alarm and trip function settings have been uploaded to the relay and tested at four locations. The IE requested a copy of the test plan as evidence of the trip function and SCE indicated they would provide this.

As to the 5th location[17], SCE indicated is out of service and has not been commissioned.

IE Findings: SCE installed TOPD at 5 locations the serve HFRA circuitry. The installed equipment is capable of alarm and trip functionality. At one of the 5 locations, these functions are not currently in service. This finding is consistent with SCE attempt to fully comply with and meet WMP 2023 goals and targets.

[17] The 5th location is Big Creek1-Eastwood.

IE Comments: It is not within the scope of this review to assess if the state of the trip functionality on 1 of 5 units would measurably impact the final analysis of the mitigation effectiveness as described in Table 8-3 and Appendix F of the WMP. If this is of notable concern, a review of the underlying analytics that were used to arrive at the outcomes listed would be required to understand any gap in the mitigation effectiveness.

5.3.4. SH-18 REFCL (Grounding Conversion)

The 2023 WMP target for SH-18 is to complete grounding conversion at one location, subject to land availability. The 2023 WMP also makes the following statement for this initiative:

> *"Overhead isolation transformer installations have a few limitations when compared to the pad-mounted alternative, with the main limitation being smaller size equipment which limits the amount of customer load that can be converted to the REFCL scheme. The pad-mounted isolation transformers can be built much larger and therefore be applied to serve more customer load, and additionally can simplify certain construction and operational practices. "*[18]

SCE indicated that they completed grounding conversion at one location, the Eagle Crest pole top. An SME interview was conducted on 21 May 2024. The IE formally requested photos of completion on 5 June 2024, and SCE provided photos on 10 June 2024. The plan for this conversion,

> *"was for an Isobank project which is generally a higher cost and requires land acquisition (or lease) for pad mounted equipment. The grounding conversion was completed under budget as SCE elected for a pole-top conversion which is a lower cost with a lower likelihood of land acquisition (or lease)."*

SCE states that as of the end of 2023 the Eagle Crest Pole top grounding conversion was completed. The IE notes, that while the pole top equipment was in place, as of the end of 2023, commissioning was not complete, since placing the equipment in service was pending analysis of overvoltage, which is suspected to be caused by transmission overbuild.

IE Findings: Equipment is installed; however, it is unlikely that any mitigation benefit is achieved unless equipment is commissioned[19].

IE Comments: It's crucial to acknowledge that effective grounding conversion offers risk mitigation and other advantages for ratepayers. However, the 2023 WMP does not specify the type of grounding conversion planned. It's noteworthy that Southern California Edison's description suggests changing from a pad-mounted to a pole-top conversion, which may not be as advantageous for ratepayers.

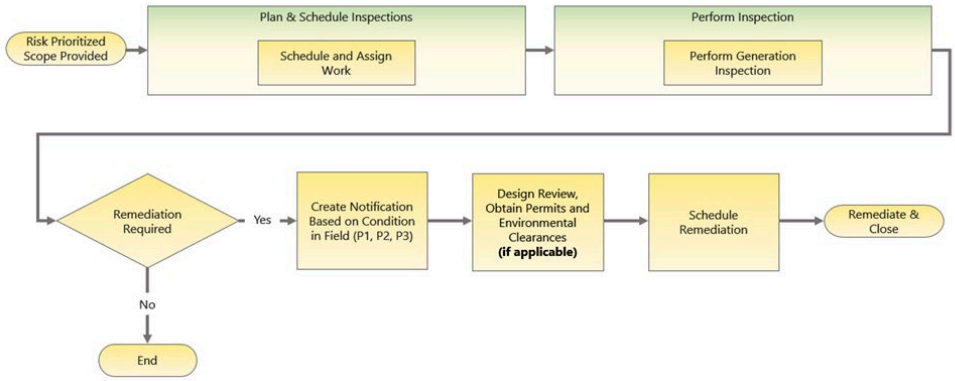
[18] Page 269 2023 WMP

[19] The IE requested evidence of testing and commissioning results.

5.3.5. IN-5 Generation Inspections and Remediations

This initiative appears to be best described in Figure 8-1g of the 2023 WMP.

Figure 8-1g - Generation Inspections Workflow



An SME interview was held on 10 June 2024. At the interview SCE oriented the IE to the information provided and reviewed the file, "*IN-5 Inspection Survey Information 2023.xlsx*". This document reflects the results of the 29 randomly sampled generation asset inspections. The document does not provide work order or other information regarding the next or follow up mitigation steps these inspections identified, as discussed in the Figure taken from the WMP (Figure 8-1g).

IE Findings: SCE states that 225 Generation Inspections were performed. The information sampled indicates that the Inspections are being performed as stated. IE was not able to confirm, through follow up work-orders or similar documentation, that the full lifecycle of the workflow described in the 2023 WMP was completed.

5.3.6. SH-17 REFCL (Ground Fault Neutralizer)

The 2023 WMP target for SH-17 was to complete construction of GFN at two substations: Acton and Phelan. SCE indicated that they missed this target due to emergent transformer replacement and material supply challenges at Phelan. SCE estimated construction at Phelan should be complete by the end of Q2 2024.

A SME interview was conducted on 21 May 2024. The IE formally requested photos of completion and evidence of testing and commissioning results on 5 June 2024, and SCE provided photos on 10 June 2024.

IE Findings: SCE did not complete construction of GFN at two substations in 2023, however it appears the projects were delayed not stopped, and the construction continued in 2024. A review of the testing and commissioning results for both sites would confirm completion of this initiative.

5.3.7. SH-16 Vibration Damper Retrofit

The IE performed a field inspection to confirm completion of SH-16. During this field inspection, the IE noted that Structure 412711003/1823495E had a status listed in the SAP Notifications Tasks Tab of complete ("TSCO"), however upon inspection it did not have vibration dampers installed.

After several communications between the IE and SCE it was determined that 1823495E did not have vibration dampers installed, however had been marked as remediated in conformity with the following,

> "*engineering and construction standards, spiral vibration damper installations are not placement specific and may be placed at either end of a span. Thus, structure 1823496E is a completed remediation…In the case of structure 1823496E, vibration dampers were installed closer to the four adjacent structures, 4097825E, 1957822E, 1823495E, and 1823498E, rather than directly above 1823496E.*"

All other locations inspected had vibration damper equipment installed on the pole listed.

IE Findings: The engineering standard provided comports with industry norms, and the IE concurs with the remediated status. The IE notes however that the Work Order indicated the equipment was installed, when instead the pole was considered remediated. This is a systemic concern that aligns with the observed trend of keeping paperwork and tracking systems in order and may be an area for improvement.

5.3.8. IN-8 Inspection & Maintenance Tools InspectForce

The stated 2023 WMP target for IN-8 was to complete a detailed design of the migration of the distribution ground inspection application to the single digital platform. SCE indicated that they missed this target due to vendor resource constraints, as well as time constraints associated with workflows, processes, and data quality. SCE indicated that by the end of 2023 the proof-of-concept was completed; and the Architectural Vision Document (AVD) and Solution Architecture Document (SAD) were in progress, with an estimated completion date in Q1 2024.

IE Findings: SCE contracted and fully funded this program, and delays were not reasonably foreseeable or avoidable. It has been the experience of the IE that the time taken to ensure a well-designed and planned system migration is invaluable to timely and effective adaption of a system. SCE attempting to force vendors to comply with deadlines has a high likelihood of reducing the effectiveness of the tool. It is the opinion of the IE that SCE is conforming to the 2023 WMP despite minor timeline delays.

5.3.9. SA-1 Weather Stations

The thirty-three (33) Random Data Sites were reviewed via Synoptic Data Viewer. First to determine if is the system online, second to determine if there are incidents of data loss "<null>", and third to understand the date that any offline stations reported this status. Additionally, ten sites were physically visited, and photographic evidence was taken.

System Status: 32 of the 33 sites were online (96.9%). "Newhall Orchard" was offline. It was installed on December 16th, 2023, and went offline January 4th, 2024.

SCE stated "Health checks are performed at least once weekly by the vendor. Newhall Orchards station is on a monitoring list for frequently missed communications since April 2024. Synoptic shows the last day this station communicated was 3/31/24. This station still records and sends backfilled data to the vendor when it does connect, though it is experiencing some issues connecting accurately. SCE is aware of the issue and is continuing to troubleshoot it." However, the IE notes the data from Newhall Orchard station is not available for forecast 100% of the time.

Data Loss: Two sites "Calle Pimiento and Calvin" had intermittent <null> values for wind speed and direction (93.9%).

IE Findings: SCE states installation of 114 stations was completed in 2023. IE found all stations inspected were installed.

IE Comments: It is outside the scope of this review to evaluate the mitigation effectiveness listed in Appendix F of the 2023 WMP. It is worth considering that installing any data collection device is only useful to the extent that the data is reliable, timely and valid. The Newhall Orchard station calls into question the consistency and timeliness of the data, and an additional installation, "Brite Valley" calls into question the validity of the data. This station was observer to have the wind speed and direction vane installed close to the poles cross-arm[20]. The IE recommends further review of the data analysis used to establish the mitigation effectiveness and ensure that it is in keeping with the empirical information regarding consist, timely and valid data.

6. Verification of Funding

The scope of the Financial Verification review was limited to determining if allocated funding was used, or made available for use, to operational, compliance, and other electrical corporation verticals -- specifically for the purpose of meeting the WMP goals and targets. It is not within the scope of this financial review to opine on efficacy of requests for funding beyond three fundamental verifications: (1) Was the funding request for the purpose of fulfilling a step in the WMP? (2) Were allocated funds released per the plan? (3) For underfunded programs, are the funds still allocated and available for use as planned, or have the funds been released, if so, why?

[20] Photo of the vane in Appendix C, while it does not appear that the vane is prevented from turning, it is clear that the pole and cross are shielding the device from the wind, which prevents it from measuring wind accurately. SCE was asked about this concern and responded, SCE stated, "There is no standard for "cross-arm interference" and SCE has not observed any concern around cross-arm interference."

6.1. Summary of Funding Review Findings

The information reviewed by the IE indicates that SCE did appropriately allocate, and release funds as approved per the terms of the approved 2023 WMP. This review finds SCE's handling of the 2023 wildfire mitigation initiatives was largely successful. SCE deployed approximately 85% of the total CAPEX funding budget, and approximately 80% of the OPEX funding budget allocated for Wildlife Mitigation Initiative for 2023 spend, and generally met the plan targets for the year.

The IE would however comment that relative to industry standard there was little evidence of a metric-based asset management system. Additionally, the scope of this review did not address critical roles that Financial Planning, Accounting, and Procurement provide in support of operations such as Contractor Qualifications and Approval or metrics for efficacy of spend on operational outcomes (rather than just operational tasks). A review of these roles would be useful in management of any long-term initiative-based program.

The following Table 4 provides a summary of the SCE Initiatives and Spend by Activity and Identifier. Additional Analysis of line items with budgetary underruns is found in Section 6.2.

6.2. Itemized Review of 2023 WMP Budget Variances

For each initiative the IE has provided a rating based on the following key, which indicates the electrical corporation's compliance specific to the scope question.

Risk Reduction Deemed Satisfied	Risk Reduction Not Deemed Satisfied	Risk Reduction Likely Satisfied -See IE Comments	Criteria
			Did the finance and accounting team reasonably believe the funding request was for the purpose of fulfilling a step in the WMP?
			Did the finance and accounting team release allocated funds per the plan?
			Does the Underfunding indicate non-compliance with the plan?

NOTE: It is not within the scope of the financial review to assess the effectiveness or impact of the payments made in accomplishing the targets, but rather to ***assess solely if the approved funding was allocated and made available for purposes clearly defined in the 2023-2025 Wildfire Mitigation Plan, Updated October 26, 2023.***

Table 7: SCE WMP Cost Variance Table [21]

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
Asset inspections	8.1.3.7	8.1.3.1	$-	$18	$18		$-	$-	$-	0%
Covered conductor installation	SH-1	8.1.2.1	$897,169	$792,049	$(105,120)	-12%	$857	$42	$(815)	-95%
Covered conductor installation	SH-16	8.1.2.1	$107	$64	$(43)	-40%	$-	$-	$-	0%
Undergrounding of electric lines and/or equipment	8.1.2.2.1	8.1.2.2	$-	$-	$-	0%	$1,341	$914	$(426)	-32%
Workforce Planning	8.1.9	8.1.9	$-	$-	$-	0%	$-	$156	$156	
Line removals (in HFTD)	8.1.2.9.1	8.1.2.9	$-	$-	$-	0%	$130	$0.061	$(130)	-100%
Other grid topology improvements to minimize risk of ignitions	SH-15	8.1.2.10	$530	$57	$(473)	-89%	$-	$-	$-	0%
Other grid topology	SH-5	8.1.2.10	$2,505	$1,526	$(979)	-39%	$-	$-	$-	0%

[21] Information taken directly from "SCE_2023_ARC_Attachment_B_Cost_Variance_Explanation.xlsx"

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
improvements to minimize risk of ignitions										
Other grid topology improvements to minimize risk of ignitions	SH-6	8.1.2.10	$-	$-	$-	0%	$5,038	$2,904	$(2,133)	-42%
Other grid topology improvements to mitigate or reduce PSPS events	SH-4	8.1.2.11	$-	$837	$837		$1,751	$13	$(1,738)	-99%
Environmental monitoring systems	SA-1	8.3.2	$3,537	$1,912	$(1,624)	-46%	$4,106	$4,151	$45	1%
Environmental monitoring systems	SA-8	8.3.2	$-	$-	$-	0%	$1,441	$879	$(562)	-39%
Emerging grid hardening technology installations and pilots	SH-18	8.1.2.6	$1,024	$406	$(618)	-60%	$125	$4	$(121)	-97%
Equipment inspections,	IN-5	8.1.4	$-	$-	$-	0%	$270	$67	$(203)	-75%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
maintenance, and repair										
Other grid topology improvements to minimize risk of ignitions	8.1.2.10.1	8.1.2.10	$4,754	$830	$(3,924)	-83%	$1,550	$23	$(1,527)	-98%
Clearance	VM-3	8.2.3.3	$-	$-	$-	0%	$830	$595	$(235)	-28%
Engagement with access and functional needs populations	8.5.3	8.5.3	$-	$-	$-	0%	$2,010	$678	$(1,332)	-66%
Public outreach and education awareness program	8.5.2.2	8.5.2	$-	$-	$-	0%	$10,786	$9,669	$(1,117)	-10%
Public outreach and education awareness program	DEP-1.2	8.5.2	$-	$-	$-	0%	$117	$77	$(40)	-34%
Public outreach and education awareness program	DEP-4	8.5.2	$-	$-	$-	0%	$4,017	$2,565	$(1,452)	-36%
Customer support in	8.4.6	8.4.6	$5,403	$480	$(4,923)	-91%	$14,816	$8,964	$(5,852)	-39%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
wildfire and PSPS emergencies										
Customer support in wildfire and PSPS emergencies	PSPS-2	8.4.6	$-	$-	$-	0%	$13,140	$12,895	$(245)	-2%
Customer support in wildfire and PSPS emergencies	PSPS-3	8.4.6	$-	$-	$-	0%	$1,328	$1,221	$(107)	-8%
Emergency preparedness plan	8.4.2.2	8.4.2	$-	$-	$-	0%	$14,560	$10,068	$(4,492)	-31%
Emergency preparedness plan	DEP-2	8.4.2	$-	$-	$-	0%	$1,067	$467	$(600)	-56%
Environmental monitoring systems	8.3.2	8.3.2	$3,200	$647	$(2,553)	-80%	$2,804	$2,940	$136	5%
External collaboration and coordination	DEP-5	8.4.3	$-	$-	$-	0%	$35,000	$34,675	$(325)	-1%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
Preparedness and planning for service restoration	8.4.5.1	8.4.5	$-	$-	$-	0%	$7,473	$4,091	$(3,382)	-45%
Public emergency communication strategy	8.4.4.1	8.4.4	$12,101	$8,445	$(3,656)	-30%	$6,531	$5,914	$(616)	-9%
Asset inspections	8.1.3	8.1.3.1	$-	$-	$-	0%	$-	$332	$332	
Asset inspections	IN-1.1	8.1.3.1	$-	$-	$-	0%	$34,431	$40,992	$6,561	19%
Asset inspections	IN-1.2	8.1.3.1	$-	$-	$-	0%	$16,829	$19,907	$3,078	18%
Asset inspections	IN-3	8.1.3.1	$-	$-	$-	0%	$577	$575	$(1.7)	0%
Asset inspections	IN-4	8.1.3.1	$-	$-	$-	0%	$102	$79	$(23)	-23%
Asset inspections	IN-9	8.1.3.1	$-	$-	$-	0%	$1,724	$1,418	$(306)	-18%
Asset management and inspection enterprise system(s)	DG-1	8.1.5	$9,873	$7,866	$(2,007)	-20%	$4,577	$1,217	$(3,360)	-73%
Asset management	IN-8	8.1.5	$5,973	$6,388	$415	7%	$1,812	$1,966	$154	8%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
and inspection enterprise system(s)										
Emerging grid hardening technology installations and pilots	SH-17	8.1.2.6	$20,152	$18,226	$(1,926)	-10%	$125	$-	$(125)	-100%
Equipment inspections, maintenance, and repair	IN-1.1	8.1.4	$100,358	$67,646	$(32,712)	-33%	$75,110	$40,233	$(34,877)	-46%
Equipment inspections, maintenance, and repair	IN-1.2	8.1.4	$20,189	$16,465	$(3,723)	-18%	$4,625	$3,447	$(1,178)	-25%
Equipment inspections, maintenance, and repair	IN-9	8.1.4	$529	$-	$(529)	-100%	$-	$-	$-	0%
Grid Response Procedures and Notifications (Grid Ops)	8.1.8.2	8.1.8.2	$3,246	$3,062	$(184)	-6%	$-	$-	$-	0%
Other grid topology improvements	SH-14	8.1.2.11	$1,667	$1,328	$(339)	-20%	$1,646	$1,242	$(404)	-25%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
to mitigate or reduce PSPS events										
Other grid topology improvements to mitigate or reduce PSPS events	SH-6	8.1.2.11	$2,874	$5,540	$2,666	93%	$-	$-	$-	0%
Traditional overhead hardening	SH-10	8.1.2.5	$16,697	$13,554	$(3,142)	-19%	$-	$-	$-	0%
Undergrounding of electric lines and/or equipment	SH-2	8.1.2.2	$27,962	$16,829	$(11,134)	-40%	$-	$-	$-	0%
Environmental compliance and permitting	5.4.5	5.4.5	$-	$-	$-	0%	$41,410	$39,802	$(1,608)	-4%
Grid monitoring systems	8.3.3.1.3	8.3.3	$-	$110	$110		$552	$384	$(167)	-30%
Grid monitoring systems	SA-11	8.3.3	$3,528	$2,084	$(1,444)	-41%	$213	$40	$(173)	-81%
Grid monitoring systems	SH-8	8.3.3	$-	$-	$-	0%	$725	$1,039	$314	43%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
Ignition detection systems	SA-10	8.3.4	$264	$258	$(6)	-2%	$4,252	$3,193	$(1,059)	-25%
Ignition detection systems	SA-8	8.3.4	$-	$-	$-	0%	$986	$991	$5	1%
Weather forecasting	SA-3	8.3.5	$704	$291	$(412)	-59%	$6,221	$5,238	$(983)	-16%
Clearance	VM-1	8.2.3.3	$-	$-	$-	0%	$36,622	$5,126	$(31,495)	-86%
Clearance	VM-4	8.2.3.3	$-	$-	$-	0%	$24,766	$20,523	$(4,243)	-17%
Clearance	VM-7	8.2.3.3	$-	$-	$-	0%	$208,071	$175,158	$(32,913)	-16%
Clearance	VM-8	8.2.3.3	$-	$-	$-	0%	$19,309	$9,674	$(9,635)	-50%
Fire-resilient right-of-way's	8.2.3.7	8.2.3.7	$-	$-	$-	0%	$2,417	$271	$(2,145)	-89%
Pole clearing	VM-2	8.2.3.1	$-	$-	$-	0%	$23,852	$12,460	$(11,392)	-48%
Quality assurance / quality control	8.2.5	8.1.6	$-	$-	$-	0%	$10,828	$5,500	$(5,328)	-49%
Vegetation Inspections	8.2.2.1	8.2.2.1	$-	$-	$-	0%	$54,848	$30,255	$(24,593)	-45%
Vegetation Inspections	VM-10	8.2.2.1	$-	$-	$-	0%	$4,952	$6,058	$1,107	22%
Vegetation Inspections	VM-9	8.2.2.1	$-	$-	$-	0%	$1,040	$1,186	$145	14%
Vegetation management	VM-6	8.2.4	$2,603	$8,334	$5,732	220%	$3,800	$1,863	$(1,937)	-51%

Initiative Activity	2023 WMP Identifier	2023 WMP Initiative	2023 CAPEX Planned	2023 CAPEX Actuals	CAPEX $ Variance Overrun/ (Underrun)	CAPEX % Variance	2023 O&M Planned	2023 O&M Actuals	O&M $ Variance Overrun/ (Underrun)	O&M % Variance
enterprise system										
Wildfire Mitigation Strategy Development	7	7	$-	$-	$-	0%	$5,540	$3,687	$(1,853)	-33%

6.2.1. 2023 WMP Identifier #7

Wildfire Mitigation Strategy Development

In this section of the WMP, the electrical corporation must provide a high-level overview of its risk evaluation and process for deciding on a portfolio of mitigation initiatives to achieve maximum feasible risk reduction, and that meet the goal(s) and plan objectives stated in Sections 4.1–4.2, and wildfire mitigation strategy for 2023-2025. Sections 6.1 and 6.2 below provide detailed instructions.

SCE shows that this initiative has a 33% budgetary underrun (in the amount of $1,853K). A review of the ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** indicates that SCE has clearly established a defined strategy, grounded in a compliant risk analysis, fully described in Sections 6.1 and 6.2 of the same plans. SCE states in the ***2023 WMP Cost Variance Explanation*** that it did partner with a third-party vendor to perform wildlife risk mitigation analysis, which was the one clearly identified outsourced item per the plan for 2023. There does appear to be anecdotal evidence in field verifications and reports that a third-party vendor has been engaged to perform mitigation analysis.

Funding was not depleted, and this is in part due to SCE deciding to not perform a second concurrent mitigation analysis study. Additionally, it does not appear that there are any portions of this initiative that are incomplete due to underfunding. Therefore, this would not be considered a failure to fund this initiative.

However, it is recommended that the operational[22] implementation of the funding be reviewed based on criteria such as the field analysis of the actual programs relied upon to execute the strategic plan. Areas such as work management programs should be considered, to assess the impact the funding had on meeting the goals, on particular, of increasing Risk Assessment Maturity around weather modeling (discussed in Section 6 of the 2023 WMP). There is anecdotal evidence outside the scope of this review that indicates there may be a gap between the strategic plan and the implementation which may have the potential to be closed using the unspent funding.

[22] Operational in this sense distinguishes how funding is allocated not from a Financial Planning Analysis and Accounting function, but rather the efficacy of the dollars spent in relation to outcomes benchmarked against similar projects.

6.2.2. 2023 WMP Identifier #5.4.5

Environmental Compliance and Permitting

In this section, the electrical corporation must provide a summary of how it ensures its compliance with applicable environmental laws, regulations, and permitting related to the implementation of its WMP...

SCE indicated this initiative has a 4% ($1,608K) budgetary underrun. Section 5.4.5 details the tasks that the environmental and compliance teams must perform to proactively and reactively support the operational mitigation efforts. Given the numerous agencies, and the significant size of this budget item, a 4% underrun would not be considered statistically significant. When coupled with the significant drain on resources of the many agencies that SCE must interact with due to unprecedented weather events leading to multiple declarations of a State of Emergency in 2023, it is reasonable to expect external resource boons and constraints to create an underfunding. The unprecedented weather events seen in Q1 and Q2 of 2023 led, in some cases, to a temporary reduction in the labor and resources required to meet the compliance requirements to perform emergency mitigation, while at the same time, the extreme demand on agency resources also led to a constraint on normal growth and compliance activists due to limited agency responsiveness to non-emergency matters. (In this case, agency is used as a collective term to refer to the significant number of regulatory and compliance bodies that were significantly overburdened in response to severe weather impacts).

Funding was not depleted; however, this is not considered a failure to fund this initiative.

6.2.3. 2023 WMP Identifier #8.1.2.10.1

Other Grid Topology Improvements to Minimize Risk of Ignitions

In prior WMPs, SCE implemented initiative SH-11, Legacy Facilities, to harden electrical equipment supporting SCE's hydroelectric generation operations. These generation-related assets in HFRA were examined for potential ignition risks, and mitigations applied in the form of installing covered conductor, removing bare conductor, re-routing to existing lines that are already equipped with covered conductor, and updating control circuits with updated protections.

SCE indicates that this initiative has up to a 98% budgetary underrun in 2023 for two primary reasons. The first is the transition of funding to primarily capital funding allocation. This initiative was originally allocated both Capital ("CAPEX") funding and Operational ("OPEX") funding. There was a post budgeting accounting determination that the nature of the work required the expenditures to be recorded as Capital expenses. Given that this initiative seems to specifically, "involve installing grounding rods, rushed rock, and lightning arrestors in years 2023, 2024 and 2025 at various legacy facility sites", a capital allocation is more appropriate under GAAP. The initial budget was split 75% to CAPEX and 25% OPEX funding, a split as high as 95% CAPEX / 5% OPEX would not be unusual for projects similarly described.

The operational costs would be limited to such tasks as testing, diagnostics, and identification of arrestor groups that require updated or replacement equipment or testing grounding rod

resistance to ensure effective functionality. A reallocation as described above would still allocate just over $105K to OPEX costs.

To evaluate the CAPEX, gap several factors must be considered. First, the equipment which is contemplated for replacement or upgrade under this initiative has, under the best of circumstances, a long lead time equipment. Historically high voltage lightening arrestors have a minimum of a 20-week lead time. The impact of unprecedented events over the last two years on the supply chain has dramatically increased lead times for these types of specialized electrical equipment, and it would not be unusual to currently see lead times of 9-12 months. As a result, SCE would have no choice but to extend the project.

The variance in funding for the CAPEX portion of the project should be considered outside of SCE's control and would not indicate a failure to fund this Initiative.

The variance in funding for the OPEX portion of the project is in part due to an appropriate reallocation. However, the $23K that was funded, appears much lower than expected to perform the operations and maintenance ("O&M") functions that would provide the underlying data for subsequent capital projects.

It is the observation of the IE that funding spent for the OPEX functions related to this Initiative is notably low and would indicate an underfunding of this Initiative. The IE recommends further investigation due to the likely crossover with this specific OPEX work and the preventative maintenance that the staff performs to maintain equipment health. The gap in OPEX spending is likely a result of ***either*** (1) the arresting and other surge protecting equipment at legacy facilities was not prioritized for testing, or more likely (2) the equipment testing was performed as part of preventative maintenance and was not specifically itemized in a way that allowed it to be allocated to the WMP budget. Without additional operational diligence it cannot be determined if this item was underfunded.

6.2.4. 2023 WMP Identifier #8.1.2.2.1 and SH-2

Undergrounding of Electric Lines and/or Equipment

Targeted Undergrounding (TUG) is a program to underground existing overhead power lines to significantly reduce wildfire and PSPS risk by significantly reducing the possibility for objects to contact energized conductor, as well as greatly limiting the ignition-causing potential from equipment failures.

This initiative includes all activities that reduce the possibility for objects to contact energized equipment. There are two budget lines associated with this Initiative. The first allocates an OPEX funding of $1341K, and SCE indicates this initiative has a 32% ($426K) OPEX budgetary underrun and the second allocates CAPEX funding of $27,962 and shows a 40% ($11,134K) CAPEX budgetary underrun.

The OPEX budget allocation for was a study commissioned to examine alternatives to harden the grid by reviewing different mitigations, with the goal of developing a strategy to reduce wildfire risk on the transmission system. The OPEX underrun is listed as the result of the commissioned study indicating the Covered Conductors may not be viable for 66kV sub transmission lines. The

study, per SCE's notes on the 2023 ***WMP Cost Variance Explanation,*** did state that most ignitions on these lines occur at the structure, not the conductor. While there may have been no further cause to pursue analysis of covered conductors upon the determination that the driver of ignitions in these cases was likely the metal structure, that does not meet the stated target of "examining alternatives…by reviewing different mitigations" was met.

The CAPEX budget allocation was for converting a scheduled 11 miles of overhead conductor to underground facilities. SCE installed 5.39 circuit miles in HFRA. The funding released is in line with the actual work completed. There were known adverse environmental and weather conditions for permitting, clearances, and performing construction in 2023, which all contributed to limited contractor resources to complete work, as well as delays in ongoing work completion due to inclement weather.

The variance in funding for the OPEX budget is not adequately addressed with a statement that covered conductors are not viable. The stated goal is broader than a single study or single determination and additional funding should have been used to pursue "different mitigations" as stated.

The variance in funding for the CAPEX portion of the project should be considered as outside SCE's control and would not indicate a failure to fund this initiative.

6.2.5. 2023 WMP Identifier #8.1.2.9.1

Line Removals (in HFTD)

The focus of this activity was to perform a feasibility study to determine whether a remote grid is a viable option at locations that are scoped for undergrounding and exhibit high length to load ratio (i.e. a long line segment feeding a small load). The outcome of each study will indicate whether a remote grid is feasible and cost-effective and determine its effectiveness as a mitigation strategy in lieu of undergrounding.

SCE indicates this initiative has a 100% budgetary underrun; however this is due to vendor delays, which led to a complementary single feasibility study with a fully executed contract in place for the vendor to complete feasibility studies on the remaining identified sites and complete the work and billing in 2024.

Funding was not spent in 2023 for reasons outside of SCEs control. It is allocated for spend in 2024 for the 2023 work and is not considered failure to fund this initiative.

6.2.6. 2023 WMP Identifier #8.2.2.1

Vegetation Inspections

SCE indicates this initiative had a 45% ($25,593K) budgetary underrun. The stated reason is "favorable contract extension in costs and lower supplemental patrol find rate". It is difficult to access the basis of this statement without a comprehensive commercial review of the terms of the contract referenced. However, there are other factors to consider. 2023 saw unprecedented weather which impacted transit, often creating impassable conditions, particularly in rural areas that are more costly to inspect. The same year's record rainfall increased vegetative growth throughout the state, though this growth would have been most notable in brush, shrubs, and grasses, and less noted in trees or in the growth of tree branches. While it seems that SCE funded all operational requests for Vegetation Inspections, the size of the budgetary underrun warrants a review of the operation effectiveness for completeness and to plan intent for the vegetation inspection program, especially in a year where SCE is modifying its routing and methodology for these inspections.

The variance in funding for vegetation inspections could be a one-time result of adverse environmental conditions leading to a greater reliance on remote sensing in combination with route modifications. The budgetary underrun could also indicate significantly improved efficiencies of remote sensors, just as easily as it may demonstrate a poorly executed inspection plan. SCE should not be disincentivized from pursuing improved efficiencies or more competitively priced vendors. However, given the significant funding gap for this initiative, it is recommended that a portion of the savings be used to have an independent third party assess the effectiveness of the vegetation inspections, in particular in areas that rely heavily on remote sensing to ensure that there is no degradation in overall maintenance of required clearance distances. Without additional operational diligence, it cannot be determined if this item was underfunded.

6.2.7. 2023 WMP Identifier #8.2.3.7

Fire-resilient Rights-of-Way

SCE indicates this initiative has an 89% ($2,145K) budgetary underrun.

The funding variance is a result of a delayed Stewardship Agreement, which delayed the need and ability to allocate resources to the development of the forestry fuel management plans, that this funding is intended for. This variance is outside of SCE's control and would not indicate a failure to fund the initiative.

6.2.8. 2023 WMP Identifier #8.2.5

Quality Assurance/Quality Control (Vegetation)

SCE indicates that this initiative shows a 49% ($5,328K) budgetary underrun.

Please refer to the notations under 2023 WMP Identifier #8.2.2.1. This initiative is highly dependent upon the Vegetation Inspections being performed, and it is anticipated that any budgetary underruns seen in one area would be similar in the other. The recommendations to validate the volume of work that resulted in the reduced funding is reiterated here. The QA/QC program described in this Initiative 'audits' work on a sampling basis using pre-determined criteria. The intent of a QA/QC program is to identify conformance/non-conformance for the purpose of mitigating risk. The explanation if there was a reduced volume of work appears to look past the obvious set of risk factors that ***may*** exist when actual work volume is notably reduced when the overall scope has not changed – this can indicate improved efficiencies, but it can also indicate deferred work, misclassification of work -altering the QC selection criteria, etc.

While the funding variance here is not a failure to fund this initiative, it is the recommendation of the IE that, in keeping with the intent to document lessons learned and incorporate them into future trainings and procedures, triggers should exist that would cause a review of funding variances beyond predetermined thresholds to understand the operational and risk thresholds the funding variance points to.

6.2.9. 2023 WMP Identifier #8.3.3.1.3

Grid Monitoring Systems

SCE indicates a 30% ($167k) budgetary underrun for grid monitoring system response. This initiative is designed to provide funding to respond to an automated alarm system. There were less events than anticipated, resulting in fewer field crews being deployed to investigate.

The variance in funding for this initiative is not a failure to fund the initiative, rather it may be an indicator of success in risk reduction causing fewer indicator alarms for high impedance events.

6.2.10. 2023 WMP Identifier #8.4.2.2

Emergency Preparedness Planning

SCE indicates a 31% ($4,492K) budgetary underrun. This budget item is forecasted based upon historical data related to PSPS activations. 2023 saw fewer activations of the PSPS system than forecasted.

Like Grid Monitoring Systems, the variance in funding for this initiative is not a failure to fund the initiative. Additionally, it may be an indicator of successful risk reduction from mitigation programs.

6.2.11. 2023 WMP Identifier #8.4.4.1

Public Emergency Communication Strategy

SCE indicates a 30% ($3,656K) CAPEX budgetary underrun, and a 9% ($616k) OPEX budgetary underrun.

The ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** describes this Identifier more narrowly than it is described here. It appears that this budget item was allocated to address 8.4.4.3, which describes the gaps and limitations in the Public Emergency Communications Strategy and the steps SCE intends to take. It appears the funding allocated to CAPEX for the 2023 remedial actions were not completed in 2023 because the budget was 'shifted'. The OPEX underrun is an aggregate of 2022 and 2023 maintenance projects that ultimately overlapped, leading to a small budgetary underrun which is easily understood. Additionally, shifting funding from CAPEX projects reduced the OPEX resources required in 2023.

The variance in funding for this initiative indicates that the remedial projects described on page 564 of the ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** were not funded as intended and have been deferred to 2024.

6.2.12. 2023 WMP Identifier #8.4.5.1

Preparedness and Planning for Service Restoration

SCE indicates a 45% ($3,382k) budgetary underrun for this initiative. This funding is specifically earmarked for response teams to PSPS events. A reduction in events will lead to a budgetary underrun.

The variance in funding for this initiative is not a failure to fund the initiative. Additionally, it may be an indicator of successful risk reduction from mitigation programs.

6.2.13. 2023 WMP Identifier #8.4.6

Customer Support in Wildfire and PSPS Emergencies

SCE indicates a 91% ($4,923k) CAPEX budgetary underrun and a 39% ($5,852k) OPEX budgetary underrun for this initiative.

Much of the CAPEX underrun is due to a delay in the work to resolve the technical constraints that are limited SCE's ability to provide more dynamic restoration data to customers. This funding will be spent in 2024 and 2025 for the completion of the intended project. The additional CAPEX funding allocated for the PSPS Customer Complaint Tracking System will be spent in 2024, as business resources constraints delayed commencing the project until Q1 of 2024.

The OPEX underrun is a combination of the back-up generator program being charged to other specific project budgets, rather than this line item coupled with excess resiliency kits, and supply delays which further delayed billing on new kits.

The variance in funding for this Initiative is not a failure to fund the Initiative, the funds are still allocated and available, with some of the projects in progress now.

6.2.14. 2023 WMP Identifier #8.5.2.2

Public Outreach and Education Awareness Program

SCE indicates a 10% ($1,117) budgetary underrun for this item. The lower cost was due to changes two primary factors. The first was the integrated marketing communications agency deliverables were delayed in completion until 2024; and the second was a shift in the distribution if the PSPS Newsletter from direct mail to predominately email delivery.

The variance in funding for this initiative is not a failure to fund the initiative, it is a result of a roll-over of a project in progress and a cost savings seen from systemic efficiencies.

6.2.15. 2023 WMP Identifier #8.5.3

Engagement with Access and Functional Needs Populations

SCE indicated a 66% ($1,332k) budgetary underrun for this item. The original budget envisioned the partnership with California Foundation for Independent Living Centers to begin early in 2023. However, the final agreement was not executed by all parties until Q3, so the DDAR pilot program did not have a full year of expenditures in 2023. The 2023 WMP Identifier 8.5.3 does not mention the DDAR, nor does the section state a deliverable under the WMP. The DDAR Program is designated under 8.4.6.4 and is a pilot project for AFN populations. The deliverable stated it to continue the existing program and evaluate the expansion of the program. There is not a 2023 based deliverable.

The variance in funding for this initiative is not a failure to fund the initiative. SCE is committed to evaluating ways to provide additional support to their AFN customer base, including expanding the DDAR program. SCE has met the intent of and requirements as they are discussed for the calendar year 2023.

6.2.16. 2023 WMP Identifier #DEP-1.2

Public Outreach and Education Awareness Program

SCE indicated there is a 34% ($40k) budgetary underrun for this item. SCE committed to hold at a minimum of four virtual meetings, and potentially targeted in person meetings. SCE held the four virtual meetings and one in person meeting. Given the reduced number of PSPS events, the effectiveness of targeted in person meetings would have been reduced.

The funding variance for this initiative is not a failure to fund this initiative rather it is a normal business variance seen when business conditions change from year to year.

6.2.17. 2023 WMP Identifier #DEP-2

Emergency Preparedness Plan

SCE indicated there is a 56% ($600K) budgetary underrun for this item. SCE states that all training objectives for employees and contractors were met. However, the work order system did not correctly record the expense of training to the PSPS training time. Based upon the significant training records provided by SCE, the IE is comfortable in opining that the Initiative's targets were met. Work Management allocations is a recurring cause of funding variances, and it is the recommendation of the IE that SCE review how job costing controls are implemented with their work management system and the thresholds at which variances are reviewed prior to year-end. Industry standard would be to complete monthly budget variance reporting as such reports are the last line of defense in ensuring operational and regulatory activities are happening and being paid for as planned.

The funding variance for this initiative is not a failure to fund this initiative. However, the recurring nature of this allocation issue suggests there is no financial oversight to enforce planned operational activities occur in a timely fashion. It is the recommendation of the IE that SCE at a minimum review its budget variance reporting process and how it is implemented as an asset management tool to confirm operational activities are occurring timely.

6.2.18. 2023 WMP Identifier #DEP-4

Public Outreach and Education Awareness Program.

SCE indicates there is a 36% ($1,452) budgetary underrun for this Initiative. SCE committed to continue to perform PSPS related studies/survey. SCE completed five surveys in 2023, which meets their obligation under the WMP.

The variance in funding this initiative is not a failure to fund. The stated intent of DEP-4 was met with the five surveys SCE completed.

6.2.19. 2023 WMP Identifier #DEP-5

External Collaboration and Coordination

SCE indicates there is a 1% ($325K) budgetary underrun for this initiative. 1% does not even meet the threshold of statistically relevant or material for this budgetary item.

This initiative was fully funded by SCE.

6.2.20. 2023 WMP Identifier #DG-1

Asset Management and Inspection Enterprise Systems

SCE indicates there is a 20% ($2,007K) CAPEX and 73% ($3,360K) OPEX budgetary underrun for this initiative. It would be difficult to assess the technical accomplishments within the scope of a financial review. SCE indicates that the target of centralizing storage, processing of LiDAR datasets, and the integration to support business use cases was accomplished successfully below budget. The actual target in the ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** does not have quantifiable metrics. The stated reason for the OPEX underrun was due to a decision to forgo a second phase of enhancements to WiSDM. There is no delineation in the plan to describe the stated targets, so it is unclear if the "data ingestion and management" consolidation, the EDW, and the new portal were all completed, just in a more streamlined way, or if some functionality was altered as the project progressed for adaption or other reasons. The balance of the OPEX underrun was either reduced vendor costs or misallocation of costs to 2023 that won't be accrued until 2024 (Foundry renewal). SCE indicates the intended AI improvements through Ezy Data were completed.

The IE does not have the technical expertise to assess the effectiveness of the completed work or if the intended targets were met. It is the recommendation of the IE that if the WiSDM repository upgrades described on page 321 of ***2023-2025 Wildfire Mitigation Plan, Update October 26, 2023,*** are critical to meeting the plan targets that a technical expert on data warehousing and repository opine on the project. The IE has no evidence that indicates there is a failure to fund this item or shift funding to other areas of operations, and based upon the information available can state that SCE did perform improvements to systems and allocated funding was released for the listed purpose.

6.2.21. 2023 WMP Identifier #IN-1.1 and #IN-1.2

Equipment Inspections Maintenance and Repair

SCE indicates these initiatives showed a 46% ($34,877) and 25% ($1,175) OPEX budgetary underrun respectively, and CAPEX underruns as well. In both cases the weather greatly impacted the ability of crews to access areas for inspections, as well as perform remediation work. Almost all of SCE's service area is in the January 11, 2023, and the March 16, 2023, FEMA declared disaster areas. Snowfall, flooding, mudslides, road blockages, and impassable roads, as well as limited arial inspection options during severe rain is in line with the notable underruns and reported.

The funding variance is not a failure to fund this initiative, it is the result of a acts of nature that are well beyond SCE's control or ability to contingency plan for prior to the 2023 event.

6.2.22. 2023 WMP Identifier #IN-4

Asset Inspections

SCE reports a 23% ($23K) budgetary underrun. Based upon the information provided by SCE, that 1026.92 miles were inspected, there seems to be evidence to support the notion that SCE was able to perform the asset inspection for less than $100/mile. SCE may have achieved a cost savings as stated, though it is more likely that by using internal resources, misallocation of some costs in the job costing function of work management systems for internal resources occurred. The target of 1000 miles inspected was met.

The funding variance is not a failure to fund this initiative and there is reasonable anecdotal evidence that SCE likely spent more than stated on this function.

6.2.23. 2023 WMP Identifier #IN-5

Equipment Inspections, Maintenance, and Repair

SCE shows a 75% ($203K) budgetary underrun for this Initiative. SCE states that internal field crews performed 225 asset inspections (170 were targeted). SCE stated the underrun was a result of less remediations than anticipated for the year. The IE requested photographs of the asset inspections (as stated previously in this Report), and as of the Report issuance they have not been received. Given that the numbers provided indicate the cost for inspection plus remediation work was an average of $297.78 per generation site, it is unlikely that the stated goal of identifying asset deterioration or other corrective actions for the purpose of remediations to reduce the possibility of faults and potential ignitions was met.

The funding variance is likely the result of underfunding this initiative, though it is unclear if the underfunding was due to a redirection of funds or a lack of resources available to perform inspections, followed by the materials and resources to remediate findings.

6.2.24. 2023 WMP Identifier #IN-9

Asset Inspections

SCE indicates there was an 18% ($306K) budgetary underrun for this initiative. The stated reason for the underrun is the ability to combine LineVue and X-ray inspections together. The documentation provided by SCE indicates that all WMP targets were met.

The funding variance is not a failure to fund this initiative.

6.2.25. 2023 WMP Identifier #PSPS-2 and PSPS-3

Customer Support in Wildfire and PSPS Emergencies

SCE states these initiatives show a 2% ($245K) and 8%($107K) budgetary underrun respectively. The WMP target for battery and rebate deliveries was met. The underrun was a result of lower delivery costs, and an overbudgeted amount for marketing to engage consumers to participate in the program.

The funding variance is not a failure to fund this initiative.

6.2.26. 2023 WMP Identifier #SA-10

Ignition Detection System

SCE indicates there was a statistically insignificant CAPEX budgetary underrun related to fewer camera installations than initially planned, and a 25% ($1,059) OPEX budgetary underrun due to lower maintenance costs, due to less equipment and costs savings from vendors. This project is in collaboration with UCSD, so it would be anticipated that any cost savings for the University would be shared with SCE. SCE was clear in the WMP that they will rely on UCSD for much of the support in the program. SCE allocated resources and provided funding based upon the collaborative efforts with the University to provide the most effective use of resources.

The funding variance is not a failure to fund the program.

6.2.27. 2023 WMP Identifier #SA-11

Grid Monitoring Systems

SCE indicates a 41% ($1,444K) CAPEX and an 81% ($173K) OPEX related budgetary underrun for this Initiative. The CAPEX budget underrun was due to adverse weather described several times in this report in Q1 and Q2 of 2023. These conditions were significant factors in crews accessing sites, as well as performing installations. OPEX costs were lower due to fewer detections, which reduced the need to deploy crews to investigate sensors.

The funding variances do not represent an under fundings of this initiative.

6.2.28. 2023 WMP Identifier #SA-3

Weather Forecasting

SCE indicated a 59% ($412K) CAPEX and 16% ($983K) OPEX budgetary underrun for this Initiative. SCE had budgeted for compliance with a CPUC requirement to design a portal for viewing and analyzing data. However, the requirement did not materialize, so the placeholder for the compliance requirements resulted in a CAPEX underrun. Operationally, SCE met the target to equip 500 weather stations with machine learning capabilities. The budgetary savings came from contract negotiations that ultimately resulted in a different vendor performing the weather visualization platform project at a lower cost.

The funding variances do not represent and under funding of the initiative.

6.2.29. 2023 WMP Identifier #SA-8

Environmental Monitoring Systems

SCE indicates this initiative has a 39% ($562K) budgetary underrun. The WMP target was completion of an analytics report summarizing assessment of historical consequences data for improved future spread modeling. The report is completed.

The funding variance does not represent an under funding of the initiative and the target was met.

6.2.30. 2023 WMP Identifier #SH-1

Covered Conductors Installation

SCE indicates a 12% ($105,120K) CAPEX and a 95% ($815K) OPEX budgetary underrun for this initiative. SCE met the stated stretch target of 1200 circuit miles in HFRA.

The funding variance indicates a substantial overbudgeting for this item. The initiative targets for 2023 have been met, and there is no evidence of an underfunding of the initiative.

6.2.31. 2023 WMP Identifier #SH-14

Other Grid Topology Improvements

SCE indicates a 20% ($339K) CAPEX and 25% ($404k) budgetary underrun for this initiative. The stated target was to remediate 400 spans in the HFRA under the Long Span Initiative program. SCE completed 493 remediations.

The funding variance for this initiative does not indicate an under funding of the initiative.

6.2.32. 2023 WMP Identifier #SH-17 and #SH-18

Emerging Grid Hardening Technology Installations and Pilots

SCE indicates notable CAPEX and OPEX budgetary underruns for these significant capital projects. SCE met the target of installing 2 GFNs (the second one completed Q2 2024), and the target of the grounding conversion at one location. The OPEX funding variance is simply because the capital projects were, or are, still capital projects, so expenses continued to be charged as capital rather than OPEX. The grounding conversion while installed has not been commissioned, and the reduced capital costs are in large part due to a substantial design change. While the target of having a structure installed was met, the intended impact on wildfire risk which is stated as “substantially reduce the energy released in ground faults, and therefore had the potential to significantly reduce these risks” will not have the potential to be realized until the REFCL is in service. It is unclear the impact the design change has had on the delay or what the timeline is anticipated to be for the installation to be commissioned.

SCE did not fail to provide funding for a REFCL and may have made the design change to meet the mitigation plan when complications in the original design would clearly lead to delays. While the IE can state the installation was funded, the IE cannot state that the installation alone meets the intent of the plan target.

6.2.33. 2023 WMP Identifier #SH-4

Other Grid Topology Improvements to Mitigate or Reduce PSPS Events

SCE indicates that this account has several entries that may still require review. The CAPEX overrun is stated to be a mis-recording, that was not captured on another initiative, and the 99% ($1,738K) OPEX underrun is still pending while CLF remediations are being reviewed by the vendor for reimbursement for claim-specific work.

The current information available indicates that the funding variance is a result of SCE allocating funds to ensure availability in the event the remediation claims are not reimbursed by the vendor. This is not a failure to fund the initiative.

6.2.34. 2023 WMP Identifier #SH-6

Other grid Topology Improvements to Mitigate or Reduce PSPS Events

SCE indicates that this initiative has a 42% ($2,133) budgetary underrun. The forward expense forecast was determined based upon historical which included initial engineering. However, most of the spending did not require engineering personnel to create, install, and test the upgraded fast curve settings.

The funding variance indicates improvements in process efficiency with continues implementation and are not a reflection of a failure to fund the initiative.

6.2.35. 2023 WMP Identifier #VM-1, #VM-3, #VM-4, #VM-7, #VM-8

Clearance

SCE indicates significant budgetary underruns in all areas of vegetation management related to vegetation clearance. In general, the historically damp weather reduced the number of dead and dying trees that were critical to remove, due to the fuel quality of the dead organic materials. The weather also reduced access and opportunities to perform vegetation clearing. The reduction in work is not a proportional reflection of the clearing that is required; instead, it reflects the weather conditions, resource constraints, and an industry recognition that due to weather changes in 2023, there was a lower wildfire risk from vegetation contact versus from other types of hazards in prior years.

The funding variance is not an indication of an underfunding of this initiative. The targets met and the funding provided accomplished the intended mitigation of the vegetation clearance budgets.

6.2.36. 2023 WMP Identifier #VM-2

Pole Clearing

SCE indicated a 48% ($11,392K) budgetary underrun for this initiative. The resources required to perform this work competed this the FEMA work being completed in 2023 which created limited access to Helicopters and trained and skilled crews to perform the services.

The funding variance was created by conditions that would not have been foreseeable and were out of SCEs control. This does not represent a failure to fund this initiative.

6.2.37. 2023 WMP Identifier #VM-6

Vegetation Management Enterprise System

In aggregate SCE significantly overfunded this initiative to meet the target with the intended systems being designed. The CAPEX overrun of $5,732K far exceeds the OPEX underrun of $1,937.

The funding variances do not represent a failure to fund this initiative.

7. Verification of QA/QC Programs

7.1. Summary

There has been a significant amount of work accomplished by SCE to reduce the wildfire risk associated with their electrical equipment and structures. The process of providing an overview presentation of the major WMP areas was extremely helpful for the IE to understand the programs and processes.

It is noted that, as in all organizations, the underlying work management processes are critical for accomplishing essential maintenance and inspections by a variety of contractors, consultants, this review examines SCE's Wildfire Mitigation Program Quality Assurance and Quality Control (QA/QC) efforts. SCE has developed and implemented QA/QC programs to ensure consistent, high-quality execution of wildfire mitigation measures across its operations and initiatives, whether undertaken by SCE staff or contractors.

The Compliance and Quality (C&Q) group is tasked with developing QA/QC processes to monitor the progress of mitigation activities. Through testing and assessment, C&Q evaluates both wildfire and non-wildfire activities to ensure adherence to plans and drive ongoing improvement within the organization.

The overarching goal of the program is to uphold the quality standards outlined within SCE's 2023 framework. Quality Control Inspections (QCIs) are conducted by trained personnel from an independent organization, distinct from SCE's UVM operations group. This year, California Forestry Vegetation Management (CFVM) has been selected as the independent QC contractor.

7.2. Methodology

NuConsult conducted an examination of the Quality Inspections to identify any areas of concern or deficiencies within the program. The team was briefed on the QA/QC program during a conference call and subsequently received an Excel document detailing the number of Non-Conformances (NCs) categorized by program type (Overhead Detailed Inspections, Transmission Inspections, Generation Inspections), structural or conditional issues, and their status (Closed < 90 days, Closed > 90 days, Open > 90 days).

Table 5 Breakdown of 2023 QA/QC inspections

Program	HFA Inspected	NC Structures	NC Conditions
Overhead Detailed Inspections	3243	183	196
Transmission Inspections	529	3	3
Generation Inspections	156	5	5
Total	**3928**	**191**	**204**

7.3. Observations:

The IE acknowledges the effectiveness of the quality assurance program in identifying non-conformances through independent inspections. However, the observed non-conformance rate of 5.19% appears high to the IE. However, it's worth noting that there is currently no established standard for what constitutes an acceptable level of non-conformance within the QA/QC program. The IE emphasizes the importance of prioritizing a robust QA/QC system aimed at identifying non-conformances, analyzing root causes, and preventing their recurrence, rather than fixating on a specific percentage of non-conforming products.

Ultimately, determining an acceptable non-conformance level should stem from a comprehensive risk analysis, considering factors such as product specifications, intended use, regulatory mandates, and the company's quality policy. Generally, a lower non-conformance rate enhances quality and regulatory compliance. The IE expresses concern regarding the number of open work orders resulting from paperwork issues. This indicates a potential oversight in tracking these open items on a periodic basis, which warrants attention to ensure effective resolution and prevent future occurrences.

7.4. Findings

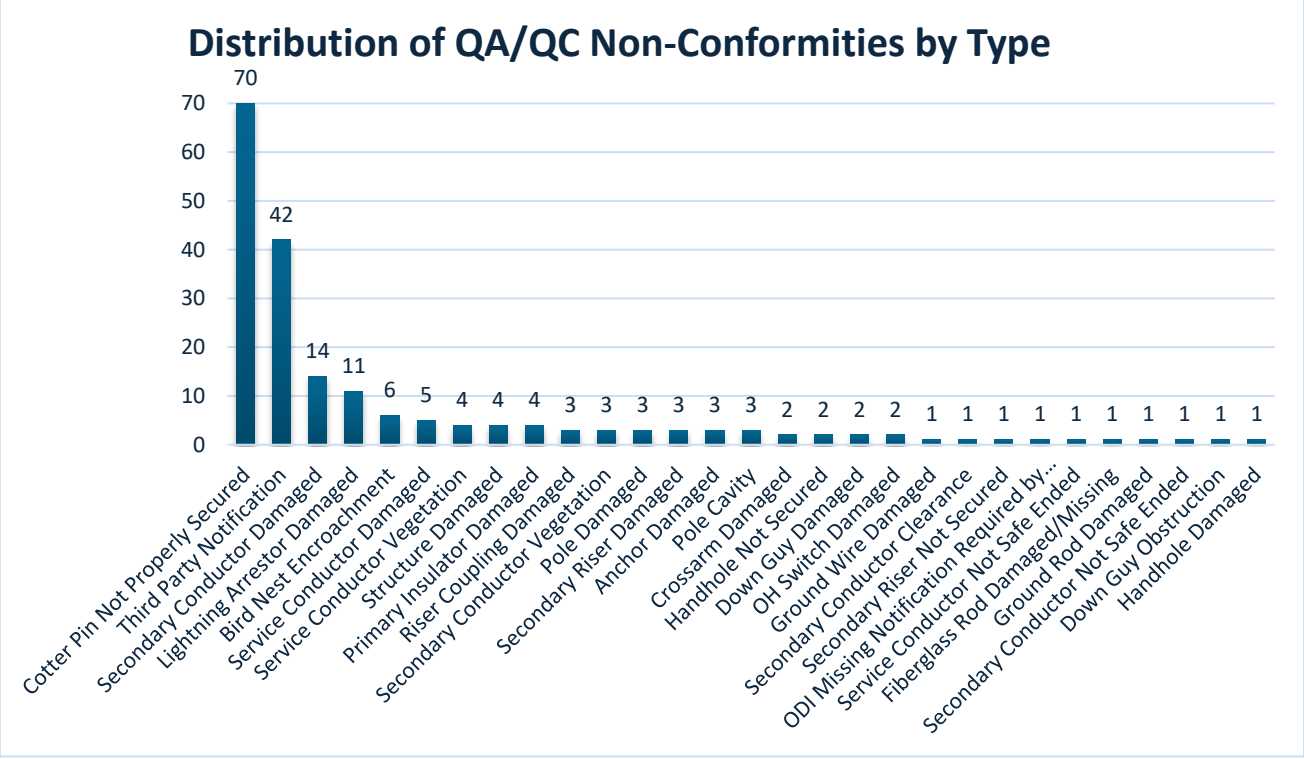
A total of 204 non-conformances were documented out of 3928 inspections, resulting in a non-conformance rate of 5.19%. Among these, 191 were related to structural issues, accounting for 4.86% of all inspections. Within the 196 non-generation inspections, the top five non-conformances comprised 73% of all issues. These issues are shown in Table 6.

Table 2 Top five non-conformities

Non-Conformance	Count	Percentage
Cotter Pin Not Properly Secured	70	35.7%
Third Party Notification	42	21.4%
Secondary Conductor Damaged	14	7.1%
Lightning Arrestor Damaged	11	5.6%
Bird Nest Encroachment	6	3.1%
TOTAL	**143**	**72.9%**

During the review with the Quality Team, it was identified that addressing non-conformances, which accounted for the majority of issues, required remedial training. The Quality Team subsequently developed training materials specifically targeting the "Cotter Pin Not Properly Secured" issue, aligning with the WMP QA and QC goal of improving practices to prevent recurrence as an example of that process.

Table 3: Tally of QA/QC Nonconformities



SCE says: “The dissemination of construction standards updates typically involves multiple processes to ensure that all staff members are aware of and understand the new changes. This can include distributing written materials, conducting training sessions, and updating digital resources. Initially, operations personnel receive updates through broadcast messaging, which are reviewed to assess their impact on field activities. Following this, the updates are communicated to supervisors and inspectors via email, ensuring that the information reaches relevant parties promptly. To further reinforce understanding, supervisors discuss these updates with field inspector teams during weekly in-person meetings, providing an opportunity to clarify expectations and answer any questions. In some cases, updates to quality tailboard topics and/or training documentation are required. Incorporating feedback from stakeholders and conducting supervisor field visits are additional steps in the calibration process after implementing new updates. These measures help maintain consistency and ensure adherence to quality standards.”

In reviewing the open and closed non-conformances, by the end of 2023, the IE noted that only 64 out of the 204 non-conformances had been completed and closed. Further clarification from the QA/QC team revealed that the high number of open items stemmed from incomplete paperwork rather than unfinished work. Following this discussion with SCE, 122 work orders were closed, with the following distribution of completion dates:

- 7 on 05/14/2024
- 46 on 05/15/2024
- 4 on 05/16/2024
- 17 on 05/17/2024
- 48 on 05/28/2024

Further clarification from the QA/QC team revealed that the open work orders stemmed from incomplete paperwork rather than unfinished work. Following this discussion with SCE, 122 work orders were closed This resulted in 18 non-conformances remaining open from the 2023 quality inspections, accounting for 8.82%.

8. CONCLUSIONS

8.1. Overview

The evaluations in Tables 2 and 3 provide a summary of the completions of SCE wildfire mitigation measures for 2023, emphasizing the distinction between field verifiable and non-field verifiable initiatives. Field verifiable initiatives were closely scrutinized to ensure they aligned with SCE’s established protocols.

8.2. Field Verifiable Initiatives

The review tasks, carried out by NuConsult, involved examining evidence of completion and ensuring alignment with SCE's operational protocols.

Several achieved targets exceeded expectations, including:

- Weather Station Installations: Exceeded 114 installs against a target of 85.
- Covered Conductor Installations: Exceeded with 1,220 miles installed against a target of 1,100 miles in HFRA.
- Branch Line Protection Strategy: Surpassed with installations or replacements at 563 HFRA locations against a target of 500.

8.3. Independent Evaluator Insights

The IE has highlighted areas of concern despite successes, emphasizing the need for improved monitoring using Key Performance Indicators (KPIs). Specifically:

QCI: with 140 out of 204 not closed out by the end of 2023. This has resulted in a non-completion level of 31%. To address this issue, key recommendations include:

- Enhancing training programs to improve understanding of QCI processes.
- Utilizing Key Performance Indicators (KPIs) to track and measure QCI closure rates.
- Implementing a non-conformance management system for better tracking and analysis.
- Conducting root cause analyses to prevent recurring issues.
- Instituting regular reviews and follow-ups on open QCIs.

These strategies aim to streamline the QCI closure process and bring the non-completion level down.

8.4. Financial Review and Strategic Recommendations

The financial review regards SCE's handling of the 2023 wildfire mitigation initiatives as largely successful. SCE deployed approximately 85% of the total CAPEX funding budget, and approximately 80% of the OPEX funding budget allocated for Wildlife Mitigation Initiative for 2023 spend, and generally met the plan targets for the year. It is the Conclusion of the IE that SCE Financial Planning and Accounting conformed to the plan requirements and appropriately funded or allocated funding for operational initiatives and requests. Most budgetary underruns were a result of lack of integration between operational implementation and financial allocations (items were charged to the Wildfire Mitigation Budget, but were likely completed), or resulted from limited operational resources or capital project delays. To improve the systemic reporting of compliant structures and ensure strategic planning is informed of resource limitations the IE recommends the following:

- Noting that in all cases missed targets were not specifically related to financial shortcoming, implementing processes to ensure that operational funding is closely tied to achieving strategic goals.
- Implementing thresholds to review budget variances prior to year-end to allow for a review of unexpended funds and consider how to close any gaps a review uncovers between strategic planning and operational execution.

- Achieving improved Risk Assessment Maturity is defined as a key foundational point to this wildfire mitigation plan. Implementing Asset Management metrics within the finance and accounting departments would be a critical step towards fully integrating Risk Assessment and Mitigation at all levels to support the Organizational commitment to operational efforts, particularly around areas such as weather modeling as outlined in Section 6 of the 2023 WMP.

8.5. Recommendations and Comprehensive Conclusions

The evaluations reveal that SCE has not only met but exceeded several of their target goals for field verifiable initiatives, demonstrating a strong commitment to wildfire mitigation. Areas of improvement remain, particularly in enhancing training, evaluating efficacy of funding operational initiatives, evaluating funding allocation support for strategic objectives, and improving resource management.

The IE recommends strengthening the link between strategic planning and execution. SCE possesses robust tools for analysis and tracking, which, when centralized through a single point like the work management system SAP, would enhance stakeholders' ability to assess the impacts of initiatives at both specific and strategic levels. This consolidation would facilitate resource optimization, thereby improving the overall effectiveness of wildfire mitigation practices.

APPENDIX A

Table 6-5 in the WMP provides the circuits with the highest wildfire risk in SCE territory. These circuits were prioritized during the Initiative sampling process. Below are these circuits:

1. PELONA
2. LASKER
3. CRAWFORD
4. LOTTO
5. RAYBURN
6. SHOVEL
7. STORES
8. BIANCO
9. BLACKFOOT
10. PINEWOOD
11. PASCAL
12. ROMERO
13. PURCHASE
14. LIMITED
15. SCHMIDT
16. RHODA
17. KENO
18. QUINBY
19. MULHOLLAND
20. TONTO
21. DINELY
22. WAITE
23. POPPET FLATS
24. ROTEC
25. IDA
26. PERRIS
27. ERSKINE
28. BODKIN
29. ACROBAT
30. DOLORES
31. CHUMASH
32. TUDOR
33. AMETHYST
34. KUFFEL
35. PHEASANT
36. BURNT MOUNTAIN
37. PIONEERTOWN
38. PARCO
39. STONEMAN
40. MUSTANG
41. DICE
42. LA GRANDE
43. LUISENO
44. GAMBLER
45. MUTUAL
46. TRIUNFO
47. SILVA
48. PICONI

APPENDIX B

Complete list and associated descriptions of existing QA/QC programs in place

Existing QA/QC programs in Place	Description
Compliance QCI for HFRA and non-HFRA	QCI's are focused on conformance to requirements outlined in UVM-02, Transmission Vegetation Management Plan (TVMP), and UVM-03, Distribution Vegetation Management Plan (DVMP).
Hazard Tree Mitigation and Assessment QCI	Hazard Tree Program and Dead and Dying Tree QCI's are performed to provide reasonable assurance that hazard tree assessments are performed consistently and accurately, and that prescribed mitigations have been completed
Dead and Dying Tree Mitigation, formerly Drought Resolution Initiative (ORI)	Hazard Tree Program and Dead and Dying Tree QCI's are performed to provide reasonable assurance that hazard tree assessments are performed consistently and accurately, and that prescribed mitigations have been completed
Structure Brushing Oversight	Structure brushing oversight is performed to provide reasonable assurance that structures subject to statute PRC 4292 are maintaining brush clearance through the declared fire season.
SB-247 Threshold reporting to the OEIS Wildfire Safety Division for SCE's 2023 WMP VM Goals Compliance	Wildfire Mitigation Plan goals are obtained from SCE's 2023 Wildfire Mitigation Plan.

Data requests and interview requests

Data Requests	Interview requests
Table of inspection non-conformance items	SCE's 2023 WMP QA/QC Program Overview, April 29, 2024
Updated table of non-conformance items	2023 WMP IE Financial Verification Overview, May 1, 2024
Example of Training material on Cotter Pin Non-Conformance	2023 Independent Evaluator Field Verification – Scheduling, May 2, 2024
[SA-1] Verification of 2023 Sample Stations_IE.xlsx	Program Walk Throughs/ Q&A with IE, May 8, 2024
SA-1 Review Results 29may2024.xlsx	Program Walk Throughs/ Q&A with IE, May 22, 2024
SA-1 sampling 23may2024.xlsx	IE 2023 WMP Initiative Walkthrough: IN-8 & DG-1, May 17, 2024
SA-1 Weather Station Installations.xlsx	IE 2023 WMP Initiative Walkthrough: SH-17 & SH-18, May 21, 2024
SA-10 HD Camera Installations.xlsx	IE 2023 WMP Initiative Walkthrough: IN-4, May 30, 2024
SA-11 Early Fault Detection Installations_CORRECTED.xlsx	IE 2023 WMP Initiative Walkthrough: IN-3, May 31, 2024
SA-3 Machine Learning Install.csv	IE Review - Asset Inspection QA/QC Non-Conformances, June 3, 2024
[SA-11] IE15-SCE-2023 Q. 100 - 102 Answer.pdf	IE 2023 WMP Initiative Walkthrough: IN-5, June 10, 2024
[sa11] IE06-SCE-2023 Q.55 Answer.pdf	IE 2023 WMP Initiative Walkthrough: SH-6, June 13, 2024
IE01-SCE-2023 Q. 01 SA-1 Answer.pdf	IE 2023 WMP Initiative Walkthrough: SH-8, June 14, 2024
IE09-SCE-2023 Q.77 SA-11 Answer.pdf	
IE10-SCE-2023 Q.78 SA-3 Answer.pdf	
[SA-1] IE08-SCE-2023 Q.75 SA-1 Answer.pdf	
[SA-11] 4627076E_EFD4370.xlsx	
78 SA-3.xlsx	
[SA-11] 2205271E_EFD4192.xlsx	
[SA-11] 4131388E_EFD4371.xlsx	

Data Requests	Interview requests
[SA-10] IE07-SCE-2023 Q.68 Answer.pdf	
[SA-1] IE13-SCE-2023 Q. 84 - 86 Answer.pdf	
[SA-1] IE15-SCE-2023 Q. 96 - 97 Answer.pdf	
IE-SCE-2023 QC Non-Conformance Verbal Q. 01-02 Answer	
IE-SCE-2023 DG-1 & IN-8 Verbal Q.01 Answer.pdf	
IE-SCE-2023 Initial Frontload Q. 05 DG Initiatives Year End Evidence Answer.pdf	
IE-SCE-2023 Initial Frontload Q. 01 SCE WMP ARC Answer.pdf	
SCE Wildfire Mitigation_ Funding Verification.msg	
[SH1 SH4 SH14 SH16] IE05-SCE-2023 Q.51-54 Answer.pdf	
[SH-1] IE01-SCE-2023 Q. 05 Answer.pdf	
[SH-10] IE08-SCE-2023 Q.74 Answer.pdf	
[sh10] IE06-SCE-2023 Q.59 Answer.pdf	
[SH-10] IE13-SCE-2023 Q. 87 - 89 Answer.pdf	
[SH-14] IE08-SCE-2023 Q.75 SH-14 Answer.pdf	
[SH-14] IE09-SCE-2023 Q.78 Answer.pdf	
[SH-14] IE15-SCE-2023 Q. 103 Answer.pdf	
[SH-14] IE02-SCE-2023 Q.14 Answer.pdf	
[SH15] IE06-SCE-2023 Q. 64 Answer.pdf	
[SH-16] IE15-SCE-2023 Q. 104 Answer.pdf	
[SH-16] WMP IE DR-15 Q104 - Vibration Damper Installation.jpg	
[SH-16] IE02-SCE-2023 Q.15 Answer.pdf	

Data Requests	Interview requests
[SH-16] IE06-SCE-2023 Q. 56 Answer.pdf	
[SH-17 SH-18] IE15-SCE-2023 Q. 106 - 107 Answer.pdf	
[SH-17 SH-18] Rapid Earth Fault Current Limiter (REFCL) Projects at Southern California Edison.pdf	
[SH-17] FW_ (External)_RE_ (External)_RE_ Data Request 8 _ SCE Wildfire Mitigation.msg	
[SH-2] IE15-SCE-2023 Q. 99 Answer.pdf	
[SH-2] Undergrounding Overhead Conductor with updated HFTD.xlsx	
[SH-2] IE01-SCE-2023 Q. 06 Answer.pdf	
[sh2] IE06-SCE-2023 Q. 57 Answer.pdf	
[sh2] TD1799842.pdf	
[sh2] TD1909540.pdf	
[SH-4] IE01-SCE-2023 Q. 04 Answer.pdf	
[SH-5] IE15-SCE-2023 Q. 98 Answer.pdf	
[SH-6] IE01-SCE-2023 Q. 07 Answer.pdf	
[SH-8] IE10-SCE-2023 Q.79 Answer.pdf	
[SH-8] IE01-SCE-2023 Q. 08 Answer.pdf	
IE01-SCE-2023 Q. 01 SH-1 Answer.pdf	
IE01-SCE-2023 Q. 01 SH-14 Answer.pdf	
IE01-SCE-2023 Q. 01 SH-4 Answer.pdf	
IE08-SCE-2023 Q.75 SH-1 Answer.pdf	
IE08-SCE-2023 Q.75 SH-10 Answer.pdf	
IE08-SCE-2023 Q.75 SH-16 Answer.pdf	

Data Requests	Interview requests
IE08-SCE-2023 Q.75 SH-4 Answer.pdf	
IE09-SCE-2023 Q.77 SH-2 Answer.pdf	
IE10-SCE-2023 Q.78 SH-5 Answer.pdf	
IE10-SCE-2023 Q.78 SH-8 Answer.pdf	
IE-SCE-2023 Initial Frontload Q. 09 SH Initiatives Year End Evidence Answer.pdf	
RE_ SH-10 Report content.msg	
SH-1 Covered Conductor.xlsx	
SH-10 Tree Attachment Remediation.xlsx	
SH-10 WMP verbiage.pdf	
SH-14 Dist overhead doc.pdf	
SH-14 Long Span Initiative.xlsx	
SH-15 Vertical Switches.xlsx	
SH-16 Vibration Damper Retrofit.xlsx	
SH-17 Construction pictures.pdf	
SH-18 Construction pictures.pdf	
SH-4 a.png	
SH-4 Distribution Branch Line Fuse.xlsx	

List of documents viewed

- ✓ 2023 Annual Quality Control Plan, April 1, 2023
- ✓ IE_SCE_SouthernCal_Edison_2022_WMP_IE_ARC.pdf
- ✓ HU-2023 1723 Cotter Key Pins Redacted
- ✓ Distribution Inspection and Maintenance Program (DIMP)
- ✓ QCP-006 Overhead Detailed Quality Control Inspection Process - Revision 4

- ✓ IE-SCE-2023 Initial Frontload Q. 08 SA Initiatives Year End Evidence Answer.pdf
- ✓ SCE_2023_ARC_ATTACHMENT_B_Cost_Variance_Explanation.xlsx
- ✓ SA-8 Consequence Analysis Report.pdf
- ✓ [SA-1]DDS -10 (Weather Station Design Standards).pdf
- ✓ [SA-10] 2023 Camera Installs.xlsx
- ✓ [SA-11] 1821631E_EFD4198.xlsx
- ✓ [SA-11] 2024-05-23 JIS Sheets.pdf
- ✓ [SA-1] DAP AP 810 (Weather Station Construction Standards).pdf
- ✓ [SA-1] DDS -10 (Weather Station Design Standards).pdf
- ✓ SH-5 Remote Controlled Automatic Reclosers.xlsx
- ✓ SH-6 Circuit Breaker Relay Hardware for Fast Curve BWedits formaps.xlsx
- ✓ SH-6 Circuit Breaker Relay Hardware for Fast Curve BWedits.xlsx
- ✓ SH-6 Circuit Breaker Relay Hardware for Fast Curve.xlsx
- ✓ SH-8 Transmission Open Phase Detection Compliance Evidence 2023.pdf
- ✓ SH-8 Transmission Open Phase Detection.xlsx
- ✓ SH-5 Remote Controlled Automatic Reclosers.xlsx

SME interview summary

Overview of IE Activities

The IE found the interviews extremely helpful. From late April through June 2024, a series of interviews, financial verifications, and a thorough examination of various initiatives under SCE's Wildfire Mitigation Plan (WMP) were conducted. Here's a summarized overview of each activity:

2023 WMP IE Financial Verification Overview (May 1, 2024)

A comprehensive financial verification was conducted to scrutinize the budget allocation and expenditure of the 2023 WMP, ensuring alignment with planned wildfire mitigation strategies.

Independent Evaluator Field Verification – Scheduling (May 2, 2024)

Discussions were held to schedule and coordinate the field verification activities to ensure rigorous field test conditions and accurate verification of initiative implementations.

Program Walk-Throughs/Q&A with IE (May 8, 2024 & May 22, 2024)

These sessions involved detailed walk-throughs of the WMP program, addressing questions from the Independent Evaluator (IE) to clarify specific aspects of the plan.

IE 2025 WMP Initiative Walkthroughs:

IN-8 & DG-1 (May 17, 2024): Detailed reviews focused on the implementation and progress of initiatives related to digital enhancements and distribution grid optimization.

SH-17 & SH-18 (May 21, 2024): Investigated safety and hardware upgrades pertaining to specific station hardware and infrastructural resilience enhancements.

IN-4 (May 30, 2024), IN-3 (May 31, 2024): Evaluations centered on the communication and operational aspects of the infrastructural initiatives.

IN-5 (June 10, 2024): A late but critical assessment of specific infrastructure enhancements targeting operational efficiencies.

SH-6 (June 13, 2024), SH-8 (June 14, 2024): Concluded the reviews with a focus on safety measures and hardware implementations at targeted stations.

IE Review - Asset Inspection QA/QC Non-Conformances (June 3, 2024)

A significant review identifying non-conformances in asset inspections, aiming to address quality assurance and quality control deviations, reinforcing the need for strict adherence to compliance standards.

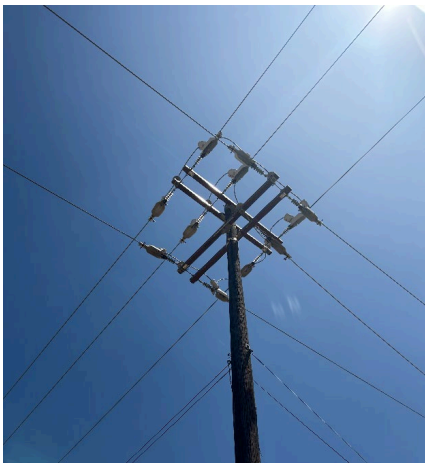
Conclusion

The scheduled interviews and walkthroughs played a crucial role in validating the operational and strategic execution of SCE's 202 PSTAMP initiatives. They ensured strict adherence to safety protocols, financial transparency, and effective implementation of designed measures within the specified timeframe. Each session was instrumental in pinpointing areas for improvement and success, thereby contributing to the ongoing enhancement of wildfire mitigation efforts.

APPENDIX C

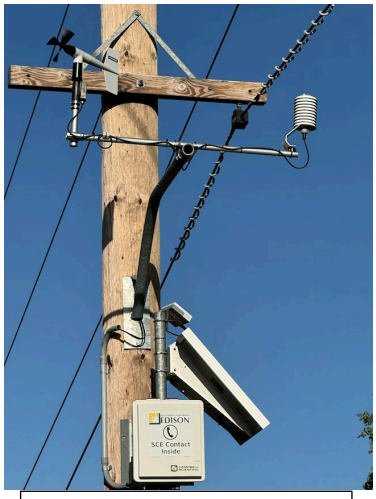
Pictures of Non-Conformance

SH-16
No Vibration
Dampener



SH-16
No Vibration
Dampener

SF-01 - Newhall
Orchard
Offline Weather



SF-01 – Brite Valley
Cross-Arm Potential
Interference