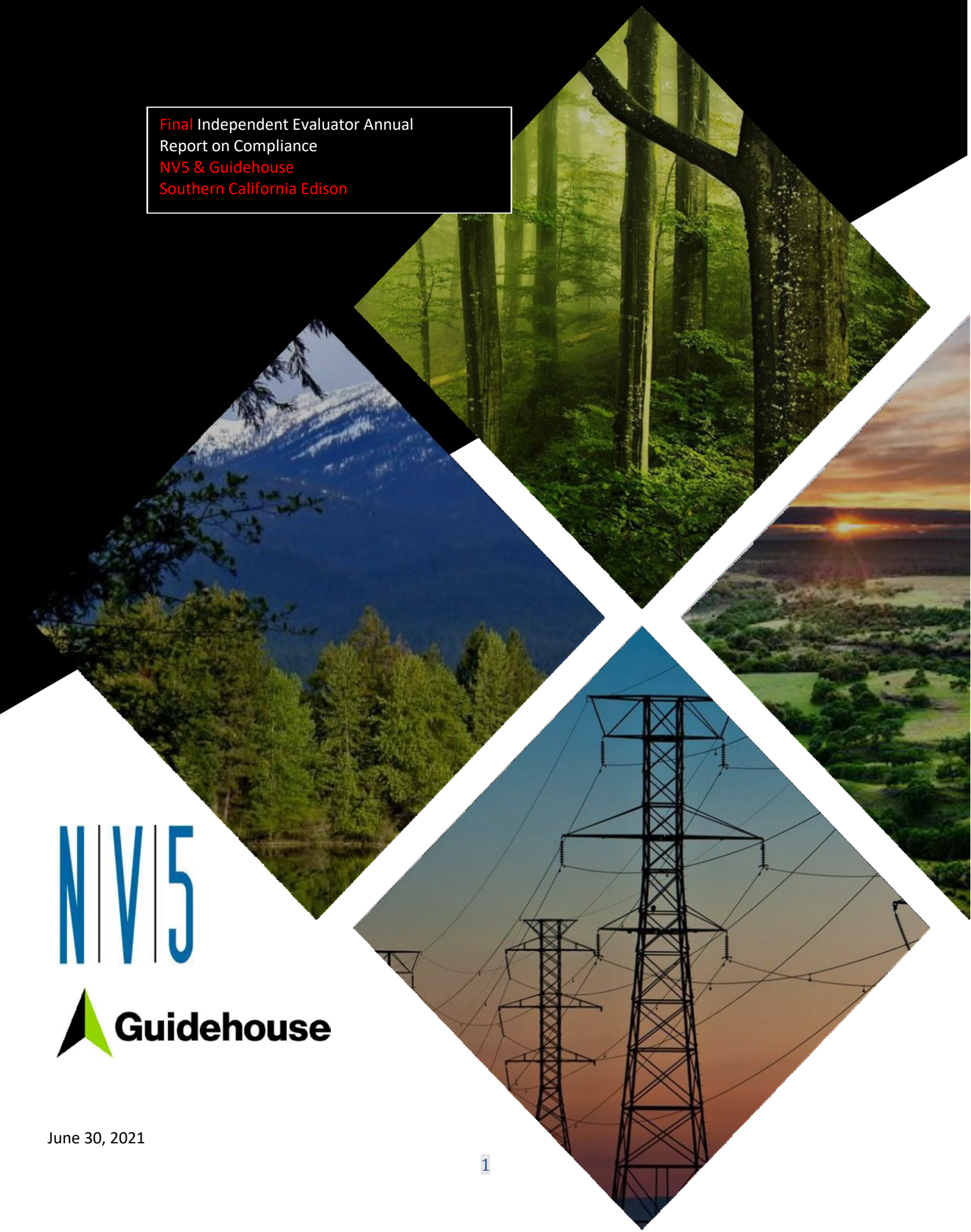
# Final Independent Evaluator Annual Report on Compliance

NV5 & Guidehouse

Southern California Edison



June 30, 2021

## Contents

## 1 Executive Summary

*The Executive Summary should contain key takeaways from the Independent Evaluator's evaluation, including key findings from the Independent Evaluator's audit of WMP activity completion, verification of funding, and verification of QA/QC programs.*[1]

The Southern California Edison (SCE) service territory covers a vast stretch of Southern California and serves millions of customers. It encompasses several mountain ranges, deserts, the second largest metropolitan areas, and remote rural stretches. The vegetation in its service territory spans from dense forests, to chaparral, to sparse desert vegetation. Accordingly, SCE's service area represents numerous expanses of the California Public Utilities Commission (CPUC ) defined High Fire Threat Districts (HFTDs) including Tier 2 elevated and Tier 3 extreme risk areas.

SCE has undertaken considerable efforts to prevent ignitions and mitigate the impact of wildfire across its substantial service territory. Through emerging technologies, enhanced mitigation practices, and refined quality assurance (QA)/quality control (QC) (collectively "QA/QC") processes, SCE is working to achieve risk reduction benefits for their communities in the face of growing threat of increased wildfire events and potential proactive de-energization activations as a measure of last resort. To achieve these risk reduction results, SCE tracks and monitors activities as they are executed to maintain conditional awareness of controllable risk drivers, which may lead to a catastrophic ignition event.

This report demonstrates a review of the wildfire mitigation initiatives that SCE implemented in 2020 and an accounting of whether SCE met its performance objective targets, whether it is underfunding any of those initiatives, and whether SCE is following QA/QC processes. The Independent Evaluator (IE) review of these elements determined that SCE is largely achieving the reviewed initiative objectives, is not failing to fund the portfolio of its initiatives, and lastly, appears to be following its QA/QC processes. The IE noted that several initiatives may require additional investigation or inquiry by the CPUC Wildfire Safety Division (WSD) to validate activities across all Wildfire Mitigation Plan (WMP) initiatives.

This report represents the IE's review, assessment, and findings of the IE on this inaugural effort to perform the statutorily mandated evaluation. In response to California Public Utilities Code §8386.3, SCE and other California electrical corporations (ECs) contracted with eligible IEs[2] to perform the activities described in the *Final Independent Evaluator Scope of Work for the Review of Compliance with 2020 WMP* issued April 21, 2021 to meet statutory requirements of independently evaluated Wildfire Mitigation Plans (WMPs) by July 1, 2021.[3]

By May 18, 2021, SCE contracted with the IE and launched the evaluation with an accelerated scope to meet all required objectives under the assessment's timeline duration and presented schedule. The IE met the evaluation tasks and produced a draft IE report on June 15, 2021 for the WSD's initial comments, culminating in a final IE report on SCE's WMP. The IE delivered the final IE report on June 30, 2021.

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[1] Italicized and blue texted writing is preserved at the beginning of each section as the Wildfire Safety Division template guidance sent to all IEs for their Independent Evaluation reports on 2020 Wildfire Mitigation Plan activity compliance.

[2] Qualified Independent Evaluators were identified Wildfire Safety Division (WSD) *IE Enlistment Announcement* issued February 22, 2021, as amended by the *Amended IE Enlistment Announcement* issued April 20, 2021.

[3] The WSD issued the Independent Evaluator Enlistment Announcement on February 22, 2021 with appointment of the eligibility status of vetted IEs available for EC contracted.

The table below illustrates the IE findings for those that could not deemed sufficient due to an inability to validate the evidence during the review period, a lack of or insufficiency of evidence, or funding below the planned 2020 targets set forth by the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03***. A complete listing of findings are located in this IE Report's **Appendix 5.4**.

*Table 1: SCE 2020 WMP Execution - Insufficient Findings*

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.3 | SH-1 | Covered Conductor Installation | Due to time constraints, the IE was unable to make a final determination if SCE has met the entire program target | The IE recommends further exploration into the work orders associated with the Covered Conductor Installation, as well as possible SME interview to gain a better understanding of how line miles are tracked upon completion of work and how installation dates are recorded. |
| WMP Activity Completion | 5.3.3.6 | SH-3 | Fire Resistant Poles | The IE was unable to make a complete verification of all hardening efforts and replacements due to the limitations of the accelerated evaluation period. | The IE recommends further analysis of this data, more validation inquiries and validation of pole replacements to determine if the committed number of poles for remediation for 2020 were all executed. |
| WMP Activity Completion | 5.3.3.12 | SH-12.1 | Remediations - Distribution | SCE missed projected targets of 100 percent remediations complete by three percent of the 2020 WMP target, which was verified by the IE's review. | This attributed to the underrun of expenditures associated with these activities, for which SCE cited reduced inspection rates, COVID-19 pandemic, and operational challenges. No direct field verifications contributed to this result. |
| WMP Activity Completion | 5.3.5.5 | VM-2 | Expanded Pole Brushing | SCE reported they exceeded objectives in 2020, reporting 231,326 poles cleared within the HFRA. The IE verified that an upwards of 200,000 poles were cleared from the desktop data review. | The IE subsequently evaluated activities through field inspection sampling and found the 8 of 25 sampled to have noncompliant conditions due to overgrowth, encroachment, and brush found within the 10-foot ground and vertical clearance. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.4.10 | IN-6.2 | Aerial Inspections – Transmission | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed full aerial inspections of 29,839 transmission facilities and partial inspections of 1,542 facilities. However, this does not meet SCE's stated goal of 33,500 inspections. | Time constraints prevented detailed review of sampled work order accounts. |
| WMP Activity Completion | 5.3.5.16 | VM-4 | Drought Relief Initiative (DRI) Inspections and Mitigations | The IE did not receive an independent statistically valid sample despite a detailed submitted request. The IE cannot validate whether SCE has met these objectives. | This is due to SCE submitting incorrect sample date from what was requested by the IE. |
| WMP Activity Completion | 5.3.3.2 | AT-8 | High Impedance Relay Evaluations | The IE could not concretely determine the detailed installation activities associated with this initiative. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative |
| WMP Activity Completion | 5.3.3.9 | SH-5 | Installation of System Automation Equipment – RAR/RCS | Due to time constraints, the IE was not able to inquire further nor validate the 48 installations claimed in the documents nor the 2 RARs/RCSs that did not have a device number associated with them. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.3.3 | AT-4 | Alternative Technology Implementation – Vibration Dampers | Due to time constraints, the IE was unable to complete the evaluation to determine the evaluations of damper technologies for both small and large diameter covered conductor applications actually occurred for 2020. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.6.5 | PSPS-5 | MICOP Partnership | Although some evidence of meetings was provided by SCE, without additional evidence showing consistent periodic meetings between MICOP and SCE, and along with the response from the data request stating that meetings were informal | However, SCE did provide sufficient evidence of progress reports with MICOP. Additionally, SCE provide evidence of a final impact report that showed the progress throughout the 2020 year. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| | | | | and did not include agendas, the IE was unable to definitively determine whether SCE had regular meetings with MICOP. | |
| WMP Activity Completion | 5.3.6.5 | PSPS-6 | Independent Living Centers Partnership | Due to time constraints the IE was unable to ask SCE for additional evidence to definitively determine if SCE is having regular meeting as committed. | However, SCE provided a final impact report that provides some assurance of the commitment for progress reports. The IE recommends further inquiry for evidence of periodic progress reports as was provided for PSPS-5 to determine the reasonable robustness of this initiative. |
| WMP Activity Completion | 5.3.3.16 | SH-2 | Undergrounding Overhead Conductor | Due to time constraints the IE was not able to validate whether the new additions yielded a more refined evaluation methodology as committed. | Further validation and inquiry are recommended to determine the completion of the commitments for this initiative. |

## 2 Introduction

*The Introduction should contain upfront context and a high-level summary of the work performed by the Independent Evaluator.*

The state of California has seen an increase of disastrous wildfires in recent years. Fires have historically ravaged communities across the state resulting in billions of dollars in structural damage and catastrophic loss of life. In the recent decade, the California Department of Forestry and Fire Protection (CAL FIRE) reports that larger and more aggressive fires are occurring year over year resulting from prolonged drought conditions and historic fire prevention measures, and bark beetle infestations. Consequently, multiple regulatory authorities established oversight on various mitigation strategies to directly reduce these growing threats.

In 2018, the California State Senate Committee on Energy, Utilities, and Communication relayed that electric utility equipment involvement was the third most common cause of ignition events in response to the devastating wildfire consequences following the 2017 fire season. According to the state list of the 20 largest wildfires, wildfire events in 2020 accounted for five of the six largest recorded ignitions in the last century.[4]

The following table shows the CAL FIRE reported 2019 and 2020 fire incidents.

[4] CAL FIRE, "Top 20 Largest California Wildfires," https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf. April 28, 2021.

*Table 2: CAL FIRE Reported Fire Ignitions & Acre Impact*

| NUMBER OF FIRES AND ACRES BURNED | | |
|---|---|---|
| **TIME INTERVAL** | **FIRE INCIDENTS RECORDED** | **ACRES BURNED** |
| **JANUARY 1, 2020 - DECEMBER 29, 2020 (CAL FIRE)** | 8,112 | 1,443,152 |
| **JANUARY 1, 2019 - DECEMBER 29, 2019 (CAL FIRE)** | 5,687 | 137,126 |
| **5-YEAR AVERAGE (SAME INTERVAL)** | 5,856 | 446,960 |
| **2020 COMBINED YTD (CAL FIRE & FEDERAL)** | 9,917 | 4,257,863 |

*Source: CAL FIRE, 2020 Fire Incident Data captured from its Computer Aided Dispatch System*

## Wildfire Mitigation Plan Compliance Procedures Background

The July 2019 Assembly Bill (AB) 1054 (Holden, Chapter 79, Statutes of 2019) established a set of tasks and authorities for the California Public Utilities Commission (CPUC or Commission) in regulating and facilitating strategies for utility wildfire mitigation. This bill supplemented its predecessor, Senate Bill (SB) 901, and directed acceleration of regulatory administration and compliance monitoring of electrical corporations' WMPs and related wildfire data.[5] AB 1054 also established the WSD under the Commission as the primary regulatory body in conjunction with the state Wildfire Safety Advisory Board (WSAB).[6] Its companion bill, AB 111, provided the legislative vehicle for the WSD to later transition under the California Natural Resources Agency (CNRA) on July 1, 2021 as the Office of Energy Infrastructure Safety (OEIS or WSD/OEIS) after establishing and refining the WMP compliance protocols to maintain state oversight for utility WMPs. [7]

Among listed responsibilities, AB 1054 mandated the WSD to create and oversee a compliance process for electrical corporation WMPs and associated reports.[8] The efforts of the WSD took shape during the 2020 WMP template development process.

## Wildfire Mitigation Plan Independent Evaluation Engagement

This report serves as a WMP compliance assessment as required by Public Utilities Code (PUC) § 8386.3[9] that supplements the WSD/OEIS evaluation and understanding of EC WMP performance. Consistent with the WSD Guidance Document scoped under Resolution WSD-012,[10] an independent evaluator (IE) executed this work in accordance with the scope approved by the WSD on April 21, 2021.[11]

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[5] Attributable legislation driving this effort includes SB 1028 (Hill, 2016)

[6] Respondent electrical corporations are, in no particular order, Pacific Gas and Electric Company, Southern California Edison, San Diego Gas & Electric, Liberty Utilities (CalPeco Electric), Bear Valley Electric Service, Inc., and Pacific Power, a division of PacifiCorp, along with several independent transmission owners.

[7] On July 1, 2021, the WSD is set to be moved out of the CPUC and became the OEIS under the CNRA pursuant to AB 111. At the time of this IE report, the WSD was still nested under the CPUC.

[8] PUC § 8389 (d)(3) directed the Commission to adopt and approve a WMP compliance process by December 1, 2020.

[9] In accordance with PUC § 8386.3(c)(2)(B)(i), "The engaged independent evaluator shall consult with, and operate under the direction of, the Wildfire Safety Division of the Commission."

[10] Resolution WSD-012. Resolution implementing the requirements of Public Utilities Code Sections 8389(d)(3) related to catastrophic wildfire caused by electrical corporations subject to the Commission's regulatory authority (2020). Available at https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M351/K834/351834801.PDF.

[11] California Public Utilities Commission, "Final Independent Evaluator Scope of Work for the Review of Compliance with 2020 WMP," April 21, 2021 ("April 21 IE Scope of Work"). Available at https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/Final%20IE%20SOW_20210421.pdf.

California ECs engaged and contracted with qualified IEs pursuant to statutory obligations and WSD directives. As required, the WSD produced and published a list of qualified vendors experienced in comparable audit activities with the ability to perform the compliance assessment and deliver a report before July 1, 2021. This IE report aims to verify WMP compliance activities of SCE, a regulated investor owned utility (IOU) under the CPUC, for its 2020 performance as it corresponds to the initiatives the IOU planned to accomplish in 2020 compared to actual performance, whether those activities were funded appropriately, and validate and describe the EC's QA/QC programs for WMP compliance.

This IE report will inform the WSD's assessments of whether each electrical corporation is satisfactorily implementing projects and programs planned within its WMP. WMPs IEs are part of the WSD's ongoing compliance monitoring protocols and may contribute to, but not direct, any forthcoming actionable remedy statements.

The compliance standard of review to be applied is set forth in the *Final Independent Evaluator Scope of Work for the Review of Compliance with 2020 WMP,* which states:

> Pursuant to P.U. Code Section 8386.3(c)(2)(B)(i), the IE is "to review and assess the electrical corporation's compliance with its plan."[12] The IE shall verify that the electrical corporation has complied with the goals set forth for each of the initiatives and/or activities contained in its approved WMP or as modified pursuant to the electrical corporation's submittals through the Change Order process. To effectively execute this scope, at a minimum, the IE shall utilize the approved WMP, remedial compliance plan (RCP), quarterly reports (QRs), change orders, quarterly initiative updates (QIUs), and quarterly advice letters (QALs). In addition, the IE shall determine whether the electrical corporation "failed to fund any activities included in its plan." Finally, in accordance with the April 6th Guidance Document, the IE shall validate and describe the electrical corporation's QA/QC programs in place for WMP compliance.[13]

This IE Report is primarily informed by the IE's assessments of documentation provided, field visits, and interviews with subject matter experts (SMEs) associated with the EC.

### 2.1 Methodology

The WSD structured and defined the compliance process for this IE. For a successful implementation of the IE report, the April 21 IE Scope provides the scope and objectives to evaluate evidence of successful implementation of the ECs' WMP initiative activities, funding, and QA/QC efforts executed in 2020. This is validated by documentation reviews, field verifications, and, where appropriate, SME

[12] The entire section of PUC §8386.3(c)(2)(B)(i), states, "Each electrical corporation shall engage an independent evaluator listed pursuant to subparagraph (A) to review and assess the electrical corporation's compliance with its plan. The engaged independent evaluator shall consult with, and operate under the direction of, the Wildfire Safety Division of the commission. The independent evaluator shall issue a report on July 1 of each year in which a report required by paragraph (1) is filed. As a part of the independent evaluator's report, the independent evaluator shall determine whether the electrical corporation failed to fund any activities included in its plan. Cal. Pub. Util. Code §8386.3(c)(2)(B)(i), as amended, (2021).

[13] April 21 IE Scope of Work at pp. 1-2, citations omitted from passage.

responses.

## Approach

In deliberation with the WSD, the IE proposed to focus efforts and available resources on specific WMP initiatives determined to provide the greatest reduction of risk to life, community, and property impacts due to wildfires or Public Safety Power Shutoff (PSPS) addressed under the WMP.

To perform this assessment, the IE adopted the following approach:

- **Review publicly available information, including the WMP:** The IE reviewed publicly available information to prepare for the assessment including the subject utility's WMP, and other publicly released or submitted documents. Review publicly available documents, which should include, at minimum, the WMP initiatives (there are 10 subject areas discussed in the WMPs these are detailed in section 5.3 in the 2020 WMP).[14]
- **Prepare initiative and subsequent data requests**: The first data request focused on programmatic level documentation such as the utility's vegetation management program, inspection program, grid hardening program(s), etc. Additional information to request includes any of the WMP submissions that are not on public websites or not available in useful formats and supplemental geographic information system (GIS) spatial data. This provides the IE a baseline understanding of available documentation apart from publicly available sources.
- **Document discovery review:** Review the supplemental information about the WMP initiatives in the Quarterly Data Reports (QDRs), Annual Report on Compliance (ARC), Remedial Compliance Plan (RCP), and the Quarterly Initiative Update (QIU). Review each data request response for completeness, responsiveness, and thoroughness. These materials should address all three subject areas addressed in the report – implementation of initiatives, initiative funding and QA/QC material. The QA/QC materials may also be identified as monitoring an internal auditing or by other similar terms.
- **Perform risk assessment for field inspections:** Using GIS maps submitted by SCE, the IE identified areas where there is a substantial intersection between risk areas, including HFTDs and Wildland Urban Interface populations and WMP initiative activities across the utility's service territory to select meaningful locations for possible site visits to verify initiative activities performed in 2020.
- **Conduct field inspection survey:** This includes a visual patrol assessment of identified circuits and electrical assets within the selected high risk areas. Results are captured on site and incorporated with other findings of the document discovery tasks.
- **Interpret document and field inspection results:** Utilizing the WMP and other related compliance documents submitted to the WSD, the IE reviews the field inspection site notes, data request responses, and other evidence of the performed WMP activities and prepared findings surrounding each scoped initiative activity. The IE also conducts interviews, as needed, with subject matter expert (SME) personnel to gain additional details and clarify questions on program and project targets and QA/QC performance.

The IE summarized found, requested, reviewed, and assessed the following types of information to gain an understanding of the initiatives under SCE's ***2020-2022 Wildfire Mitigation Plan*** and developed a series of data requests to verify and validate their performance:

[14] This section is moved to Section 7.3 under the 2021 WMP template guidelines. For the purposes of this IE report and compliance period covering 2020, initiative activities names reflect 5.3.

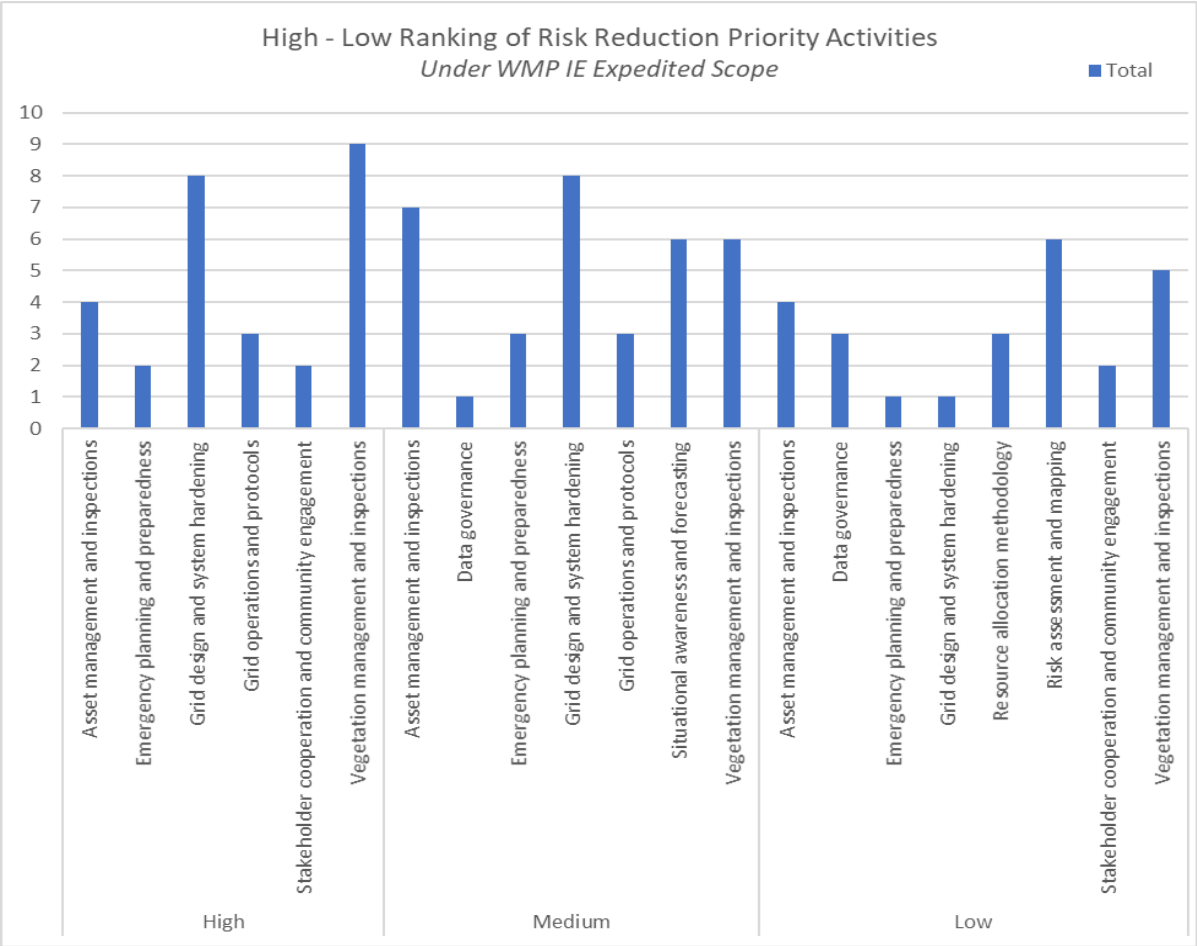
- WMP QIUs, QDRs, and the 2020 ARC, which make up the primary reporting mechanisms for IOU submittals as well as the RCP, and quarterly advice letters (QALs);
- Risk assessment and scoring documentation, (e.g., Risk Assessment Mitigation Phase reports, ignition and weather models and tools, developed GIS maps with unique risk factors);
- Reports from inspection and vegetation management activities;
- Work orders, invoices, and key decision reports, of which present business cases for the associated initiative activity;
- Metrics, activity units measured, compiled reports, outage logs, and other trending data sets to inform the risk-based evaluation;
- Funding documentation, General Rate Case workpapers and applications, memorandum account logs, and associated Advice Letters (ALs);
- Internal procedures, QA/QC protocols, example internal/external audit reports and findings, demonstration of procedural use with internal quality programs;
- GIS geodatabase and shapefile layers with utility asset information and specialized characteristics to determine the scope for field inspections; and
- Direct SME-level engagement through coordinated email and telephone communication as well as conducted interviews for QA/QC determinations.

### Risk Assessment & Initiative Activity Prioritization

Given the scale and breadth of evidence, including documentation and data, the geographic dispersity of the ECs, the limited time to perform the IE assessment, and an understanding that not all initiatives identified by the WSD represent an equal level of risk reduction to life, property, communities, and economic activity, the IE leveraged sound auditing principles to focus efforts on the risk reduction each WMP activity contributes towards mitigating wildfire and PSPS consequence on affected parties. The effort did not attempt to exclude particular initiatives but sought to organize a hierarchy of the 87 WMP initiative activities to best guide the IE effort to maximize the resources expended on those elements of the WMP that are key to protecting public safety, lives, and property.

To prioritize WMP initiatives under this scope, the IE created a risk reduction scoring spreadsheet, attached as Appendix 5.2, which lists all 87 WMP initiative activities (column C) along with its associated initiative category (column A), the appropriate section number for the 2020 WMP (column B), and the WSD definition of each initiative (column D). The IE then assigned a risk reduction rating of 1-10 ranking for each initiative (column E) based upon the likely risk types and severity the action tends to reduce during the subject time period. Given lack of suitable timing to design and test a sophisticated model, the IE established categorical definitions for the 1-10 ranking with 10 representing the highest risk reduction activities, and 1 representing the lowest relative risk reduction outcome over the triannual period, and, with SME determination, provided an assessment of the risk reduction value such that all evaluations are scoped with similar parameters for a more uniform and risk-informed sample study. The figure below identifies the WMP Initiative categories and corresponding counts of activities ranked High, Medium, or Low.

*Figure 1: Count of High, Medium, and Low Risk Reduction Impact for IE Scope*




This rationale for scoring and selection of highest risk reduction impact is explained in column F. Lastly, the IE assigned a risk reduction rating of high, medium, or low based upon a qualitative ranking scale where 7-10 = High, 4-6 = Medium, and 1-3 = Low risk reduction ratings (See Table below). This process aims to normalize measurement outcomes under a three-tier rating. The IE then analyzed the distribution of risks across the initiative categories to understand how risks were distributed across initiative categories. This visual enables the IE Team to assess samples across the various scoring determinations and aim for an achievable, replicable, and narrowed scope for the most significant results across all evaluations. The IEs selected those WMP initiative activities that scored under "High" for detailed evaluation and field inspection siting as part of this WMP IE.

The criteria for the risk score ranking are outlined below in **Table 3**.

*Table 3: Risk Score Determination for Sampled Scope*

| RISK REDUCTION SCORE PROFILED OVER THE 2020 - 2022 WMP CYCLE | | |
|---|---|---|
| LOW | 1<br>2<br>3 | The initiatives categorized as Low Risk Reduction have the lowest relative risk among the 87 under the 2020 – 2022 WMP cycle. Low Risk Reduction is not meant to imply, nor does it mean, these initiatives are unnecessary or unimportant. Low risk reduction initiatives are largely comprised of process implementation, coordination, and outreach, to enhance other higher risk reduction practices for wildfire mitigation efforts and establishes, in most cases, the baseline of risk and meets required General Orders (GOs) and federal requirements for electrical equipment and vegetation management. |
| MEDIUM | 4<br>5<br>6 | The initiatives evaluated as Medium Risk Reduction present an effort for operational enhancements and practices, practice and data gathering improvements, and procedural implementation that enhance wildfire risk reduction efforts. These initiatives include continuous improvement processes, quality assurance, enhanced inspections and maintenance, and initiative activity design improvements. This category also includes long lead timelines that will eventually bring substantial risk reduction but not as impactful over the short term as those initiatives in the High Risk Reduction category. |
| HIGH | 7<br>8<br>9<br>10 | High Risk Reduction initiatives are the activities most likely to immediately and substantially reduce the risk to life, property, and public safety. These are readily implementable activities that disproportionately come from the vegetation management, asset management & inspections, and grid design & system hardening initiative categories. This risk class represents nearly 1/3 of all the identified initiatives. |

*Table 4: High Risk Reduction Selection of WMP Initiative Category Activities*

| HIGH RISK SCORE RANKING | |
|---|---|
| Grid Design & System Hardening | 15. Covered conductor installation |
| | 17. Crossarm maintenance, repair, and replacement |
| | 18. Distribution pole replacement and reinforcement, including composite poles |
| | 19. Expulsion fuse replacement |
| | 21. Installation of system automation equipment |
| Asset Management & Inspections | 22. Maintenance, repair, and replacement of connectors, including hotline clamps |
| | 26. Transformer maintenance and replacement |
| | 28. Undergrounding of electric lines and/or equipment |
| | 30. Detailed inspections of distribution electric lines and equipment |
| | 31. Detailed inspections of transmission electric lines and equipment |
| | 36. LiDAR inspections of distribution electric lines and equipment |
| | 42. Pole loading assessment program to determine safety factor |
| Vegetation Management & Inspections | 46. Detailed inspections of vegetation around distribution electric lines and equipment |
| | 47. Detailed inspections of vegetation around transmission electric lines and equipment |
| | 51. LiDAR inspections of vegetation around distribution electric lines and equipment |
| | 52. LiDAR inspections of vegetation around transmission electric lines and equipment |
| | 55. Patrol inspections of vegetation around distribution electric lines and equipment |
| | 56. Patrol inspections of vegetation around transmission electric lines and equipment |
| | 59. Remediation of at-risk species |
| | 60. Removal and remediation of trees with strike potential to electric lines and equipment |
| | 64. Vegetation management to achieve clearances around electric lines and equipment |
| Grid Operations & Protocols | 65. Automatic recloser operations |
| | 68. Protocols for PSPS re-energization |
| | 69. PSPS events and mitigation of PSPS impacts |
| Emergency Planning & Preparedness | 81. Disaster and emergency preparedness plan |
| | 82. Preparedness and planning for service restoration |
| Stakeholder Cooperation & Community Engagement | 86. Cooperation with suppression agencies |
| | 87. Forest service and fuel reduction cooperation and joint roadmap |

Based on this risk assessment, the initiative activities in **Table 4** above were prioritized for enhanced focus of this inquiry.

# 3 Independent Evaluator Review of Compliance

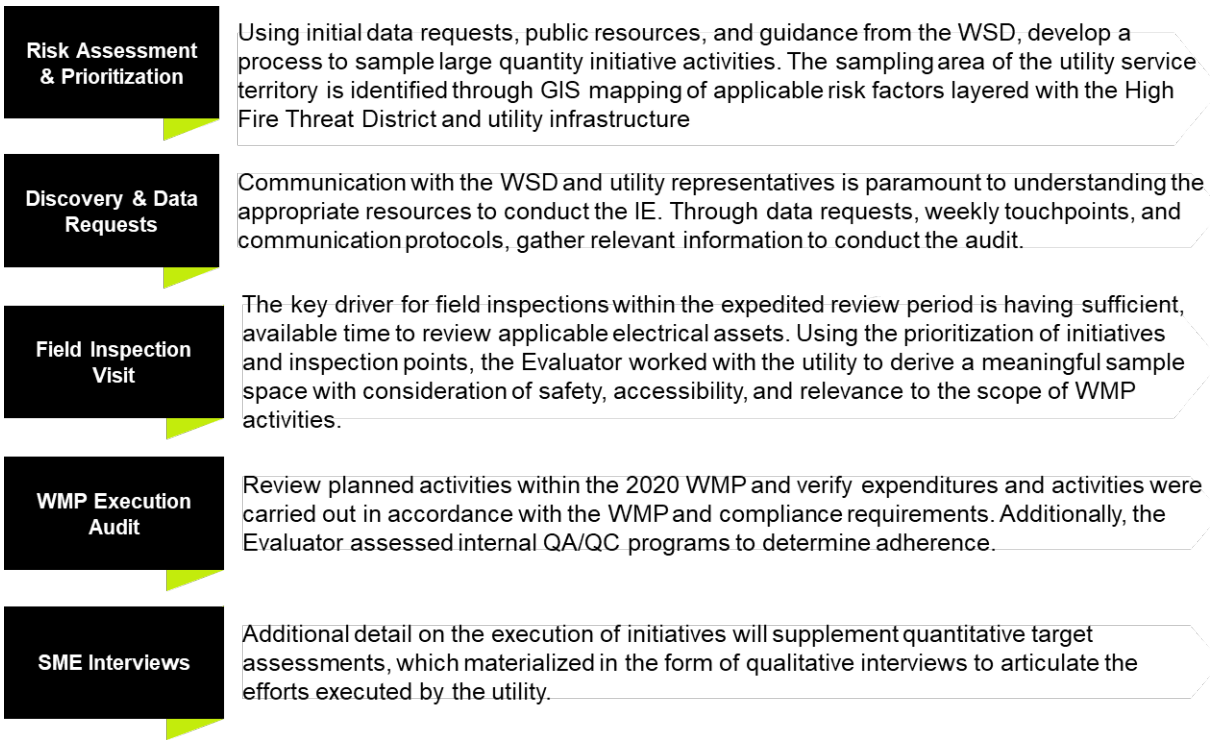
*The Independent Evaluator Review of Compliance section is for the Independent Evaluator to provide an overview of its process for review and assessment of the electrical corporation's compliance with its Wildfire Mitigation Plan (WMP).*

*In the sections below, provide a review of the electrical corporation's WMP activity completion, verification of funding and verification of QA/QC programs.*

As described above, this IE assessment is part of the ongoing compliance activities adopted by the Commission and overseen by the WSD.

The figure below summarizes the key activities necessary to perform the IE.

***Figure 2: Approach to the WMP Independent Evaluation***




## 3.1 WMP Activity Completion

*The WMP Activity Completion section should detail the Independent Evaluator's review and verification of compliance for all WMP activities that have specific quantifiable or qualitative performance goals/targets set forth in the electrical corporation's 2020 WMP.*

*In-scope WMP activities have been broken out into four categories:*

1. *Large volume (≥100 units) + quantifiable goal/target + field verifiable WMP activities*
2. *Large volume (≥100 units) + quantifiable goal/target + non-field verifiable WMP activities*
3. *Small volume (<100 units) + quantifiable goal/target WMP activities*
4. *Qualitative goal/target WMP activities*

*The WSD expects Independent Evaluators to assess compliance via multiple dimensions, including work completion, work quality, and adherence to applicable protocols and procedures. For Field Verifiable WMP activities, the Independent Evaluator must verify work quality in addition to completion of initiative installation and adherence to applicable protocols and procedures. For all other WMP activities, the Independent Evaluator must verify initiative installation and adherence to applicable protocols and procedures.*

In accordance with the ***IE Scope of Work for the Review of Compliance with 2020 Wildfire Mitigation Plans***, the IE issued *Data Request 5* Questions 1-4 to get a full and complete accounting of SCE's 2020 WMP Initiatives broken down into four categories:

1. *Large volume (≥100 units) + quantifiable goal/target + field verifiable WMP activities*
2. *Large volume (≥100 units) + quantifiable goal/target + non-field verifiable WMP activities*
3. *Small volume (<100 units) + quantifiable goal/target WMP activities*
4. *Qualitative goal/target WMP activities*

In response to *Data Request 5*, SCE provided the "***SCE 2020 WMP Activities – Classified by Approach to Verifying Compliance."*** SCE and the IE classified each of its 2020 WMP Activities into the four categories set forth above. Discrepancies between SCE's and the IE's categorization are identified in footnotes below the applicable table.

The table provided by SCE contains Program Categories, WMP Identifier, Initiative/Activity, Program Targets, and IE Scope Review Type. The column titled IE Scope Review Type indicates if the initiative/activity goals/targets are Small Volume or Large Volume (i.e., greater than or equal to 100 units), quantifiable, and field verifiable. SCEs 2020 WMP is divided into the following Program Categories: Alternative Technology (12), Emergency Preparedness (6), Inspections (9), Operational Practices (3), Public Safety Power Shutoff (11), Risk Analysis (1), Situational Awareness (8), System Hardening (14), and Vegetation Management (5). The information provided in response to *Data Request 5* was used to determine and categorize the WMP activities that fall within the scope of work for this IE.

A total of 69 Initiatives or Activities are listed in the ***2020-2022 Wildfire Mitigation Plan***. Each Initiative/Activity includes a program target. Additionally, each Initiative/Activity, with the exception of DEP 3 contained an IE scope review type. DEP 3 IE scope review type is listed as "N/A." DEP 3 is categorized under Emergency Preparedness, and has an activity defined as "IOU Customer Engagement Section" with a target stating, "Participate in statewide multi-channel and multi-lingual campaign using digital ads, social media ads, and radio ads to provide customers with important and consistent messaging about wildfire mitigation activities happening across the state."

This information is presented in **Appendix 5.1**.

### 3.1.1 Sampling Methodology and Discussion

*In this section, the Independent Evaluator should describe its sampling methodology, the samples that were chosen, and areas of focus. The Independent Evaluator may include the samples that were chosen in the Appendix instead of this section.*

*The Independent Evaluator should also include a discussion of how results of the sampled assessment*

*are indicative of the electrical corporation's broader implementation of WMP initiatives, to give the WSD an understanding of the process the Independent Evaluator used to estimate full completion.*

**IE Evidence Sampling Methodology**

The IE approach to sampling initiatives attempted to formalize a strategy to achieve a statistically valid representative sample of project initiatives in a manner that is objective.

The IE conducted a random sample of the data for each initiative focusing the bulk of our effort on those initiatives, identified by the IE, focusing first on those initiatives with high risk reduction values.. The sample size is based upon the North American Electric Reliability Corporation (NERC) ***ERO Sampling Handbook Revision 1.0.***[15]This methodology is 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).[16] This handbook sets forth the statistically valid sample size for different populations as can be seen below. This method is used to sample populations of tens of thousands of relays and cyber devices, among other things, in accordance with NERC's obligations mandated by FERC as part of the Federal Power Act Sec 215.[17]

[15] 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.pdf.

[16] *Id.* at p. 1.

[17] 16 U.S.C. § 824o.

*Table 5: Sampling Methodology Based on Overall Population*

| Sample Table A | |
|---|---|
| **Population Description** | **Sample Selection** |
| **Statistical Sampling** | |
| **Primary Population**<br>(Examples: Substations, Generating Stations, ESPs, PSPs, | **Using Statistical Sampling** |
| 1-8 | Entire population |
| 9 + | 8 Samples |
| **Dependent Population of Elements:**<br>(Examples: Relays, CCAs, Routers, Firewalls & Other | **Using Statistical Sampling** |
| 1-9 | All Elements |
| 10-19 | 9 Samples |
| 20-40 | 16 Samples |
| 41-100 | 23 Samples |
| 101-1000 | 29 Samples |
| 1001 + | 33 Samples |
| | |
| **Independent Population of Elements:**<br>(Examples: Transmission Segments, Blackstart units, Outages, Mis-operations, Daily Operations reports, Line Ratings, others) | **Using Statistical or Judgemental Sampling** |
| 1-9 | All Elements |
| 10-19 | 9 Samples |
| 20-40 | 16 Samples |
| 41-100 | 23 Samples |
| 101-1000 | 29 Samples |
| 1001 + | 33 Samples |

Once a sample size is generated, the IE developed and utilized a random sampling tool developed in Excel, for the IE to run a random number generator with the appropriate sample size from the chart above automatically selects the sample from the list. The IE applied that methodology to the populations of the identified elements in the selected areas.

The IE used the same sampling methodology for initiatives that were and were not field verified. Unfortunately, due to the limited timeframe , the IE did not get to sample all initiatives for SCE. The IE made its best efforts to try to get through as much data as possible given the circumstances.

### Review of Discovery & Field Inspection Results

Field inspection findings contributed to the documentation discovery process by validating whether activities were executed in accordance with the WMP description of activities. The IE compared these results with documentation produced by the electrical corporation to verify accuracy in reporting.

## Final IE Report

This IE report represents the final deliverable, which is submitted directly to the WSD and was not to be shared with SCE until publication. The IE report documents the "review and assess[ment of] the electrical corporation's compliance with its [wild fire mitigation] plan"[18] to the best of our ability to discern recognizing the limits imposed on our ability to request, review, and clarify data due to the short duration allotted to conduct the review. As the WSD itself noted:

> Finally, as discussed in the April 6th Guidance Document, given the condensed timing of this inaugural IE compliance review process, finalization of this Final IE Scope of Work was expedited and will be applicable for engagement of IEs in 2021 only. The WSD looks forward to further collaborating on refinement of the IE process moving forward Details of the reviewed initiative activities are discussed in-depth in Section 3.1.[19]

### 3.1.2 Large Volume Quantifiable Goal/Target –Field Verifiable

A key component of the IE report is the field verification of 2020 initiative activities as described in the WMP. As described above, the IE identified sample areas with conditions illustrating high fire risk and ignition potential within the electrical corporation's service territory. The field inspection location boundaries were layered over the service territory of the utility, along with owned and operated assets, and other geological factors to determine the location of the evaluation. One of the mapped databases includes the Wildland Urban Interface (WUI) zones, which geospatially identify the transition between unoccupied land and human occupied land coupled with underdeveloped areas and/or high vegetation density that typically see higher rates of ignitions and impacts. As the principal map, the IE layered the three Tiers within the CPUC's HFTD map. [20, 21]

The selected areas were identified through both risk (discussed in sections 2.1 and 3.1.1 *above*) and practical considerations. The practical element focused on the accessibility of the locations and the observability of the utility actions based upon the fact the observations were planned to be ground-based and finally, the number of elements the field crew could reasonably observe during the expedited field verification allotment.

In summary, to perform this, the IE applied GIS maps to the methodology of determining an area that met the following criteria:

1) Covering Tier 3, principally, and Tier 2 areas that also fall into a WUI zone
2) Presented a collection of WMP initiatives present that would reveal recent activities for verification
3) Assets inspected fell into the small or large volume quantifiable assessment objectives for a sampled population of related activities present in other areas of the IOU jurisdiction
4) The area was readily accessible to field verification teams

[18] April 21 IE Scope of Work at p. 1.
[19] *Id.*
[20] Tier 1 (Zone 1, updated in 2020) comprises the High Hazard Zone Map, Tier 2 (updated in March 2021) is marked as Elevated risk and Tier 3 (also updated in March 2021) signals Extreme risk.
[21] The CPUC Safety and Enforcement Division (SED) adopted the HFTD map in January 2019 with expressed and intended use described under D. 17-12-024. The HFTD has had formalized improvements carried out in November 2019 under R. 15-05-006 with recent map enhancements as of March 2021.

The following is a list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Field Verifiable category and their respective goals/targets:

*Table 6: 2020 Large Volume, Quantifiable, Field Verifiable Initiatives*

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected | Field Inspected |
|---|---|---|---|---|---|
| Situational Awareness | SA-1 | Weather Stations | 375 | Yes | |
| System Hardening | SH-1 | Covered Conductor | 700 | Yes | Yes |
| | SH-3 | Fire Resistant Poles | 5,200 | Yes | Yes |
| | SH-4 | Branch Line Protection Strategy | 3,025 | Yes | |
| | SH-10 | Tree Attachment Remediation | 325 | Yes | |
| | SH-12.1 | Remediations – Distribution | Remediate 100% of notifications with ignition risk | Yes | |
| | SH-12.2 | Remediations – Transmission | Remediate 100% of notifications with ignition risk | Yes | |
| | SH-12.3 | Remediations – Generation | Remediate 100% of notifications with ignition risk | Yes | |
| Vegetation Management | VM-2 | Expanded Pole Brushing | 200,000 | Yes | Yes |

#### 3.1.2.1 Review of Initiatives

*This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Large Volume Quantifiable Goal/Target – Field Verifiable category. Independent Evaluators shall conduct field verification to confirm installation, work quality, and adherence to applicable utility protocols and standards for such work.*

*Include the electrical corporation's list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Field Verifiable category, including respective goals/targets for each, in the Appendix or within the body of this subsection.*

**SA-1: Weather Stations WMP Section 5.3.2.1**

SCE states within their 2020 WMP that the utility plans to install 375 additional weather stations in 2020 (page 104 of ***SCE 2020-2022 WMP – Rev 3.pdf***), adding to the existing 482 across the service area's high risk areas. SCE planned to exceed the 375 2020 WMP objective and reach higher achievements of 475 weather stations installed by the end of 2020. Long-term goals target a pace of 375 weather stations installed annually by 2024 within the High Fire Risk Area (HFRA) and HFTD Tier 2 and Tier 3 equivalent.

SCE planned to spend $6,833,000 in operational expenditures (OPEX) and capital expenditures (CAPEX), as described in the ***2020 WMP Attachment 1 Table 22*** workbook and verified in the ***Annual Report on***

***Compliance 2020 Part C*** excel table. SCE submitted these records as part of initial evidence in *Data Request 1 Batch 1*. Actual expenditures reveal a total spend on this initiative of $9,582,000 equating to approximately $2,750,000. SCE described that this increase was driven by achievements in installing more weather stations than planned in the 2020 WMP.

SCE later planned for an increase to existing installation goals (575 weather stations) aimed at increasing saturation of sensors for high resolution imaging across the HFRA. The ***005_SCE_2020 Q4 QIU_20210401*** quarterly submission workbook reports an output of approximately 590. To support verification of installations from desktop reviews, the IE issued *Data Request 1* to the IOU. SCE transmitted ***SA-1 Weather Stations Master List*** spreadsheet to the IE on May 21, 2021 with the initial evidence in *Data Request 1 Batch 1*.

This spreadsheet listed in evidentiary support of SA-1 reasonably indicated that the weather stations were installed in 2020 on the dates provided. Additional information included structure number, date installed, and additional GIS coordinates for the specific location. This workbook listed a total of 593 installed weather stations. The IE did not sample work order or materials purchase orders to further validate the installations due to limitations of time. The IE proposed to sample a population of weather stations during patrolled field inspections, however, time constraints prevented this validation.

**Finding:** The IE determined with reasonable assurance the evidence SCE provided demonstrated SCE met its planned targets and exceeded the initial target of 375 and the increased objectives of 475 and 575 weather stations installed by the end of 2020, as they reported 593 installed according to data submitted to the IE. Time constraints during the evaluation period prevented detailed discovery with SME interviews or requests of materials and labor order corroboration. No noncompliance notices resulted from this review.

**SH-1: Covered Conductor Installation WMP Section 5.3.3.3.1**

***SCE 2020-2022 Wildfire Mitigation Plan – Revision 03.pdf*** included a 2020 target for this initiative to install 700 circuit miles of covered conductor in HFRA. In 2020, SCE set targets to complete 1,000 circuit miles subject to resource constraints and other execution risks. Reported in the ***005_SCE_2020 Q4 QIU_20210401*** quarterly submission workbook, SCE indicates that approximately 960 circuit miles within the HFRA were executed in 2020. Projected spend for this initiative in the 2020 WMP indicated a forecast of $454,369,000 in CAPEX with an actual reported output of $546,151,000 (20 percent overrun variance). SCE provided evidence indicating that reclassification of WMP Initiative Activity spend occurred over the 2020 to 2021 annual WMP update cycle, and that fire- resistant pole materials were moved to be recorded under SH-1 instead of SH-3, as forecasted in the 2020 WMP. This is supported in the ***Annual Report on Compliance 2020 Part C*** document received with *Data Request 1.*

The IE submitted *Data Request 1* for initial evidence to support and demonstrate the performance of this initiative. SCE provided document ***SH-1 Covered Conductor*** workbook in response to the data request. This document included the list of completed covered conductor work orders. To further confirm the completion of the evaluations for this initiative, the IE submitted *Data Request 3* for locational data details demonstrating where, what types of actions, and dates of actions executed for 2020 WMP activities. In response to the data request, SCE provided document ***001 _SH-1 Covered Conductor_Supplemental.xlsx*** to include the work orders with the specific items the IE requested. The IE noted there were no dates listed in the report nor was there clear evidence to demonstrate how many circuit miles were covered.

The IE further noted that the report provided work order number, circuit, region, structure as well as Lat & Log for reference but no dates for worked performed or line miles completed were included in the report. Due to time constraints, the IE was not able to conduct an interview with the SCE or conduct a thorough review of SCE work orders to validate this information.

The IE surveyed the sample locations within SCE's service area. As seen in **Table 7** two of the 23 assets surveyed received unsatisfactory results due to one location where the inspector spoke to SCE staff onsite and was told the covered conductors was installed the day prior to the visit, and another location where the covered conductor work was likely not completed in 2020 based upon the pole tag indicating the work was performed in 2021. The remainder supports evidence that covered conductor installations within the field inspection area were installed in compliance with associated rules and regulations. The IE desktop review further supported demonstration of length and installation dates. The IE recommends further exploration into the work orders associated with the Covered Conductor Installation, as well as possible SME interview to gain a better understanding of how line miles are tracked upon completion of work and how installation dates are recorded.

**Finding**: Due to time constraints, the IE was unable to make a final determination if SCE has met the entire program target and recommends the WSD follow up with SCE on this matter. The field inspection results are detailed in **Table 7** below.

*Table 7: Covered Conductor Field Inspection Results*

| Inspection ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **1548356E** | Covered Conductor | Compliant | |
| **9631** | Covered Conductor | Compliant | |
| **9792** | Covered Conductor | Compliant | |
| **9832** | Covered Conductor | Compliant | |
| **9839** | Covered Conductor | Compliant | |
| **9877** | Covered Conductor | Compliant | |
| **9913** | Covered Conductor | Compliant | |
| **9944** | Covered Conductor | Compliant | |
| **9970** | Covered Conductor | Compliant | |
| **10113** | Covered Conductor | Compliant | |
| **10155** | Covered Conductor | Compliant | |
| **15557** | Covered conductor | Compliant | |
| **15604** | Covered conductor | Compliant | |
| **23056** | Covered conductor | Compliant | |
| **46377** | Covered Conductor | Compliant | |
| **17151** | Covered conductor | Compliant | |
| **1685577** | Covered Conductor | Compliant | |
| **1685576** | Covered Conductor | Compliant | |
| **11856** | Covered conductor | Compliant[22] | |

[22] The IE notes this pole lacks the proper signage required by GO 95, Rule 51.6.

| Inspection ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **5965** | Covered conductor | Compliant[23] | |
| **2229543E** | Covered conductor | Compliant | |
| **1248624E** | Covered Conductor | Non-Compliant | Covered conductors in this location installed yesterday. ID does not match location on map. |
| **1685578** | Covered Conductor | Non-Compliant | Work not completed in allotted year |

**SH-3: Distribution Pole Replacement – Fire Resistant Poles WMP Section 5.3.3.6.1**

SCE established a plan to replace approximately 47,000 existing wood poles from (2020 to2022 with composite poles with a fire-protective shield or treated wood poles with a fire-retardant intumescent wrap. This can be found in document ***SCE's 2020-2022 Wildfire Mitigation Plan – Revision 03.pdf*** page 122 section 5.3.3.6.1. SCE reported in *Data Request 6 Question 3* responses that the utility has found that the number of poles required to be replaced per mile through their Wildfire Covered Conductor Program, was fewer than forecasted. SCE further explains the response that along with this trend and other programs involved with pole replacement including SH-1 initiative and high fire risk informed (HFRI) Deteriorated Pole Program, no specific target was provided in the ***2021 WMP Update*** or subsequent quarterly reports.

The IE identified the response to validate this work in the document entitled ***003_2020 WMP IE DR 6-Supp Evd Q. 003 Answer.pdf***. The goal for 2020 was targeted to replace 5,200 and strive to install 11,700 as noted on page 122 of document ***SCE's 2020-2022 Wildfire Mitigation Plan – Revision 03.pdf***. According to SCE's 2020 initiative quarterly report document, ***SCE 2020 Q4 QIU(2).xlsx***, SCE indicated that approximately 6,090 poles were replaced. In document ***001 _SH-3 Fire Resistant Poles_Supplemental.xlsx***, 6,096 poles listed as purchased. 1,378 of those do not have a completion date and 1366 are not associated with a circuit. It is currently undetermined through empirical evidence that approximately 6,090 poles have been installed or replaced. The IE sent *Data Request 6* to understand why 1,378 did not have a completion date and the reason why 1,366 poles were not associated with a circuit. The IE sought to understand how this impacted the timeline for completion.

SCE responded in document ***004_2020 WMP IE DR 6-Supp Evd Q. 004 Answer.pdf***, *"multi-pole work orders reflect the date associated with the most recently installed pole(s) completed in 2020."* Additionally, SCE provided a more updated document ***004_001_SH-3 Fire Resistant Poles_Supp ver 2 06-07-21.xlsx***, and stated that the original document (***001 _SH-3 Fire Resistant Poles_Supplemental.xlsx***), *"column D 'Completed date' was shown as blank for a portion of the work orders that did not have dates available at the time of the query used."* This new document depicted 6,081 entries with a completion date and according to their response, may not necessarily be the entire allotment of poles for a specific work order. Additionally, the new document on tab 'Fire Resistant Pole

[23] The IE notes this pole had vegetation encroaching within the cleared zone required by PRC 4292.

Summary', column E 'Circuit', 1,351 poles do not have a circuit name associated with them. The IE, in an inquiry (*Data Request 6, Question 4)* asked SCE to explain what N/A for the circuit meant. SCE did not provide additional detail on the meaning. Further inquiry would be recommended to understand if those poles were completed within 2020.

The IE also sent *Data Request 3* to understand the Fire Resistant Poles tab of the document ***001 _SH-3 Fire Resistant Poles _Supplemental.xlsx***. It was not completely clear what Column F and G indicated as far as installation progress completed. SCE clarified that if *"Verified by PPM or SAP"* was noted in column F, *"the pole field installation was confirmed with the Pole Program Management installation tracker and/or SAP."* SCE further stated that the qualifier of pending verification indicated that the pole was scheduled for hardening in the work order, however, materials were not yet confirmed against the work order. In other words, the reconciliation process of available materials and labor had not occurred. The IE determined that 3,812 work orders were noted as *"Verified by PPM or SAP."*

**Finding:** The IE was unable to make a complete verification of all hardening efforts and replacements due to the limitations of the accelerated evaluation period. The IE recommends further analysis of this data, more validation inquiries and validation of pole replacements to determine if the committed number of poles for remediation for 2020 were all executed.

***Table 8: Fire Resistant Pole Field Inspection Results***

| Utility and ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **1453066E** | Fire Resistant Pole | Compliant | |
| **1675001E** | Fire Resistant Pole | Compliant | |
| **2383699E** | Fire Resistant Pole | Compliant | |
| **4041508E** | Fire Resistant Pole | Compliant | |
| **1504864** | Fire Resistant Pole | Compliant | |
| **1781785** | Fire Resistant Pole | Compliant | |
| **4032120** | Fire Resistant Pole | Compliant | |
| **2308316** | Fire Resistant Pole | Compliant | |
| **1945928** | Fire Resistant Pole | Compliant | |
| **108165** | Fire Resistant Pole | Compliant | |
| **2250399E** | Fire Wrapped Pole | Compliant | |
| **4189925E** | Composite Pole | Compliant | |
| **418924E** | Power Pole (Composite) | Compliant | |
| **1248651E** | Power Pole (Composite) | Compliant | |
| **1995945E** | Fire Resistant Pole | Compliant | |
| **1675530E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **1453458E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **1082189E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **1996036E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **4611316** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **4373479E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **4129823E** | Fire Resistant Pole | Compliant | Vegetation with 10' of pole |
| **1523425E** | Fire Resistive Pole | Compliant | Vegetation with 10' of pole |
| **1534930E** | Fire Wrapped Pole | Compliant | Vegetation with 10' of pole |
| **1523427E** | Fire Wrapped Pole | Compliant | Vegetation with 10' of pole |

| Utility and ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **2068194E** | Power Pole | Compliant | Signage facing 90° from road |
| **1537930E** | Fire Wrapped Pole | Compliant | Scrub brush within 10' radius of pole |
| **29988** | Wood Pole | N/A | Pole Located beyond private property gate. Unable to get proper ID, however there was no covered conductor or fire-resistant poles visible from the property line |
| **4844183E** | Wood Pole/ bare conductor | No Work Done | Missing Date tag. |

**SH-4: Expulsion fuse replacement – Branch Line Protection Strategy WMP Section 5.3.3.7**

***SCE 2020-2022 Wildfire Mitigation Plan – Revision 03.pdf*** includes a 2020 target for this initiative to install/replace fuses at 3,025 locations. The IE submitted *Data Request 1* for initial evidence to support and demonstrate the performance of this initiative. SCE provided workbook, **SH-4 Fuses**, which was a list of branch line fuses installed demonstrating the 3,025 locations target, based on different latitude and longitude has been met. Within the document there was a list of the fuses, the location, date of replacement, and circuit the fuse was installed on. To further verify the fuse installations, the IE submitted *Data Request 6*, which included a list of 33 sampled line items of the total 3,025 from the provided report. SCE provided screen shots for each of the sampled items, demonstrating the fuse installation.

**Finding:** Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has installed/replaced fuses at 3,025 locations. The sampling of initiative volume revealed satisfactory evidence for completed work.

**SH-10: Covered Conductor Installation – Tree Attachment Remediation WMP Section 5.3.3.3.2**

***SCE 2020-2022 Wildfire Mitigation Plan – Revision 03.pdf*** includes a 2020 target to remediate a minimum of 325 tree attachments but also sets a stretch target of 481. In response to *Data Request 1*, SCE provided an excel spreadsheet (***SH-10 Tree Attachments.xlsx***) that itemized 416 tree attachment remediations performed in 2020 including each associated location for the work[24] as well as HFRA designation and circuit ID. Of these 416, 35 were specifically identified as being completed in 2020. The remaining 381 tree attachments indicated "part of fire remediation" for the completed date. Page 112 of SCE's ***2021 WMP Annual Update.pdf*** also indicates that 405 remediations were performed in 2020. The IE issued a follow-up data request (*Data Request 6, question 13*) asking for work orders, expenditure requisition forms and journal entries for a random sample of 29[25] of the stated remediations in the first data request response.

[24] 18 of the remediations did not have coordinates available pending mapping updates.
[25] All sample sizes are based upon the sampling methodology described in section 3.1.1.

SCE's response to *Data Request 6, question 13* provided work order mapping evidence for the 29 sampled tree attachment remediations. Based in the data reviewed, the IE made the following findings:

1. All of the structure identification numbers (e.g., tree attachment or replacement pole) in the first data request response tied to the structure identification numbers in the mapping evidence in the response to Data Request 6, question 13. The mapping evidence also indicates the replacement material used26.
2. The IE could not confirm 7 of the 29 tree attachment remediation locations using the mapping evidence provided. For 6 of the 7 unconfirmed remediations, GPS coordinates were identified in the SH-10 Tree Attachments.xlsx spreadsheet, but the coordinates were not found in the corresponding mapping evidence. The IE performed supplemental Google Map searches on two of the six unconfirmed locations and found the resulting maps to be similar to the maps included in the mapping evidence provided by SCE. One of the 7 unconfirmed locations did include GPS coordinates in the mapping evidence, but it appears to be materially different from the location provided in the SH-10 Tree Attachments.xlsx spreadsheet. For the 22 confirmed locations, most of the GPS coordinates identified in the mapping evidence were slightly different than the Values shown in S-10 Tree Attachments.xlsx spreadsheet but all 22 appear to be within approximately 419 feet or less of each other between the two supporting documents.
3. The IE could not verify recorded costs related to the 29 sampled tree attachment remediations. SCE's response to *Data Request 1, Question 6* stated "per structure/tree expenditures requisition forms and journal entries are not available." It is possible that the recorded costs or journal entries supporting the sampled remediations is included in more aggregated accounting records rather than "per structure/tree" but such evidence has not been provided and the IE did not have an opportunity to issue a follow-up data request on this subject. Evidence in this report indicates that SH-10 (Tree Attachment Remediation) was underspent by $5.5 million. It is not clear at this point if the underspending indicated is based on the 325 minimum planned tree attachment remediations for 2020 or if it based on the 481 remediations SCE was striving to complete.
4. The IE could not confirm that the tree attachment work was performed in 2020 as opposed to a different year. 26 of the 29 sampled remediations shows "part of fire remediation" under the "completed date" column in the **SH-10 Tree Attachments.xlsx** file provided in *Data Request 1*. No further "date completed" evidence was found in the response to *Data Request 6, question 13*. For the remaining 3 sampled remediations, the completed dates shown in the **SH-10 Tree Attachments.xlsx** file may have been simply copied over from that file to the mapping evidence file provided in the response to *Data Request 6, question 13*. When combined with the lack of accounting or recorded cost evidence, the IE could not confirm the tree attachment remediations were performed in 2020 as opposed to a different year.

**Table 9** Below summarizes the IE's findings with regards to tree attachment remediation for SCE.

[26] In 2 of the 29 sampled remediations, it was unclear what type of replacements poles were installed, but tree attachment removals were identified.

*Table 9: Tree Attachment Remediation Summary*

| # of Tree Attachment Remediations Sampled | GPS Location 1) Provided in Mapping Evidence and 2) not materially different than SH-10 Tree Attachments.xlsx | Supporting Cost/Accounting Evidence Provided | Tree Attachment Structure IDs or Replacement Structure IDs in *SH-10 Tree Attachment.xlsx* ties to Mapping Evidence | Date Completed Provided in Mapping Evidence [1] |
|---|---|---|---|---|
| **22** | Yes | No | Yes | No |
| **7** | No | No | Yes | No |
| **1) As stated previously, for the 3 specific completed dates shown in the mapping evidence may have been copied over from the SH-10 Tree Attachment.xlsx spreadsheet.** | | | | |

**Finding:** Based on the table above, the IE has reasonable assurance that at least 22 of the 29 sampled tree remediations have been performed. While specific "per structure/tree" accounting support has not been provided it is possible that other aggregated accounting data does support the remediations shown in the mapping evidence. However, it is unclear at this time if the remediations performed were performed in 2020.

Based on the sampling evidence reviewed, the IE has reasonable assurance that the minimum 325 tree attachment remediations have been performed, but it is unclear if the remediations were performed in 2020. The IE recommends the WSD conduct investigate this issue further.

**SH-12.1: Remediations – Distribution WMP Section 5.3.3.12.1**

SCE captured activities for other corrective actions for distribution system maintenance under WMP Initiative Activity Section 5.3.3.12.1 as described in the 2020 WMP. These corrective actions took place during SCE's Enhanced Overhead Inspection practices (EOI). SCE planned to remediate 100 percent of all notifications of inspection findings that present ignition risk in accordance with all GOs and applicable state requirements, unless with a valid exception. Assets categorized under this WMP Initiative Activity in 2020 cover equipment such as capacitor bans, conductors, crossarms, insulators, splices, clamps, connectors, transformers, lightening arrestors, and switching devices.

SCE reported in ***005_SCE_2020 Q4 QIU_20210401.xlsx*** that at the end of December 2020, SCE completed 97 percent high risk inspection findings, which missed the annual goal by three percent. SCE had resource diversion constraints related to catastrophic fires and was required to take additional precautions due to high record dry vegetation conditions. Additionally, SCE states that restrictions on outages and PSPS activations, aggravated by the COVID-19 pandemic, continued to cause delays and slowed progress. In response to *Data Request 1*, SCE transmitted the workbook entitled, ***SH-1 12.1 Distribution Remediations***, which listed detail on the internal work order number, associated structures and high risk area, completion versus pending detail, date completed, work type, and geographic location.

The IE interpreted the workbook detail and determined that the Q4 QIU reported correct results with three percent remaining at the end of 2020. The workbook provided as evidence has been maintained until the date of transmittal, providing the IE additional detail on 2021 activities that does not necessarily bear weight on the determination. The IE recorded a deficiency associated with this activity due to the lack of 100 percent completion of anticipated activities; however, the IE notes the rationale for outstanding activities in the summary above.

SCE provided written response in document ***004_NV5-SCE-002 WMP IE Rev#2-Risk, QA, QC, Veg Mgmt, Insp Q. 004 Answer***, under *Data Request* 2, that results from QC reviews of this work matched the evidence corresponded in *Data Request 1* further verifying performed activities. In addition to that, SCE provided underlying data analysis related to inspection finding details, that support evidence related to this activity under *Data Request 3* within the workbook ***001_IN-2 Quality Inspection Records_Supplemental***.

No additional field activities substantiated this review as the scope was limited to a specific listing of assets that did not comprise remediation activities stipulated in SCE's WMP Initiative Activity description. Additionally, time constraints did not allow for detailed review of work order and finding detail.

**Finding:** SCE missed projected targets of 100 percent remediations complete by three percent of the 2020 WMP target, which was verified by the IE's review. This was due to the fire-related delays, which caused work shortages. These were exacerbated by the COVID-19 pandemic, which slowed progress and led to expenditures below the planned expectations for these activities, all of which SCE cited for reduced inspection rates.

**SH-12.2: Remediations – Transmission WMP Section 5.3.3.12.2**

Activities performed under this WMP initiative are similar to SH 12.1, but target transmission level equipment findings for remediation. This is also associated with WMP Initiative Activity Section 5.3.3.12.1 as described in the 2020 WMP. SCE planned to address all Priority 2 findings from received notifications from 2019. Additionally, the EC planned to address all Priority 1 incidents as recorded in 2020, achieving targeted compliance of 100 percent remediations executed.

SCE reported in ***005_SCE_2020 Q4 QIU_20210401.xlsx*** that at the end of December 2020, SCE finished 95 percent of the 100 percent target Priority 1 remediations. In its justification of unfinished work, SCE had resource diversion constraints related to catastrophic fires and was required to take additional precautions due to high record dry vegetation conditions. Additionally, SCE states that restrictions on outages and PSPS activations, aggravated by the COVID-19 pandemic, continued to cause delays and slowed progress.

In response to *Data Request 1*, SCE transmitted the workbook entitled, ***SH-1 12.2 Transmission Remediations***, which listed detail on the internal work order number, associated structures and high-risk area, completion versus pending detail, date completed, work type, and geographic location. 485 remediations accounted for pre-2020 notification findings. This aligned with planned activities identified in the 2021 WMP. 6,319 entries reported 2020 Priority 1 remediations, which were completed in 2020. Of those, 15 entries did not include a completion date, which did not provide concrete evidence based on the IE scope of the desktop review. The IE interpreted this evidence as outstanding activities in 2020, which accounted for less than one percent of total 2020 entries. The evidence reasonably demonstrated there are remaining remediations for transmission notifications, however, the IE could not substantiate the five percent missed objective.

SCE also provided the IE detail on transmission detail inspection quality control procedures, which provide the approach to verify activities of large volume work orders. This is discussed in the supporting file, ***004_QCP-014 Transmission Quality Control Inspection Process-Rev 0***, which was supplied in response to *Data Request 2* as well as ***SCE Trans Maint Practices_Rev 7_ Final_12.10.2019_signed.pdf***

with *Data Request 8* response transmittals, that support the program detail of quality inspections and procedures. SCE provided written response in document ***004_NV5-SCE-002 WMP IE Rev#2-Risk, QA, QC, Veg Mgmt, Insp Q. 004 Answer***, that results from QC reviews that are reported for distribution findings only, as the IE did not request a similar representation for transmission priority findings. In addition, SCE provided underlying data analysis related to inspection finding details, that support evidence related to this activity under *Data Request 3* within the workbook ***001_IN-2 Quality Inspection Records_Supplemental***.

SCE reclassified SH 12.2 to IN-1.2 in its ***2021 WMP Annual Update***, which is beyond the scope of this evaluation, and provides different metrics tracked and does not indicate the number of Priority 1 incidents recorded in 2020. SCE also noted that an independent readiness review was performed regarding equipment inspections in 2020 that resulted in residual data anomalies. These were subsequently corrected prior to the submission of the ***2020 ARC***, and the EC notes that it continues to strive for QA/QC accuracy of distribution and transmission equipment detailed inspections. SCE provided this explanation under document ***004_NV5-SCE-002 WMP IE Rev#2-Risk, QA, QC, Veg Mgmt, Insp Q. 004 Answer***.

No additional field activities substantiated this review as the scope was limited to a specific listing of assets that did not comprise remediation activities stipulated in SCE's WMP Initiative Activity description. Additionally, time constraints did not allow for detailed review of work order and finding detail.

**Finding:** There is reasonable evidence to substantiate that SCE performed 6,319 transmission notification remediations associated with the WMP Initiative Activity. However, SCE reported that it did not complete five percent of the total objective planned for 2020. The IE was unable to verify whether this missed performance objective is accurate.

**SH-12.3: Remediations – Generation WMP Section 5.3.3.12.3**

Activities performed under this WMP initiative are similar to SH 12.1 and SH 12.2, but targeting generation equipment findings for remediation. This is also associated with WMP Initiative Activity Section 5.3.3.12.1 as described in the 2020 WMP. SCE planned to address all remaining Priority 2 findings from received notifications from 2019. Additionally, the EC planned to address all Priority 1 incidents as recorded in 2020, achieving targeted compliance of 100 percent remediations executed.

SCE reported in *Data Request 1 Batch 2,* under ***005_SCE_2020 Q4 QIU_20210401.xlsx,*** that at the end of December 2020, the EC completed 100 percent target Priority 1 remediations. In response to *Data Request 1*, SCE transmitted the workbook entitled, ***SH-1 12.3 Generation Notifications***, which listed detail on the internal work order number, associated structures, high risk areas, completion status versus pending additional detail, remediation status, work type, and geographic location. 32 recorded entries were completed within 2020. The IE finds there to be reasonable evidence to validate activities performed, however, did not request additional detail on a sample of work order summaries due to the time frame constraints.

No field activities substantiated this review as the scope was limited to a specific listing of assets that did not comprise remediation activities stipulated in SCE's WMP Initiative Activity description. Additionally, time constraints did not allow for detailed review of work order and finding detail.

**Finding:** There is reasonable evidence to substantiate that SCE performed associated generation asset remediations planned for 2020 based on the reviewed desktop evidence. The IE did not have sufficient time to verify activities through the sampled field inspection and did not include these types of assets in the proposed inspection list.

**VM-2: Expanded Pole Brushing WMP Section 5.3.5.5.1**

Under Section 5.3.5.5.1 in the ***SCE 2020-2022 Wildfire Mitigation Plan – Revision 03***, SCE describes its initiative for expanding pole brushing with a target of 200,000 poles cleared by the end of the year in accordance with Public Resource Code (PRC) 4292, SCE plans to maintain a 10-foot clearance around distribution poles in the HFRA. SCE further detailed that SCE would target 300,000 poles cleared subject to resource constraints or other execution risks. SCE reported in *Data Request 1 Batch 2,* under ***005_SCE_2020 Q4 QIU_20210401.xlsx,*** that at the end of December 2020, SCE cleared 200,000 poles, meeting the WMP objective.

In response to *Data Request 1*, SCE transmitted the workbook entitled, ***VM-2 2020 Poles Brushed***, which listed the record identification, the status of the activity, the date completed, and the GIS coordinates. The evidence provided shows that 231,326 poles were cleared, which exceeds the reported goal of 200,000 by 31,326. The IE did not request additional work order detail or reports of in-situ activities due to the time constraints in evaluating all applicable WMP Initiative Activities.

To validate the recorded activities, the IE performed a field inspection and surveyed a sampling of 25 poles with listed clearance execution performed in 2020. Of those, 8 were found to have deficiencies due to lack of satisfactory clearing of vegetation. See **Table 10** below for the inspection results.

**Finding:** SCE reported they exceeded their pole brushing objectives in 2020, reporting 231,326 poles cleared within the HFRA which predates and covers more territory than the HFTD Tier 2 and Tier 3 equivalent. The IE verified that upwards of 200,000 poles were cleared from the desktop data review. However, the IE subsequently evaluated activities through field inspection sampling and found several of those sampled (8 of 25) to have noncompliant conditions due to overgrowth, encroachment, and brush found within the 10-foot ground and vertical clearance. This raises concerns with the IE and the IE recommends additional follow-up by the WSD.

*Table 10: Vegetation Management Field Inspection Results*

| Utility and ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **4041508E** | Fire Resistant Pole | Compliant | |
| **1781785E** | Fire Resistant Pole | Compliant | |
| **1453066E** | Fire Resistant Pole | Compliant | |
| **4032120E** | Fire Resistant Pole | Compliant | |
| **2383699E** | Fire Resistant Pole | Compliant | |
| **1945928E** | Fire Resistant Pole | Compliant | |
| **1675001E** | Fire Resistant Pole | Compliant | |
| **1523425E** | Fire Resistant Pole | Compliant | |
| **1082189E** | Fire Resistant Pole | Compliant | |
| **108165E** | Fire Resistant Pole | Compliant | |
| **1082189E** | Fire Resistant Pole | Non-Compliant | Needs additional veg clearing |
| **1453458E** | Fire Resistant Pole | Non-Compliant | Vegetation within 10’ of pole |

| Utility and ID | Structure Type | Asset Compliance | Notes |
|---|---|---|---|
| **1523425E** | Fire Resistant Pole | Non-Compliant | Vegetation close to pole and lines |
| **1523427E** | Fire Resistant Pole | Non-Compliant | Vegetation within 10’ of pole |
| **1548356-2** | Covered Conductor Pole | Non-Compliant | Vegetation next to and touching pole |
| **1675530E** | Fire Resistant Pole | Non-Compliant | Vegetation within 10’ of pole |
| **1995945E** | Fire Resistant Pole | Non-Compliant | Vegetation within 10’ of pole |
| **1996036E** | Fire Resistant Pole | Non-Compliant | Needs additional vegetation clearing |
| **2108871E** | Fire Resistant Pole | Non-Compliant | Brush and tree growth within 10’ of pole |
| **2229543E** | Wood Pole | Non-Compliant | Vegetation next to and touching pole |
| **4129823E** | Fire Resistant Pole | Non-Compliant | Tree growth within 10’ of pole |
| **4373479E** | Fire Resistant Pole | Non-Compliant | Vegetation within 10’ of pole |
| **4611316E** | Fire Resistant Pole | Non-Compliant | Tree growth within 10’ of pole |
| **PS0107** | Wood Pole | Non-Compliant | Grass and scrub brush growing on three sides of pole. |
| **1548356E** | Wood Pole | Non-Compliant | Trees and brush engulfing base of pole. |

#### 3.1.2.2 Trends and Themes

*Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Large Volume Quantifiable Goal/Target – Field Verifiable initiatives.*

The IE surveyed several high risk areas with field inspection patrols and found several issues as explained above in the covered conductor and pole clearing sections above. These are areas that may warrant further investigation by the WSD.

### 3.1.3 Large Volume Quantifiable Goal/Target – Not Field Verifiable

The following is a list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Not Field Verifiable category and their respective goals/targets:

***Table 11: 2020 Large Volume, Quantifiable, Not Field Verifiable Initiatives***

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | IE Evaluated Desktop Review |
|---|---|---|---|---|
| Emergency Preparedness | DEP-1.1 | Customer Education and Engagement – Dear Neighbor Letter | Send ~915,000 letters with information about PSPS, emergency preparedness, and SCE’s WMPs to customer accounts in HFRA and ~3,200,000 letters to customer accounts in non-HFRA. | |
| | IN-1.1 | Distribution High Fire Risk Informed Inspections in HFRA | Inspect 105,000 structures in HFRA. | Yes |
| | IN-1.2 | Transmission High Fire Risk Informed Inspections in HFRA | Inspect 22,500 structures in HFRA. | Yes |

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | IE Evaluated Desktop Review |
|---|---|---|---|---|
| Inspections | IN-2 | Quality Oversight / Quality Control | Perform quality control and oversight of inspections of 15,000 transmission, distribution, and generation structures in HFRA. | |
| | IN-3 | Infrared Inspection of Energized Overhead Distribution Facilities and Equipment | Inspect 50% of distribution circuits in HFRA. | |
| | IN-4 | Infrared Inspection, Corona Scanning, and High-Definition Imagery of Energized Overhead Transmission facilities and Equipment | Inspect 1,000 transmission circuit miles in HFRA. | |
| | IN-5 | Generation High Fire Risk Informed Inspections in HFRA | Perform inspection of 200 generation-related assets. | |
| | IN-6.1 | Aerial Inspections – Distribution | Inspect 165,000 structures in HFRA. | Yes |
| | IN-6.2 | Aerial Inspections – Transmission | Inspect 33,500 structures in HFRA. | Yes |
| System Hardening | SH-7 | PSPS-Driven Grid Hardening Work | Review 50% of all distribution circuits within HFRA to determine if modifications may improve sectionalizing capability within HFRA. | |
| | SH-10 | Tree Attachment Remediation | Remediate 325 tree attachments. SCE will strive to complete 481 tree attachment remediations subject to resource constraints and other execution risks. | |
| Vegetation Management | VM-1 | Hazard Tree Management Program | Assess 75,000 trees for hazardous conditions and perform prescribed mitigations in accordance with program guidelines and schedules. | Yes |
| | VM-4 | Drought Relief Initiative (DRI) Inspections and Mitigations | Perform DRI annual inspection scope and complete prescribed mitigations in accordance with internal DRI program guidelines.[27] | Yes |
| | VM-5 | Vegetation Management Quality Control | Perform 3,000 risk-based HFRA circuit mile vegetation management Quality Control inspections. | |

[27] SCE identified this initiative as field verifiable, however, it was not part of the WSD/OEIS field verifiable categories for 2020.

#### 3.1.3.1 Review of Initiatives

*This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Large Volume Quantifiable Goal/Target – Not Field Verifiable category. Independent Evaluators shall select a sample to seek additional documentation and conduct SME interviews, as needed, to verify that the activity was completed and executed in accordance with all applicable work procedures and protocols.*

*Include the electrical corporation's list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Not Field Verifiable category, including respective goals/targets for each, in the Appendix or within the body of this subsection.*

**VM-1: Hazard Tree Management Program WMP Section 5.3.5.16.1**

***SCE 2020-2022 Wildfire Mitigation Plan - Revision 03*** included a 2020 target for this initiative to assess 75,000 trees for hazardous conditions and perform prescribed mitigations in accordance with program guidelines and schedules. The IE submitted *Data Request 1* for initial evidence to support and demonstrate the performance of this initiative. SCE provided document ***VM-1 2020 HTMP Assessments*** **Prescriptions.** This document is a spreadsheet of the trees assessed by latitude/longitude, and tree prescriptions (vegetation management actions) which included the date of work.

The evaluation team reviewed documents provided, which included an initial list of 100,350 hazard trees assessments and 3,538 prescriptions. The IE submitted *Data Request 6*, which included a sampling of 33 line items for assessments and went one step further by including 33 samples for prescriptions since the initial evidence included these items since they are combined within the work orders. It is noted the target was only to perform the assessments, not the prescriptions. The request was for the work orders and reports associated with the sampled items. SCE provided individual documents (refer to document ***014_Q14 - 0b5442ec-91dd-442e-b26a-96e29b8a56f2.pdf*** for an example) for each sampled items in response to the sample data request. The IE reviewed each documented record provided for the assessments and prescriptions and had no further questions.

**Finding:** Based on the 2020 WMP target and supporting evidence, the IE has reasonable assurance SCE has met the minimum requirement to assess 75,000 trees.

**VM-4: Removal and remediation of trees with strike potential to electric lines and equipment – Drought Relief Initiative (DRI) Inspections and Mitigations WMP Section 5.3.5.16.2**

***SCE 2020-2022 Wildfire Mitigation Plan - Revision 03*** included a 2020 target for this initiative to perform a Drought Relief Initiative (DRI) annual inspection scope and complete prescribed mitigations in accordance with internal DRI program guidelines. The IE submitted *Data Request 1* for initial evidence to support and demonstrate the performance of this initiative. In response to the data request, SCE provided a schedule of DRI inspections showing completion of each inspection pass ***VM-4 2020 DRI Schedule***, a list of trees identified for removal ***VM-4 2020 DRI Trees Identified for Removal Fulcrum***, and a list of tree removals tracked ***VM-4 2020 DRI Trees Removed Fulcrum***.

The IE reviewed the three documents provided for this initiative and determined the documents reflect that a report of the DRI for inspections and mitigations was completed, however there was no supporting

performance evidence provided. The IE submitted *Data Request 6* with a sampling of the 33 inspections and a sampling of 33 removal and remediations by requesting inspection and change records, respectively, for further evaluation of the target performance. SCE provided individual documents (*e.g.* ***016_Q16 - 073b1bd4-bc96-4830-b91f-89d84454f75a.pdf*** for an example) for each sampled item in response to the sample data request. The IE reviewed each documented record provided. Although SCE provided evidence of the inspections and remediations for 33 items, the identified sample in the evidence did not match those identified for sampling in *Data Request 6*, therefore the IE can confirm the completion of inspections and remediations, but the evidence appears to be selected by SCE. The IE was unable to submit another timely data request to clarify this issue.

**Finding:** The IE did not receive an independent statistically valid sample despite a detailed, submitted request, therefore the IE cannot validate whether SCE has met this initiative. This is due to SCE submitting incorrect sample data in response to *Data Request 6.* Time constraints prevented detailed review of sampled work order accounts.

**IN-1.1: Distribution High Fire Risk Informed Inspections in HFRA WMP Section 5.3.4.9.1**

In Section 5.3.4.9.1 in the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf*** that the utility performs inspections of distribution infrastructure in accordance with the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03, Overhead Detailed Inspection Program (ODI)*** and the ***Distribution Inspection and Maintenance Program (DIMP)*.**

The IE reviewed initial documents provided in *Data Request 1* for this initiative, which included a list of all inspections performed for the year 2020. This list is detailed in the ***Overhead Detailed QC Inspection Process for Distribution Equipment.xlsx***, which identifies the process to perform quality control on the inspections performed through the ODI and DIMP. SCE provided a 2020 goal of performing 105,000 distribution inspections. Through the provided documentation, the IE was able to confirm that 199,050 inspections were logged in SCE's tracking software. Additionally, the IE was able to confirm that 199,050 inspections were logged in SCE's tracking software in either Extreme or Elevated HFRA areas.

The IE submitted *Data Request 8* to obtain a sample of data to further verify that transmission inspections were completed. SCE provided to *Data Request* 8, **DR *8 Q3 2020 Dist Inspection Evidence.xlsx***, which provided inspection results for the 33 requested sample points. Using this sampling methodology, the IE has reasonable assurance that SCE has exceeded the 2020 goal set forth in the WMP.

**Finding:** Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed inspections of 199,050 distribution facilities. However, time constraints prevented a more detailed review of sampled work order accounts.

**IN-1.2: Transmission High Fire Risk Informed Inspections in HFRA WMP Section 5.3.4.10.1**

SCE will perform inspections of transmission infrastructure in accordance with the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03,*** *and* ***Distribution Inspection and Maintenance Program (TIMP).***

The IE reviewed initial documents provided in *Data Request 1* for this initiative which included a list of all inspections performed for the year 2020, the ***Transmission Detail QC Inspection Process for Transmission Equipment*** document, which identifies the process to perform quality control on the inspections

performed through the TIMP. SCE provided a 2020 goal of performing 22,500 transmission inspections. Through the provided documentation, the IE was able to confirm that 34,670 inspections were logged in SCE's tracking software in either Extreme or Elevated HFRA areas. The IE submitted *Data Request 8* to obtain a sample of data to further verify that transmission inspections were completed. SCE provided ***003 b._DR8 Q3 Inspection Sampling-Transmission Detailed.xlsx*** which provided inspection results for the 33 requested sample points. Using this sampling methodology, the IE has reasonable assurance that SCE has exceeded the 2020 goal set forth in the WMP.

**Finding:** Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE performed inspections of 34,670 transmission facilities in exceedance of the 2020 goal of 22,500. Time constraints prevented detailed review of sampled work order accounts.

**5.3.4.9.2 IN-6.1: Aerial Inspections – Distribution**

SCE will perform aerial inspections of distribution infrastructure in accordance with the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf.***

The IE reviewed initial documents provided in *Data Request 1* for this initiative which included a list of all distribution aerial inspections which includes using HD photos, videos, and LiDAR performed for the year 2020. SCE provided a 2020 goal of performing 165,000 aerial distribution inspections. Through the provided documentation, the IE was able to confirm that 163,418 inspections were logged in SCE's tracking software as being completed in full and another 4,329 being partially completed. The IE submitted *Data Request 8* to obtain a sample of data to further verify that aerial distribution inspections were completed. SCE provided ***003 b._DR8 Q3 Aerial Inspection Sample Data Evidence.xlsx*** which provided inspection results for the 33 requested sample points. Using this sampling methodology, the IE is comfortable saying that SCE has exceeded the 2020 goal set forth in the WMP.

**Finding:** Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed full aerial inspections of 163,418 distribution facilities and partial inspections of 4,329 facilities. Time constraints prevented detailed review of sampled work order accounts.

**5.3.4.10.2 IN-6.2: Aerial Inspections – Transmission**

SCE will perform aerial inspections of transmission infrastructure in accordance with the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf.***

The IE reviewed initial documents provided in *Data Request 1* for this initiative which included a list of all transmission aerial inspections which includes using HD photos, videos, and LiDAR performed for the year 2020. SCE provided a 2020 goal of performing 33,500 aerial transmission inspections. Through the provided documentation, the IE was able to confirm that 29,839 inspections were logged in SCE's tracking software as being completed in full and another 1,542 being partially completed. The IE submitted *Data Request 8* to obtain a sample of data to further verify that transmission inspections were completed. SCE provided ***003 b._DR8 Q3 Aerial Inspection Sample Data Evidence.xlsx*** which provided inspection results for the 33 requested sample points. Using this sampling methodology, the IE is comfortable saying that SCE has performed the inspections they have reported, however, the IE finds that SCE did not meet the 2020 goal set forth in the WMP.

**Finding:** Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has

performed full aerial inspections of 29,839 transmission facilities and partial inspections of 1,542 facilities. However, this does not meet SCE's stated goal of 33,500 inspections. Time constraints prevented a more detailed review of sampled work order accounts.

#### 3.1.3.2 Trends and Themes

*Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Large Volume Quantifiable Goal/Target – Not Field Verifiable initiatives.*

The IE did not note any significant trends or themes with respect to SCE's large volume quantifiable goal/target – not field verifiable initiatives.

### 3.1.4 Small Volume Quantifiable Goal/Target

The following is a list of initiatives that fall into the Small Volume Quantifiable Goal/Target and their respective goals/targets:

*Table 12: 2020 Small Volume, Quantifiable Initiatives*

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| Alternative Technology | AT-3.3 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Isolation Transformer | Install one Rapid Earth Fault Current Limiter – Isolation Transformer. | |
| | AT-3.4 | Alternative Technology Evaluations – Distribution Open Phase Detection | Complete pilot installation for five circuit locations. | |
| | AT-7 | Early Fault Detection (EFD) Evaluation | Develop installation standards, install, and commission at least 10 EFD sensors. Gather data to determine requirements to support the potential for larger system deployments. SCE will strive to complete an additional 90 sensors for evaluation subject to resource constraints and other execution risks. | |
| | AT-8 | High Impedance Relay Evaluations | Investigate and deploy two controllers/relays with a High Impedance (Hi-Z) element in HFRA. | Yes |
| Emergency Preparedness | DEP-1.2 | Customer Education and Engagement – Community Meetings | Host 8-12 community meetings in areas impacted by 2019 PSPS plus other meetings including online as determined to share information about PSPS, emergency preparedness, and SCE's WMP. | |
| | DEP-1.3 | Customer Education and Engagement – Marketing Campaign | Marketing campaign to reach 5,000,000 Customer Accounts (goal of 40% awareness about the purpose of PSPS, | |

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| | | | emergency preparedness, and SCE's WMP). | |
| Operational Practices | OP-2 | Wildfire Infrastructure Protection Team Additional Staffing | Hire additional resources including: a senior compliance manager, two compliance advisors, a project/program advisor, a data specialist and a fire weather meteorologist. PSPS Operations will also be staffed to provide dedicated operational, project management, and compliance capabilities. | |
| | OP-3 | Unmanned Aerial (UAS) Operations Training | Increase the number of UAS operators by an additional 50 crews. | |
| Public Safety Power Shutoff | PSPS-2 | Community Resource Centers | Have 23 sites available across SCE service territory for customers impacted by a PSPS. | |
| | PSPS-7 | Community Outreach | Minimum of five Community Crew Vehicles (CCVs) ready to be deployed during times when weather and fuel conditions are at critical levels. Communicate with customers in a local targeted way using a variety of channels to ensure timely delivery of notifications. | Yes |
| | PSPS-8 | Microgrid Assessment | 1) Execute RFP for six resiliency microgrid projects 2) Depending on RFP results, implementation of up to 6 resiliency microgrid projects shown to be technically feasible and cost-effective. | |
| Risk Analysis | SA-2 | Fire Potential Index (FPI) Phase II | Refine the current FPI by integrating historical weather and vegetation data into the index. | |
| Situational Awareness | SA-3 | High-Performing Computer Cluster (HPCC) Weather Modeling System | Complete installation of second HPCC. | |
| System Hardening | SH-5 | Installation of System Automation Equipment – RAR/RCS | Install 45 RARs/RCSs. | Yes |
| | SH-6 | Circuit Breaker Relay Hardware for Fast Curve | Replace/upgrade 55 relay units in HFRA. SCE will strive to replace up to 110 relay units in HFRA. These targets are subject to resource constraints and other execution risks. | |
| Vegetation Management | VM-3 | Expanded Clearances for Legacy Facilities | Perform assessments of all identified facilities in HFRA. Establish enhanced buffers at 30% of identified facilities. | |

#### 3.1.4.1 Review of Initiatives

*This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Small Volume Quantifiable Goal/Target category. Independent Evaluators shall perform data/documentation review and conduct SME interviews, as needed, to verify completion of these activities and adherence to all applicable work procedures and protocols.*

*Include the electrical corporation's list of initiatives that fall into the Small Volume Quantifiable Goal/Target category, including respective goals/targets for each, in the Appendix or within the body of this subsection.*

**PSPS-7: PSPS events and mitigation of PSPS impacts - Community Outreach WMP Section 5.3.6.5.6**

According to the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf*** for this initiative, "SCE will coordinate with local emergency management agencies (when possible) to deploy community response vehicles to affected communities, to minimize the impacts to [customers that are affected by PSPS activations]. These vehicles provide customers access to basic amenities such as water, snacks, and portable charging devices along with trained staff that can provide real-time information on PSPS events."[28] The plan also states SCE will employ a variety of targeted communication channels to ensure that customers are notified in a timely manner.

The evaluation team reviewed the document ***PSPS-7 Vehicle Identifiers***. This document provides a list of vehicles ready for deployment during times when weather and fuel conditions are at a critical level. SCE states there will be at least five vehicles available in 2020. The document provided included eight vehicles, indicating the goal was exceeded. The evaluation team reviewed the remaining evidence, which included ***PSPS-7 Social Media Samples.pdf***, a sample of community outreach communications on Facebook, Twitter, and Nextdoor as well as ***PSPS-7 Social Media App Report.xlsx*** listing the counts and impressions from each media source. These documents were provided to demonstrate SCE communicates with customers in a local targeted way using a variety of channels to ensure timely delivery of notifications. The IE identified no issues with SCE's approach to this initiative.

**Finding:** The IE has reasonable assurance SCE has met the obligation of this initiative. SCE provided substantial evidence to support this initiative's activities in 2020.

**AT-8: High Impedance Relay Evaluation WMP Section 5.3.3.2.5**

***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf*** Section 5.3.3.2.5 states that "In 2020, SCE plans to investigate and deploy two controllers/relays with a High Impedance (Hi-Z) element in HFRA. The Hi-Z protection element will be monitored and evaluated for desired and non-desired operations, and a performance report shall be developed. In 2021 and beyond, SCE plans to utilize a variety of distribution protection schemes to detect and isolate fault conditions in HFRA." Per ***AT-8 High Impedance Relay Installs.xlsx***, two relays were installed on the Yellowtail 12kV (Structure – RSR1992/1547847E) and Driftwood 12kV (RSR4192/1839334E) on 9/14/2020. Work orders for the installs were not provided by SCE, however test plans for the devices were provided.

[28] Southern California Edison 2020-2022 Wildfire Mitigation Plan, Revision 03, at p. 168.

Per the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf*** Section 5.3.3.2.5 and the provided evidence and documentation SCE provides indication these activities were likely completed, but the IE cannot conclusively affirm this. Accordingly, the IE recommends the WSD evaluate this issue further.

**Finding:** The IE could not concretely determine the detailed installation activities associated with this initiative due to time constraints.

**SH-5: Installation of system automation Equipment - Installation of System Automation Equipment - RAR / RCS WMP Section 5.3.3.9**

SCE has a plan to expand its system automation equipment strategy to target Remote Automatic Reclosers (RARs) and additional sectionalizing devices to provide important isolating capabilities that could minimize the frequency of customer outages during PSPS and other outage events. The goal for 2020 is to install 45 devices consisting of both RAR and Remote Controlled Switches (RCS) as noted in section 5.3.3.9, of document ***SCE's 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf***. According to SCEs 2020 initiative report document ***SCE 2020 Q4 QIU(2).xlsx***, SCE indicated installing 48 RAR/RCS for 2020 calendar year. The evidence provided document ***SH-5 RARs & RCSs.xlsx***, shows the dates of completion for the installation of 48 RARs/RCSs. There are, however, two devices that do not have an associated device number.

**Finding:** Due to time constraints, the IE was not able to inquire further nor validate the 48 installations claimed in the documents nor the 2 RARs/RCSs that did not have a device number associated with them. Further validation and inquiry by the WSD are recommended to determine the completion of the commitments for this initiative.

#### 3.1.4.2 Trends and Themes

*Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Small Volume Quantifiable Goal/Target initiatives.*

No specific trends or themes were identified with respect to SCE's small volume quantifiable targets.

### 3.1.5 Qualitative Goal/Target

The following is a list of initiatives that fall into the Qualitative Goal/Target and their respective goals/targets:

*Table 13: 2020 Qualitative Initiatives*

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| Alternative Technology | AT-1 | Alternative Technology Pilots – Meter Alarming for Down Energized Conductor (MADEC) | Evaluating algorithm improvements specific to the detection of downed energized covered conductor, which may behave differently than bare conductor. | |
| | AT-2.1 | Distribution Fault Anticipation (DFA) | Evaluate technology performance on fault anticipation technology and future deployment. | |
| | AT-2.2 | Advanced Unmanned Aerial Systems Study | Conduct additional EVLOS demonstration UAS flights using lessons learned from | |

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| | | | 2019 study and validate aerial patrol findings via truck, foot, or helicopter. | |
| | AT-3.1 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Ground Fault Neutralizer (GFN) | Initiate engineering design and order equipment for a GFN field installation. | |
| | AT-3.2 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Resonant Grounding with Arc Suppression Coil | Initiate engineering design to convert a typical substation to resonant grounding. | |
| | AT-4 | Alternative Technology Implementation – Vibration Dampers | Evaluate damper technologies for both small and large diameter covered conductor applications and develop standards for small and large diameter covered conductors. | Yes |
| | AT-5 | Asset Defect Detection Using Machine Learning Object Detection | Begin standardization of data collection for Machine Learning (ML) by cataloging and tagging inspection imagery metadata for ML. Investigate SCE use cases and evaluate feasibility of ML to support objective evaluation of assets. | |
| | AT-6 | Assessment of Partial Discharge for Transmission Facilities | Evaluate use of a Partial Discharge assessment technology to assess the health of in-service transmission assets. | |
| Emergency Preparedness | DEP-2 | SCE Emergency Response Training | Hold SCE IMT member training on de-energization protocols, determine additional staffing needs and train, exercise and qualify new staff. | |
| | DEP-3 | IOU Customer Engagement Section | Participate in statewide multi-channel and multi-lingual campaign using digital ads, social media ads, and radio ads to provide customers with important and consistent messaging about wildfire mitigation activities happening across the state. | |
| | DEP-4 | Customer Research and Education | Develop/implement various research activities that gauge customer awareness, preparedness for, and satisfaction with outage experiences; to include, but not be limited to, town hall meetings, online & telephone surveys, focus groups, and assessments of programs & services to prepare customers before and after PSPS outages. | |
| Inspections | IN-7 | Failure Modes and Effects Analysis (FMEA) | Complete FMEA study for substation assets in HFRA and prepare final report. | |
| Operational Practices | OP-1 | Annual SOB 322 Review | Review and update SOB 322 to reflect lessons learned from past elevated fire weather threats/PSPS events and integrate, where applicable, new and | Yes |

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| | | | improved situational awareness data, improved threat indicators, and applicable regulatory requirements in an effort to reduce wildfire risk and the impact of outages on customers. | |
| Public Safety Power Shutoff | PSPS-1.1 | De-Energization Notifications | Notify applicable public safety agencies and local governments of possible de-energization. | |
| | PSPS-1.2 | De-Energization Notifications | Notify Cal OES through the State Warning Center of possible de-energization. | |
| | PSPS-1.3 | De-Energization Notifications | Notify the CPUC of possible de-energization. | |
| | PSPS-1.4 | De-Energization Notifications | Enhance Emergency Outage Notification System (EONS) to include Zip Code level alerting to include in-language notifications to align with its existing notification abilities for SCE customers. | |
| | PSPS-3 | Customer Resiliency Equipment Incentives | Develop a customer resiliency equipment incentive pilot program that provides financial support to customers willing to increase resiliency within its HFRA. One customer will be implemented for this pilot in 2020. | |
| | PSPS-4 | Income Qualified Critical Care (IQCC) Customer Battery Backup Incentive Program | Outreach to eligible customers (low income, critical care, Tier 2/3) to provide portable battery backup solution. SCE has identified approximately 2,500 customers that it will target for the program in 2020 with efforts to begin second quarter. | |
| | PSPS-5 | MICOP Partnership | Enable communications with indigenous populations and measure the number of customers contacted. | Yes |
| | PSPS-6 | Independent Living Centers Partnership | Conduct outreach activities and workshops/trainings to provide preparedness education and assistance in applying for the Medical Baseline Program and measure the number of customers contacted. | Yes |
| Risk Analysis | RA-1 | Expansion of Risk Analysis | Implement Wildfire Risk Reduction Model (WRRM) module of Technosylva. | |
| Situational Awareness | SA-2 | Fire Potential Index (FPI) Phase II | Refine the current FPI by integrating historical weather and vegetation data into the index. | |
| | SA-4 | Asset Reliability & Risk Analytics Capability | Implement FireCast and FireSim modules of Technosylva. | |
| | SA-5 | Fuel Sampling Program | Perform updated fuel sampling in HFRA in areas deemed appropriate once every two weeks (weather permitting). | |
| | SA-6 | Surface and Canopy Fuels Mapping | Initiate surface and canopy fuels mapping across HFRA. | |
| | SA-7 | Remote Sensing / | Initiate procurement process for remote | |

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | Records Inspected |
|---|---|---|---|---|
| | | Satellite Fuel Moisture | sensing technology for future implementation. | |
| | SA-8 | Fire Science Enhancements | Implement enhanced forecasting capability and improved fuel modeling. | |
| System Hardening | SH-2 | Undergrounding Overhead Conductor | Refine evaluation methodology for targeted undergrounding as a wildfire mitigation activity. | Yes |
| | SH-9 | Transmission Overhead Standards (TOH) Review | Review transmission standards to determine if there are any changes that can be made to help reduce wildfire threats, especially during extreme wind events. | Yes |
| | SH-11 | Legacy Facilities | Evaluate risk, scope, and alternatives for identified circuits; evaluation of additional system hardening mitigation for wildlife fault protection and grounding/lightning arresters. | Yes |

#### 3.1.5.1 Review of Initiatives

*This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Qualitative Goal/Target category. Independent Evaluators shall review documentation and conduct SME interviews, as needed, to verify the qualitative goals/targets of these activities were met.*

*Include the electrical corporation's list of initiatives that fall into the Qualitative Goal/Target category, including respective goals/targets for each, in the Appendix or within the body of this subsection.*

**AT-4: Alternative Technology Implementation – Vibration Dampers WMP Section 5.3.3.3.3**

According to the ***SCE 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf*** for this initiative, SCE planned to evaluate damper technologies for both small and large diameter covered conductor applications and develop standards for small and large diameter covered conductors.

The IE reviewed the initial documentation provided and compared it to the ***SCE's 2020-2022 Wildfire Mitigation Plan - Revision 03.pdf***. The IE submitted *Data Request 1* for initial evidence to support and demonstrate the performance of this initiative. SCE provided a written response that stated "Completed the evaluation of damper technologies and published new standards incorporating vibration damper applications for both large and small diameter covered conductor in Q4. SCE's analysis validated that dampers help prevent conductor strain.", along with a supporting document, ***AT-4 DDS 10 Standard***. Upon review, the IE determined SCE developed a standard for small and large diameter covered conductors, however, no evidence was provided to demonstrate the evaluations were performed. The IE submitted *Data Request 6* requesting supplemental documents for the performance of the evaluations for a list of sampled work orders demonstrating the evaluations were completed. SCE provided a response including ***AT 4 Vibration Damper Workpaper*** that provided detailed information on testing and analysis performed for developing the vibration damper standards for covered conductor application. The IE reviewed the response, but was unable to validate whether the actions provided occurred in 2020 due to time

constraints which impeded further document reviews and data requests.

**Finding:** Due to time constraints, the IE was unable to complete the evaluation to determine the evaluations of damper technologies for both small and large diameter covered conductor applications actually occurred in 2020. Further validation and inquiry are recommended to determine the completion of the commitments for this initiative.

**SH-2: Undergrounding of electric lines and/or equipment - Undergrounding Overhead Conductor WMP Section 5.3.3.16**

SCE has a plan for undergrounding electric lines and/or equipment. SCE sated that they met the 2019 WMP goal to conduct and undergrounding evaluation in HFRA and identified a scope to support the installation of at least 6 miles of targeted undergrounding in 2021. For 2020, SCE committed to continue to refine its evaluation methodology for under grounding in addition to working with local communities to purse undergrounding in HFRA using Tariff Rule 20. This can be found in document ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03*** in section 5.3.3.16. Evidence provided for these commitments is included in document ***SH-2 TUG Work Paper.pdf*** where SCE provides the method that was used in 2019 which they described as a pilot methodology to target overhead conductor and structures for undergrounding.

Additionally, SCE states that they incorporated lesson learned and that they successfully adopted Technosylva Wildfire Risk Reduction Model (WRRM), which is a data analytics program. Furthermore, SCE states that they added a new attribute to the WRRM which measured the effectiveness of the mitigation options of undergrounding or covered conductor. According to SCE, the result of using this method SCE engineers identified roughly 19 circuit segment miles to help meet the committed 11 miles for 2022.

Lastly, SCE addresses in the WMP, the pursuit of undergrounding using Tariff Rule 20 and found challenges incorporating it for the purpose of wildfire mitigation. In the executive summary of ***SH-2 TUG Work Paper.pdf***, SCE found that due to a limited budget of Rule 20, most cities are using that funding of undergrounding in urban areas for aesthetic purposes instead of for wildfire mitigation.

The IE requested an interview to understand how the new data analytics program, the new attribute added to the WRRM refined SCEs evaluation methodology. Also, the IE wanted to further inquire on the results the pursuit of Tariff Rule 20 and what the next steps were if any. The IE understood that SCE already had an analytics tool that was being used but SCE stated during the interview that the Technosylva analytics tool used more recent data that they believed allowed for a better identification for probabilities of ignition and consequences of that ignition. Further evaluation between the tools would be necessary to determine this. The IE also asked about the new attribute where SCE stated what was written in document ***SH-2 TUG Work Paper.pdf*** where it was a comparison between undergrounding and covered conductor as an added attribute for their methodology. SCE stated it was a comparison between the two methods. Further inquiry and validation of the new attribute's effectiveness would be helpful to determine if SCE has refined its evaluation methodology. SCE also did not have any further information to add on the pursuit of Tariff Rule 20.

**Finding:** Due to time constraints, the IE was not able to validate whether the new additions yielded a more refined evaluation methodology as committed. Further validation and inquiry are recommended to determine the completion of the commitments for this initiative.

**SH-9: Transmission Overhead Standards (TOH) Review WMP Section 5.3.3.18**

***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03*** Section 5.3.3.18 states that "In 2020, SCE will proactively review its transmission and sub-transmission construction and design standards for opportunities to further reduce the likelihood of electric system-related ignitions and identify potential improvements to help reduce wildfire threats, especially during extreme wind events."[29] SCE further committed to "develop a report of its findings along with any identified actions for design improvements." In response to the IE's *Data Request 1*, SCE provided a spreadsheet ***SH-9 TOH Implementation Plan.xlsx*** that listed descriptions of changes to transmission overhead (TOH) standards and target publication dates for 2020 and 2021. Since only "target" dates of publication were provided, the IE issued *Data Request 7* asking for the actual publications made in 2020 related to the TOH standards, the report referenced in the 2020 WMP, and any other supporting documentation showing evidence of reviews performed in 2020 for transmission and sub-transmission construction design and standards.

TOH Standard Publications

SCE's response to *Data Request 7* included a 73-page document of ***Transmission Overhead Construction Standards*** that includes "What's Changed" descriptions as well as effective dates which all appear to be December 18, 2020.

Report of Findings of TOH Review

SCE's response to *Data Request 7* question 1b states:

Standard publications are internal to SCE and SCE's Contractors to be used for design and construction activities. Attached are ***SH-9 Avian Clearance Update Report***, ***SH-9 Anchor Assembly Report***, and ***SH-9 Tension Table Update Report*** that were developed as findings from the TOH review. Referenced reports were used internally to inform proposed standards updates. These types of reports are not typically submitted or filed with a regulatory agency, unless requested in a data request such as this.

The IE reviewed the three reports and confirmed the reports were developed in 2020 and included several different recommendations of changes to TOH standards.

Other Supporting Documentation

SCE's response to *Data Request 7* question 1c also indicated that the supporting evidence for standard updates were included in the reports provided in response to question 1b discussed previously

**Finding:** While a general overall report was not developed for the review of TOH standards, the IE believes that SCE has met is qualitative target to proactively review its transmission and sub- transmission construction and design standards based on the reports and standard updates provided by SCE. The IE found the qualitative documents to be sufficient.

**SH-11: Legacy Facilities WMP Section 5.3.3.19**

***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03*** Section 5.3.3.19 states that "In 2020, SCE plans to evaluate certain legacy facilities including substations and Generation facilities to assess any potential fire risks and develop an execution strategy to mitigate any findings." SCE provided additional detail that there were four areas of focus for the initiative.

[29] Page 132 of SCE 2020 WMP (3rd Revision)

The first areas of focus were the Hydro Control Circuits. This evaluation was limited due to the Creek Fire thus extending the schedule. Of the seven circuits, two circuits were either removed or replaced due to the fire, and the remaining five circuits are to be evaluated in 2021.

The second area for evaluation was Low Voltage System/Facilities. After the completion of review in November it was determine no further action was needed for said System/Facilities.

The third area for evaluation was the Ground Study/Lightening Arrestor Assessments. Two facilities were the primary focus of the evaluation, Lytle and Fontana. Following the evaluation by MESA Engineering planned improvements have been scheduled for completion in Q4 of 2021. The work includes crushed rock perimeter and three grounding rods for Lytle; and perimeter upgrades and lightening arrestors for Fontana.

The final area of evaluation was wildlife/avian protections. This review was completed in July and the review identified that there was little to no risk. SCE determined that the current program spend for T&D Critter Controls was sufficient and no further action was required.

**Finding:** Per the ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03*** Section 5.3.3.19 and the provided evidence and documentation, SCE has met the qualitative target for the calendar year 2020. The IE found the documents provided to be sufficient.

**OP-1: Annual System Operating Bulletin (SOB) 322 WMP Section 5.3.6.1.1**

***SOB-322*** applies to (1) Red Flag Warning (RFW) declared by National Weather Service (NWS), or (2) Fire Weather Threat (FWT), Fire Climate Zone (FCZ), Thunderstorm Threat (TT) or PSPS Proximity Threat declared by SCE. Under all these conditions, Recloser Restrictions and Operating Restrictions will be applied to some or all sub- transmission and distribution circuits.

SCE Weather Services declares a FWT based on assessments of possible fire threats and will declare TT based possible thunderstorms producing dry lightning and strong downburst winds during periods of increased fire threat. The Grid Control Center (GCC) Liaison will declare a PSPS Proximity Threat during a PSPS activation just prior to the start of the event and throughout the Period of Concern (POC) for circuits listed on the POC Circuit List. SCE Weather Services will declare a FCZ based on assessments provided by SCE's Fire Science Group of possible fire threats in pre-identified areas within SCE service territory defined by Fire Management containing HFRA distribution circuits defined by areas that have similar vegetation types, weather conditions, topography, and fire history.

Under Recloser Restrictions, transmission reclosers will be made non-automatic during FWT, TT, or PSPS proximity threats. The PSPS IMT IC, in consultation with the GCC Liaison, will identify specific lines for reclosers to be made non- automatic. Sub-transmission reclosers will be made non-automatic during RFWs (by county) and FWT, TT or PSPS Proximity Threat (by Switching Center and county). Distribution reclosers will be made non-automatic by county or Switching center during TT, RFW and FWT. During FCZ, they will be made non-automatic via Auto-322 program or manually.

Operating Restrictions provide testing and patrolling requirements for circuits and circuit sections that traverse HFRA following a relay operation. Operating Restrictions may be applied during a warning or threat condition. For RFW, Operating Restrictions are applied to sub-transmission and distribution circuits

or circuit sections in the county. TT restrictions are the same, but circuits may be selected by the Switching Center. For FWT and FCZ, the Switching Center System Operator must reference the PSPS Watch List following a relay operation to determine if Operating Restrictions apply to individual circuits. In the event of a PSPS proximity threat, GCC Transmission Dispatcher must reference the PSPS Proximity Tool. Using the data provided by SCE, the IE was unable to identify the number of restriction events that occurred in 2020 and whether they comply with the restrictions detailed in SOB-322.

**Finding:** The IE finds the operational practices to be sufficient and reasonably assumes activities are occurring during the appropriate high risk condition window. The qualitative evidence transmitted supports the procedural details with practical assurance.

**PSPS-5: PSPS Events and Mitigation of PSPS Impacts - MICOP Partnership WMP Section 5.3.6.5.4**

SCE has a plan to educate indigenous individuals who have limited English proficiency, on how to prepare for emergencies and potential PSPS events. SCE accomplishes this through working with a non-profit organization Mixteco/Indigena Community Organization Project (MICOP). MICOP broadcasts public services announcements its local radio station and direct outreach through community meetings, health fairs and local school events. SCE committed in 2020 to continue to monitor and adjust the outreach activities through regular meetings with MICOP and progress reports to help determine sustained and future outreach efforts. This can be found in document ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03*** in section 5.3.6.5.4. Evidence provided, document ***PSPS- 5 Final Impact Report.pdf***, shows that there was a final impact report with questions that the MICOP organization needed to fill in. The report included how funds were used, details of the number of individuals and families reached, and methods used for outreach. It was not clear if this is a progress report as stated in the WMP. Additionally, no evidence was provided demonstrating regular meetings between MICOP and SCE that the WMP planned. *Data Request 6* sought additional information to clarify the final impact report and to provide more details on the regular meetings

SCE responded to *Data Request 6* in ***006_2020 WMP IE DR 6-Supp Evd Q. 006 Answer.pdf*** that for the final impact report provided, that it *"is the final report that summarizes the deliverables and outcomes from the entire reporting period."* SCE also provided multiple progress reports from January 2020 through September 2020, where the IE was able to observe email correspondence and structured reports that provide details such as, number of people that were reached through telephone calls and text messages, number of PSPS fact sheets distributed, events and a reporting of daily communication via MICOP's community radio for reminders on registering to receive information. An example of one of these progress reports is document ***006_MICOP April and May Metrics.pdf***.

SCE also stated that although they did have some scheduled meetings, *"Meetings were oftentimes informal and did not always include agendas."* In support, SCE provided screenshots of calendar appointments for some of the meetings that were scheduled. Some of the evidence had information such as subject, organizer and required attendees redacted. Due to this, the IE was unable to determine if these calendar invites were evidence of regular meeting with MICOP or not, however some of the calendar invites with a meeting title "MICOP and Edison Discussion.". An example of a redacted calendar invite is document ***007_MICOP Meeting 080520.pdf*** and an example of a calendar invite that provides reasonable assurance of a meeting with MICOP is document ***007_MICOP Meeting 080720.pdf.***

**Finding:** Although some evidence of meetings was provided by SCE, without additional evidence showing consistent periodic meetings between MICOP and SCE, and along with the response from the data request

stating that meetings were informal and did not include agendas, the IE was unable to definitively determine whether SCE had regular meetings with MICOP. However, SCE did provide sufficient evidence of progress reports with MICOP. Additionally, SCE provided evidence of a final impact report that showed the progress throughout the 2020 year.

**PSPS-6: PSPS Events and Mitigation of PSPS Impacts - Independent Living Centers Partnership WMP Section 5.3.6.5.5**

SCE has a plan to ensure education and outreach to people with disabilities. SCE states they have established partnerships with 211 service providers and independent living centers dedicated to increasing independence, access, and equal opportunities for people with disabilities. Additionally, with these partnerships SCE states they promote enrollment of medical baseline and critical care customers to augment advances notification for PSPS events and include workshops to provide preparedness education and assistance in applying for the Medical Baseline Program. Furthermore, in 2020 SCE has committed to monitor and adjust the outreach as needed through regular meetings and progress reports submitted by each non-profit to help determine sustained and future outreach efforts. This can be found in document ***Southern California Edison 2020-2022 Wildfire Mitigation Plan - Revision 03,*** Section 5.3.6.5.5. A final impact report was provided, document ***PSPS-6 Final Impact Reports.pdf***, that shows an extensive amount of information, including financial disclosures, number of individuals impacted by the program, demographic information, services provided, from numerous organizations involved in the program.

The IE sent a data request for evidence of regular meetings between SCE and non-profits as committed by SCE. SCE provided screenshots of multiple calendar appointments. Some of these screenshots demonstrate a meeting title of "ILC," meaning Independent Living Centers, in the subject line of the calendar invite with agendas of the material to be discussed throughout the day. An example of an invite that included some evidence is document ***008_ILC_SCE Teams Meeting Notice 013120.pdf***. An example of one that was not as thorough is document in ***008_ILC_SCE Teams Meeting Notice 051220.pdf***. The IE recommends further inquiry to identify the consistency in these meetings to determine if they are occurring in a regular manner as committed.

**Finding:** Due to time constraints the IE was unable to ask SCE for additional evidence to definitively determine if SCE is having regular meeting as committed. However, SCE provided a final impact report that provides some reasonable assurance of the commitment for progress reports. The IE recommends further inquiry for evidence of periodic progress reports as was provided for PSPS-5 to determine the robustness of this initiative.

#### 3.1.5.2 Trends and Themes

*Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Qualitative Goal/Target initiatives.*

The IE did not identify any noticeable trends or themes with respect to the qualitative goals/targets for SCE.

### 3.2 Verification of Funding

*The Verification of Funding section should document all instances in which WMP activities were funded less than 100 percent. For all such instances, the Independent Evaluator shall request and document utility explanation of such instances.*

*Fill out the table below containing initiatives which the Independent Evaluator found to be funded less than 100 percent.*

The Verification of Funding section documents all instances in which WMP activities were funded less than 100 percent. Due to time constraints, the IE was unable to request and document utility explanation of all instances of underrun, SCE does however provide a variance driver for any underrun greater than $1M. The IE used data presented in SCE's 2020 WMP ARC to summarize projected and actual spend for each initiative in 2020. The IE also notes that several initiatives were reclassified for the 2021 WMP Annual Update, which may correspond with the deficiency findings.

The table below summarizes initiatives which the IE found to be funded less than 100 percent.

*Table 14: 2020 WMP Underfunding Verification Summary*

| Initiative Category | 2020 Initiative Number | Utility Identifier | Initiative Name | 2020 Funding Discrepancy Amount | Detail on Funding Discrepancy |
|---|---|---|---|---|---|
| **Asset management and inspections** | 5.3.4. | AT-2.2 | Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations | $(254,101) | |
| **Asset management and inspections** | 5.3.4. | IN-4 | Infrared inspections of transmission electric lines and equipment | $(3,120,061) | The original forecast was an error. Recorded costs were in line with expected costs for this type of work. |
| **Asset management and inspections** | 5.3.4. | IN-5 | Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations | $(157,860) | |
| **Asset management and inspections** | 5.3.4. | OP-3 | Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations | $(271,030) | |
| **Emergency planning and preparedness** | 5.3.9 | DEP-1.1; DEP-1.3; DEP-3 | Community outreach, public awareness, and communications efforts | $(7,312,843) | O&M Underrun: In 2019, SCE participated in the statewide PSPS marketing campaign in collaboration with the other IOUs. As discussed in September 11, 2020 Change Order Report, the statewide outreach captured in IOU Customer Engagement (DEP-3) ended and the funds were redeployed to SCE's local marketing campaign (DEP 1.3). Starting in 2020, SCE launched its own marketing campaign while continuing to work closely with the other IOUs for benchmarking purposes. PSPS Newsletter forecast underrun driven by ~11% lower quantity of customer letters printed and unit costs ~50% lower than planned. |
| **Emergency planning and preparedness** | 5.3.9. | DEP-2 | Adequate and trained workforce for service restoration | $(1,106,014) | O&M Underrun: Several trainings were pushed out from 2020 to 2021 primarily due to COVID-19 restrictions. |

| Initiative Category | 2020 Initiative Number | Utility Identifier | Initiative Name | 2020 Funding Discrepancy Amount | Detail on Funding Discrepancy |
|---|---|---|---|---|---|
| **Emergency planning and preparedness** | 5.3.9. | DEP-4 | Community outreach, public awareness, and communications efforts | $(1,409,408) | Costs recorded in DEP-1.1, DEP-1.3. DEP-3. See explanation above. |
| **Grid design and system hardening** | 5.3.3. | AT-3.1 | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | $(732,247) | Forecast was originally identified as O&M in 2020 WMP filing but determined to be Capital through Capital Asset Versus Expense (CAVE) analysis |
| **Grid design and system hardening** | 5.3.3. | AT-3.2 | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | $(511,228) | |
| **Grid design and system hardening** | 5.3.3. | AT-3.3 | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | $(408,983) | |
| **Grid design and system hardening** | 5.3.3. | AT-3.4 | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | $(511,228) | |
| **Grid design and system hardening** | 5.3.3. | AT-8 | Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | $(306,737) | |
| **Grid design and system hardening** | 5.3.3. | SH-10 | Covered conductor installation | $(5,529,351) | Capital Underrun: Underrun on tree attachment remediations were driven by halt in construction activities in September 2020 due to the Sequoia and Creek fires. |
| **Grid design and system hardening** | 5.3.3. | SH-11 | Legacy Facilities | $(2,099,845) | Capital and O&M Underrun: The primary underrun was due to the Creek Fire, which delayed SCE's ability to do assessments and pre-engineering studies for the Big Creek Hydro facilities originally planned. SCE also found a very low risk for avian wildlife protections for legacy facilities, which resulted in reduced incremental work to involving reduced ignition risks. |
| **Grid design and system hardening** | 5.3.3. | SH-12.1 | Other corrective action | $(200,509,600) | Capital and O&M Underrun: Reduced inspection find rates from Aerial and Ground inspections resulted in less scope to be remediated. Operational challenges such as COVID-19 restrictions, fire storms, and PSPS events led to a reduction in the total number of compliance-driven notifications completed within the year. |

| Initiative Category | 2020 Initiative Number | Utility Identifier | Initiative Name | 2020 Funding Discrepancy Amount | Detail on Funding Discrepancy |
|---|---|---|---|---|---|
| **Grid design and system hardening** | 5.3.3. | SH-12.2 | Other corrective action | $(16,647,159) | Capital Underrun: Transmission EOI Replacement scope originally forecast to be capital turned out to be O&M. Underrun also driven by lower capital find rate compared to previously assumed in 2020 WMP filing which was based off 2018 & 2019 remediations. Aerial Remediations forecasted individually in 2020 WMP. In 2021 WMP, costs for Aerial remediations not tracked separately, actuals included under EOI Repairs/Replacements combined with Ground due to process for execution and contractor billing being combined during invoicing. |
| **Grid design and system hardening** | 5.3.3. | SH-3 | Distribution pole replacement and reinforcement, including with composite poles | $(56,832,575) | 2020 WMP filing did not include Fire Resistant (FR) poles Under SH-1. FR poles was in SH-3, 2020 equaled $56.8M) |
| **Grid design and system hardening** | 5.3.3. | SH-4 | Expulsion fuse replacement | $(4,581,623) | O&M Underrun: Current Limiting Fuses O&M forecast underrun due to new fixed price contractor rates and lower maintenance units executed. Each year will have its own scope based on GRC, primarily replacements, and Unit Rate should be $4,100 per location replacement as originally estimated. |
| **Grid design and system hardening** | 5.3.3. | SH-5 | Installation of system automation equipment | $(2,773,280) | Capital Underrun: Original budget considered only RARs in scope; SCE utilized (lower cost) RCSs in place of RARs where applicable. |
| **Grid operations and protocols** | 5.3.6. | OP-2 | PSPS events and mitigation of PSPS impacts | $(1,007,163) | O&M Underrun: Due to a delay in hiring FTEs to support this activity. |
| **Grid operations and protocols** | 5.3.6. | PSPS-2 | PSPS events and mitigation of PSPS impacts | $(1,322,367) | Original forecasts including assumptions for capital and O&M. Recorded costs were all O&M and were less than total capital & O&M forecasts based on the assumptions on the number of times SCE would use those facilities. |
| **Grid operations and protocols** | 5.3.6. | PSPS-4 | PSPS events and mitigation of PSPS impacts | $(4,652,001) | O&M underrun: Critical Care Backup Battery Program underrun due to lower customer enrollment than planned. The program launched later in the year in July 2020 due to initial inventory shortages (likely due to COVID-19) compounded by a longer lead time for customer uptake as SCE limited its marketing channels, also due to COVID-19. This year, SCE started in January and has expanded eligibility to a larger customer set. |

| Initiative Category | 2020 Initiative Number | Utility Identifier | Initiative Name | 2020 Funding Discrepancy Amount | Detail on Funding Discrepancy |
|---|---|---|---|---|---|
| **Grid operations and protocols** | 5.3.6. | PSPS-7 | PSPS events and mitigation of PSPS impacts | $(439,656) | |
| **Situational awareness and forecasting** | 5.3.2. | AT-7 | Continuous monitoring sensors | $(511,228) | |
| **Situational awareness and forecasting** | 5.3.2 | SA-4:RA-1 | Asset and Reliability & Risk Analytics Capability | $(4,885,752) | Capital Underrun: Program budget/costs transferred to Wildfire Advance Modeling and Computer hardware to acquire 1 additional super computer. 2020 forecast was conceptual because the vendors and solution were not finalized at the time of the 2020 WMP filing. |
| **Situational awareness and forecasting** | 5.3.2. | SA-5 | Forecast of a fire risk index, fire potential index, or similar | $(438,928) | |
| **Situational awareness and forecasting** | 5.3.2. | SA-6 | Forecast of a fire risk index, fire potential index, or similar | $(351,929) | |
| **Situational awareness and forecasting** | 5.3.2. | SA-7 | Forecast of a fire risk index, fire potential index, or similar | $(1,534,133) | O&M Underrun: Scope is still being finalized and SCE plans to onboard the vendors and execute the projects in 2021 and future years. |
| **Situational awareness and forecasting** | 5.3.2. | SA-8 | Forecast of a fire risk index, fire potential index, or similar | $(1,119,903) | O&M Underrun: Fire Science Enhancements underrun driven by internal reprioritization of work to focus on higher priority projects. |
| **Situational awareness and forecasting** | 5.3.2. | SH-8 | Continuous monitoring sensors | $(170,352) | |
| **Vegetation management and inspections** | 5.3.5. | VM-1 | Removal and remediation of trees with strike potential to electric lines and equipment | $(7,412,535) | O&M Underrun: Hazard Tree Mitigation: Volume lower than forecast - arborist expertise favors removal over trimming mitigation due to risk of trees dying from the amount of trimming required to mitigate risk. Hazard Tree Program Management: Forecast associated with number of mitigations/removals. Forecast underrun due to scope reductions as a result of lower number of mitigations identified. Hazard Tree Removal: SB 247 rate increases impacted contractor pricing. Reduced volume of removals from forecast. Hazard Tree Inspection: 2020 Actuals driven by increase in contractor assessments. |

| Initiative Category | 2020 Initiative Number | Utility Identifier | Initiative Name | 2020 Funding Discrepancy Amount | Detail on Funding Discrepancy |
|---|---|---|---|---|---|
| **Vegetation management and inspections** | 5.3.5. | VM-3 | Fuel management and reduction of "slash" from vegetation management activities | $(1,217,440) | O&M Underrun: Generation Expanded Vegetation Buffers: 2020 recorded of $881K included in Vegetation Line Clearing initiative (7.3.5.20) actuals for reporting purposes. |
| **Emergency planning and preparedness** | N/A | N/A | A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment | $(4,106,847) | Capital Overrun: Data Governance overrun due to emergent technology tool programs initiated post 2020 WMP filing.<br>O&M Underrun: Line Patrols underrun driven by 1) lower incurred PSPS inspections and incidents than planned (based on 2019 estimates), and 2) percentage of activities and related costs combined and charged to CEMA storms accounts. |
| **Total** | | | | **$(334,245,407)** | |

### 3.3 Verification of QA/QC Programs

*This section should include a detailed description of all QA and QC programs that the Independent Evaluator validated during its compliance review. Independent Evaluators shall review all documentation and perform interviews to validate an electrical corporation's QA and QC programs for WMP compliance.*

The IE gathered as much detail on existing QA/QC processes at the program level as possible, given the expedited timeframe for the final report. SCE transmitted a description of its overall processes, which has been included and enhanced slightly across the 2019, 2020, and 2021 WMP annual updates. Additionally, the **2019 Data Collection for WMPs** further describes internal processes to verify activities post execution and sampling strategies to address larger volumes of activities. SCE provided the excerpt from its 2020 WMP QA/QC program discussion in **002_SCE WMP Quality Program Summary 5-18-2021**.

Per the 2020 WMP, SCE performs the following QA/QC activities:

- WMP Quality Oversight/QC activities (WMP Initiative Activity IN-2) that specifically relate to performing quality control and oversight of inspections of transmission, distribution, and generation structures in HFRA (WMP activities IN-1.1, IN-1.2 and IN-5)
    - Monitoring and quality assurance program for line/equipment inspections (WMP Section 5.3.4.14): internal group performs field validations of inspections completed by Transmission and Distribution (T&D) work crews
- SCE's T&D organization unit has a Compliance and Quality (C&Q) group that develops QA/QC processes to ensure that mitigation activities are proceeding as planned
- SCE QC inspectors conduct the reviews by performing independent field inspections, essentially performing the same inspection activity, and comparing the results. The QC process for completed inspections would be the same for SCE and contract employees if contract employees are utilized. C&Q will perform QC inspections of completed inspections for approximately 15,000 transmission, distribution, and generation structures in HFRA. The QC inspection scope will be based on risk-stratified sampling to assess the accuracy of the overhead inspections. SCE's Vegetation Management uses external resources to perform QC (e.g., review if a tree trim met the correct clearance distance).
- SCE's Audit Services Department (ASD) assesses WMP implementation independently of the responsible operating unit.

Vegetation Management QA/QC

- Quality Control Program that performs inspection sampling and remediates identified conditions to ensure the overall quality of the vegetation management program and the effectiveness and performance of SCE's vegetation contract workforce.

SCE transmitted related internal program material describing QA/QC methodologies to sample post work activities through statistical sampling. Ad hoc activities support post work verification through SME and department lead reviews verified against the WMP objectives. SCE prepares internal reports that transmit these validation activities and direct recourse if conditions require additional reevaluation of program targets or programmatic phases.

The IE met time constraints in achieving a supporting qualitative interview with SMEs in respective WMP initiative areas. The IE relied on the QA/QC samples, methodologies, and the description presented in the 2020 WMP to validate activities are sufficient in all areas reviewed. The IE understands that SCE strives for continued improvement in refining post work verification activities and continues to enhance processes as lessons learned reveal themselves. The IE did review several sample verification work products in support of the initiative review. The sampling methodology aligned with the approach from

the IE, further substantiating the execution of sampled QC activities.

The IE finds that SCE reasonably executed its described QA/QC objectives and enhances each program as insights are gained. The EC regularly updates procedures and has stated that internal team leaders are responsible for implementing and checking these work products.

The IE finds the EC to be meeting its objectives with respect to WMP execution and monitoring and provided substantiated evidence validated by the desktop review.

# 4 Conclusion

*The Conclusion section shall summarize all findings that the Independent Evaluator detailed in the sections above.*

*Fill out the table below with all findings.*

Upon completion of the IE report, the IE determined, with reasonable certainty, SCE achieved a majority of WMP Initiative Activity objectives and provided evidence for those that missed targets. Detailed reviews were conducted of the SCE's WSD submissions along with subsequent data requests, and SCE worked closely with the IE, under guidance of the WSD, to bring forth appropriate responses to the IE's data requests and requests for interviews, to the best of all parties' capabilities within the allotted time.

The IE worked with the WSD and SCE to determine relevant materials critical to produce a statistically significant, where possible, and concrete review of SCE's WMP work performance. The IE faced timeline constraints and strived to ensure records were collected, sorted, vetted for initiative alignment, and categorized with the chronological order of the review process. All methodology, training, and tools had to be developed and implemented during the same time as document reviews and issuing data requests. Using the risk rating methodology, desktop review, established lines of communication, weekly meetings, and a supporting field inspection, the IE was able to evaluate a high risk reduction assortment of initiatives were executed in 2020.The final IE report does not address the complete scope of SCE's WMP initiatives, but does represent a review of most of the highest risk elements of their WMP, as determined by the IE.

The table below presents the IE findings supported by desktop and field inspection reviews of SCE evidence. Results and interpretations from the verification of QA/QC programs are found in Section 3.3 above. Findings associated with verification of funding are presented in **Table 14** within Section 3.2. **Table 14** further lists reviewed explanations and documentation determinations for underfunded activities and their associated deficiency determination.

Reviewed initiative findings are presented in accordance with the aligned WMP Initiative Activity below.

*Table 15: SCE 2020 WMP Execution – Insufficient Findings Summary*

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.3 | SH-1 | Covered Conductor Installation | Due to time constraints, the IE was unable to make a final determination if SCE has met the entire program target | The IE recommends further exploration into the work orders associated with the Covered Conductor Installation, as well as possible SME interview to gain a better understanding of how line miles are tracked upon completion of work and how installation dates are recorded. |
| WMP Activity Completion | 5.3.3.6 | SH-3 | Fire Resistant Poles | The IE was unable to make a complete verification of all hardening efforts and replacements due to the limitations of the accelerated evaluation period. | The IE recommends further analysis of this data, more validation inquiries and validation of pole replacements to determine if the committed number of poles for remediation for 2020 were all executed. |
| WMP Activity Completion | 5.3.3.12 | SH-12.1 | Remediations - Distribution | SCE missed projected targets of 100 percent remediations complete by three percent of the 2020 WMP target, which was verified by the IE's review. | This attributed to the underrun of expenditures associated with these activities, for which SCE cited reduced inspection rates, COVID-19 pandemic, and operational challenges. No direct field verifications contributed to this result. |
| WMP Activity Completion | 5.3.5.5 | VM-2 | Expanded Pole Brushing | SCE reported they exceeded objectives in 2020, reporting 231,326 poles cleared within the HFRA. The IE verified that an upwards of 200,000 poles were cleared from the desktop data review. | The IE subsequently evaluated activities through field inspection sampling and found the 8 of 25 sampled to have noncompliant conditions due to overgrowth, encroachment, and brush found within the 10-foot ground and vertical clearance. |
| WMP Activity Completion | 5.3.4.10 | IN-6.2 | Aerial Inspections – Transmission | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed full aerial inspections of 29,839 transmission facilities and partial inspections of 1,542 facilities. However, this does not meet SCE's stated goal of 33,500 inspections. | Time constraints prevented detailed review of sampled work order accounts. |
| WMP Activity Completion | 5.3.5.16 | VM-4 | Drought Relief Initiative (DRI) Inspections and Mitigations | The IE did not receive an independent statistically valid sample despite a detailed submitted request. The IE cannot validate whether SCE has met these objectives. | This is due to SCE submitting incorrect sample date from what was requested by the IE. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.2 | AT-8 | High Impedance Relay Evaluations | The IE could not concretely determine the detailed installation activities associated with this initiative. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative |
| WMP Activity Completion | 5.3.3.9 | SH-5 | Installation of System Automation Equipment – RAR/RCS | Due to time constraints, the IE was not able to inquire further nor validate the 48 installations claimed in the documents nor the 2 RARs/RCSs that did not have a device number associated with them. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.3.3 | AT-4 | Alternative Technology Implementation – Vibration Dampers | Due to time constraints, the IE was unable to complete the evaluation to determine the evaluations of damper technologies for both small and large diameter covered conductor applications actually occurred for 2020. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.6.5 | PSPS-5 | MICOP Partnership | Although some evidence of meetings was provided by SCE, without additional evidence showing consistent periodic meetings between MICOP and SCE, and along with the response from the data request stating that meetings were informal and did not include agendas, the IE was unable to definitively determine whether SCE had regular meetings with MICOP. | However, SCE did provide sufficient evidence of progress reports with MICOP. Additionally, SCE provide evidence of a final impact report that showed the progress throughout the 2020 year. |
| WMP Activity Completion | 5.3.6.5 | PSPS-6 | Independent Living Centers Partnership | Due to time constraints the IE was unable to ask SCE for additional evidence to definitively determine if SCE is having regular meeting as committed. | However, SCE provided a final impact report that provides some assurance of the commitment for progress reports. The IE recommends further inquiry for evidence of periodic progress reports as was provided for PSPS-5 to determine the reasonable robustness of this initiative. |
| WMP Activity Completion | 5.3.3.16 | SH-2 | Undergrounding Overhead Conductor | Due to time constraints the IE was not able to validate whether the new additions yielded a more refined evaluation methodology as committed. | Further validation and inquiry are recommended to determine the completion of the commitments for this initiative. |

# 5 Appendix

*The Appendix can include:*

- *Electrical corporation's list of Large Volume Quantifiable Goal/Target – Field Verifiable initiatives*
- *Electrical corporation's list of Large Volume Quantifiable Goal/Target – Not Field Verifiable initiatives*
- *Electrical corporation's list of Small Volume Quantifiable Goal/Target initiatives*
- *Electrical corporation's list of Qualitative Goal/Target initiatives*
- *Electrical corporation's complete listing and description of existing QA/QC programs in place*
- *Data requests and interview requests*
- *Samples chosen by the Independent Evaluator*
- *Financial audit reports and memorandum accounts*
- *Any additional documentation*

## 5.1 SCE WMP Activities – Classified by Approach to Verifying Compliance

| Program Categories | WMP Identifier | Initiative/Activity | Program Target | IE Scope Review Type |
|---|---|---|---|---|
| Alternative Technology | AT-1 | Alternative Technology Pilots – Meter Alarming for Down Energized Conductor (MADEC) | Evaluating algorithm improvements specific to the detection of downed energized covered conductor, which may behave differently than bare conductor. | Qualitative |
| | AT-2.1 | Distribution Fault Anticipation (DFA) | Evaluate technology performance on fault anticipation technology and future deployment. | Qualitative |
| | AT-2.2 | Advanced Unmanned Aerial Systems Study | Conduct additional EVLOS demonstration UAS flights using lessons learned from 2019 study and validate aerial patrol findings via truck, foot, or helicopter. | Qualitative |
| | AT-3.1 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Ground Fault Neutralizer (GFN) | Initiate engineering design and order equipment for a GFN field installation. | Qualitative |
| | AT-3.2 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Resonant Grounding with Arc Suppression Coil | Initiate engineering design to convert a typical substation to resonant grounding. | Qualitative |
| | AT-3.3 | Alternative Technology Evaluations: Rapid Earth Fault Current Limiter – Isolation Transformer | Install one Rapid Earth Fault Current Limiter – Isolation Transformer. | Small Volume Quantifiable Goal (< 100) |
| | AT-3.4 | Alternative Technology Evaluations – Distribution Open Phase Detection | Complete pilot installation for five circuit locations. | Small Volume Quantifiable Goal (< 100) |
| | AT-4 | Alternative Technology Implementation – Vibration Dampers | Evaluate damper technologies for both small and large diameter covered conductor applications and develop standards for small and large diameter covered conductors. | Qualitative |
| | AT-5 | Asset Defect Detection Using Machine Learning Object Detection | Begin standardization of data collection for Machine Learning (ML) by cataloging and tagging inspection imagery metadata for ML. Investigate SCE use cases and evaluate feasibility of ML to support objective evaluation of assets. | Qualitative |
| | AT-6 | Assessment of Partial Discharge for Transmission Facilities | Evaluate use of a Partial Discharge assessment technology to assess the health of in-service transmission assets. | Qualitative |
| | AT-7 | Early Fault Detection (EFD) Evaluation | Develop installation standards, install, and commission at least 10 EFD sensors. Gather data to determine requirements to support the potential for larger system deployments. SCE will strive to complete an additional 90 | Small Volume Quantifiable Goal (< 100) |

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| | | | sensors for evaluation subject to resource constraints and other execution risks. | |
| | AT-8 | High Impedance Relay Evaluations | Investigate and deploy two controllers/relays with a High Impedance (Hi-Z) element in HFRA. | Small Volume Quantifiable Goal (< 100) |
| Emergency Preparedness | DEP-1.1 | Customer Education and Engagement – Dear Neighbor Letter | Send ~915,000 letters with information about PSPS, emergency preparedness, and SCE's WMP to customer accounts in HFRA and ~3,200,000 letters to customer accounts in non-HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | DEP-1.2 | Customer Education and Engagement – Community Meetings | Host 8-12 community meetings in areas impacted by 2019 PSPS plus other meetings including online as determined to share information about PSPS, emergency preparedness, and SCE's WMP. | Small Volume Quantifiable Goal (< 100) |
| | DEP-1.3 | Customer Education and Engagement – Marketing Campaign | Marketing campaign to reach 5,000,000 Customer Accounts (goal of 40% awareness about the purpose of PSPS, emergency preparedness, and SCE's wildfire mitigation plan). | Small Volume Quantifiable Goal (< 100) |
| | DEP-2 | SCE Emergency Response Training | Hold SCE IMT member training on de-energization protocols, determine additional staffing needs and train, exercise and qualify new staff. | Qualitative |
| | DEP-3 | IOU Customer Engagement Section | Participate in statewide multi-channel and multi-lingual campaign using digital ads, social media ads, and radio ads to provide customers with important and consistent messaging about wildfire mitigation activities happening across the state. | N/A |
| | DEP-4 | Customer Research and Education | Develop/implement various research activities that gauge customer awareness, preparedness for, and satisfaction with outage experiences; to include but not be limited to town hall meetings, online & telephone surveys, focus groups, and assessments of programs & services to prepare customers before and after PSPS outages. | Qualitative |
| Inspections | IN-1.1 | Distribution High Fire Risk Informed Inspections in HFRA | Inspect 105,000 structures in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-1.2 | Transmission High Fire Risk Informed Inspections in HFRA | Inspect 22,500 structures in HFRA. | Large Volume Quantifiable Goal |

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|---|---|---|---|---|
| | | | | - Not Field Verifiable |
| | IN-2 | Quality Oversight / Quality Control | Perform quality control and oversight of inspections of 15,000 transmission, distribution, and generation structures in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-3 | Infrared Inspection of Energized Overhead Distribution Facilities and Equipment | Inspect 50% of distribution circuits in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-4 | Infrared Inspection, Corona Scanning, and High-Definition Imagery of Energized Overhead Transmission facilities and Equipment | Inspect 1,000 transmission circuit miles in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-5 | Generation High Fire Risk Informed Inspections in HFRA | Perform inspection of 200 generation-related assets. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-6.1 | Aerial Inspections – Distribution | Inspect 165,000 structures in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-6.2 | Aerial Inspections – Transmission | Inspect 33,500 structures in HFRA. | Large Volume Quantifiable Goal - Not Field Verifiable |
| | IN-7 | Failure Modes and Effects Analysis (FMEA) | Complete FMEA study for substation assets in HFRA and prepare final report. | Qualitative |
| Operational Practices | OP-1 | Annual SOB 322 Review | Review and update SOB 322 to reflect lessons learned from past elevated fire weather threats/PSPS events and integrate, where applicable, new and improved situational awareness data, improved threat indicators, and applicable regulatory requirements in an effort to reduce wildfire risk and the impact of outages on customers. | Qualitative |
| | OP-2 | Wildfire Infrastructure Protection Team Additional Staffing | Hire additional resources including: a senior compliance manager, two compliance advisors, a project/program advisor, a data specialist and a fire weather meteorologist. | Small Volume Quantifiable Goal (< 100) |

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| | | | PSPS Operations will also be staffed to provide dedicated operational, project management, and compliance capabilities. | |
| | OP-3 | Unmanned Aerial (UAS) Operations Training | Increase the number of UAS operators by an additional 50 crews. | Small Volume Quantifiable Goal (< 100) |
| Public Safety Power Shutoff | PSPS-1.1 | De-Energization Notifications | Notify applicable public safety agencies and local governments of possible de-energization. | Qualitative |
| | PSPS-1.2 | De-Energization Notifications | Notify Cal OES through the State Warning Center of possible de-energization. | Qualitative |
| | PSPS-1.3 | De-Energization Notifications | Notify the CPUC of possible de-energization. | Qualitative |
| | PSPS-1.4 | De-Energization Notifications | Enhance Emergency Outage Notification System (EONS) to include Zip Code level alerting to include in-language notifications to align with its existing notification abilities for SCE customers. | Qualitative |
| | PSPS-2 | Community Resource Centers | Have 23 sites available across SCE service territory for customers impacted by a PSPS. | Small Volume Quantifiable Goal (< 100) |
| | PSPS-3 | Customer Resiliency Equipment Incentives | Develop a customer resiliency equipment incentive pilot program that provides financial support to customers willing to increase resiliency within its HFRA. One customer<br>will be implemented for this pilot in 2020. | Qualitative Target |

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| | PSPS-4 | Income Qualified Critical Care (IQCC) Customer Battery Backup Incentive Program | Outreach to eligible customers (low income, critical care, Tier 2/3) to provide portable battery backup solution. SCE has identified approximately 2,500 customers that it will target for the program in 2020 with efforts to begin second quarter. | Qualitative Target |
| | PSPS-5 | MICOP Partnership | Enable communications with indigenous populations and measure the number of customers contacted. | Qualitative Target |
| | PSPS-6 | Independent Living Centers Partnership | Conduct outreach activities and workshops/trainings to provide preparedness education and assistance in applying for the Medical Baseline Program and measure the number of customers contacted. | Qualitative Target |
| | PSPS-7 | Community Outreach | Minimum of five Community Crew Vehicles (CCVs) ready to be deployed during times when weather and fuel conditions are at critical levels. Communicate with customers in a local | Small Volume Quantifiable Goal (< 100) |
| | | | targeted way using a variety of channels to ensure timely delivery of notifications. | |
| | PSPS-8 | Microgrid Assessment | 1) Execute RFP for six resiliency microgrid projects 2) Depending on RFP results, implementation of up to 6 resiliency microgrid projects shown to be technically feasible and cost-effective. | Small Volume Quantifiable Goal (< 100) |
| Risk Analysis | RA-1 | Expansion of Risk Analysis | Implement Wildfire Risk Reduction Model (WRRM) module of Technosylva. | Qualitative |
| Situational Awareness | SA-1 | Weather Stations | Install 375 Weather Stations. SCE will strive for installation of 475 Weather Stations subject to resource constraints and other execution risks. | Large Volume Quantifiable Goal - Field Verifiable |
| | SA-2 | Fire Potential Index (FPI) Phase II | Refine the current FPI by integrating historical weather and vegetation data into the index. | Qualitative |
| | SA-3 | High-Performing Computer Cluster (HPCC) Weather Modeling System | Complete installation of second HPCC. | Small Volume Quantifiable Goal (< 100) |
| | SA-4 | Asset Reliability & Risk Analytics Capability | Implement FireCast and FireSim modules of Technosylva. | Qualitative |
| | SA-5 | Fuel Sampling Program | Perform updated fuel sampling in HFRA in areas deemed appropriate once every two weeks (weather permitting). | Qualitative |
| | SA-6 | Surface and Canopy Fuels Mapping | Initiate surface and canopy fuels mapping across HFRA. | Qualitative |

| | | | | |
|---|---|---|---|---|
| | SA-7 | Remote Sensing / Satellite Fuel Moisture | Initiate procurement process for remote sensing technology for future implementation. | Qualitative |
| | SA-8 | Fire Science Enhancements | Implement enhanced forecasting capability and improved fuel modeling. | Qualitative |
| System Hardening | SH-1 | Covered Conductor | Install 700 circuit miles of covered conductor in HFRA. 700 circuit miles is SCE's program target. SCE will strive to complete 1,000 circuit miles subject to resource constraints and other execution risks. | Large Volume Quantifiable Goal - Field Verifiable |
| | SH-2 | Undergrounding Overhead Conductor | Refine evaluation methodology for targeted undergrounding as a wildfire mitigation activity. | Qualitative |
| | SH-3 | Fire Resistant Poles | Replace 5,200 poles with fire resistant poles in HFRA. SCE will strive to replace 11,700 poles with fire resistant poles in HFRA subject to pole loading assessment results, resource constraints and other execution risks. | Large Volume Quantifiable Goal - Field Verifiable |
| | SH-4 | Branch Line Protection Strategy | Install/replace fuses at 3,025 locations. | Large Volume Quantifiable Goal - Field Verifiable |

| | | | | |
|---|---|---|---|---|
| | SH-5 | Installation of System Automation Equipment – RAR/RCS | Install 45 RARs/RCSs. | Small Volume Quantifiable Goal (< 100) |
| | SH-6 | Circuit Breaker Relay Hardware for Fast Curve | Replace/upgrade 55 relay units in HFRA. SCE will strive to replace up to 110 relay units in HFRA. These targets are subject to resource constraints and other execution risks. | Small Volume Quantifiable Goal (< 100) |
| | SH-7 | PSPS-Driven Grid Hardening Work | Review 50% of all distribution circuits within HFRA to determine if modifications may improve sectionalizing capability within HFRA. | Large Volume Quantifiable Goal – Not Field Verifiable |
| | SH-8 | Transmission Open Phase Detection | Continue deployment of transmission open phase detection on six additional transmission/sub-transmission circuits. | Small Volume Quantifiable Goal (< 100) |
| | SH-9 | Transmission Overhead Standards (TOH) Review | Review transmission standards to determine if there are any changes that can be made to help reduce wildfire threats, especially during extreme wind events. | Qualitative |
| | SH-10 | Tree Attachment Remediation | Remediate 325 tree attachments. SCE will strive to complete 481 tree attachment remediations subject to resource constraints and other execution risks. | Large Volume Quantifiable Goal - Field Verifiable |
| | SH-11 | Legacy Facilities | Evaluate risk, scope, and alternatives for identified circuits; evaluation of additional system hardening mitigation for wildlife fault protection and grounding/lightning arresters. | Qualitative |
| | SH-12.1 | Remediations – Distribution | Remediate 100% of notifications with ignition risk in accordance with CPUC requirements, non-inclusive of notifications which meet the criteria of a valid exception. | Large Volume Quantifiable Goal – Field Verifiable |
| | SH-12.2 | Remediations – Transmission | Remediate 100% of notifications with ignition risk in accordance with CPUC requirements, non-inclusive of notifications which meet the criteria of a valid exception. | Large Volume Quantifiable Goal – Field Verifiable |

| | | | | |
|---|---|---|---|---|
| | SH-12.3 | Remediations – Generation | Remediate 100% of notifications with ignition risk in accordance with CPUC requirements, non-inclusive of notifications which meet the criteria of a valid exception. | Large Volume Quantifiable Goal – Field Verifiable |
| Vegetation Management | VM-1 | Hazard Tree Management Program | Assess 75,000 trees for hazardous conditions and perform prescribed mitigations in accordance with program guidelines and schedules. | Assessments: Large Volume Quantifiable Goal - Not Field Verifiable |
| | | | | Mitigations: Large Volume Quantifiable Goal - Field Verifiable |
| | VM-2 | Expanded Pole Brushing | Perform brush clearance of 200,000 poles. SCE will strive to perform brush clearance for 300,000 poles subject to resource constraints and other execution risks. | Large Volume Quantifiable Goal – Not Field Verifiable |
| | VM-3 | Expanded Clearances for Legacy Facilities | Perform assessments of all identified facilities in HFRA. Establish enhanced buffers at 30% of identified facilities. | Small Volume Quantifiable Goal (< 100) |
| | VM-4 | Drought Relief Initiative (DRI) Inspections and Mitigations | Perform DRI annual inspection scope and complete prescribed mitigations in accordance with internal DRI program guidelines. | Annual Inspections: Large Volume Quantifiable Goal - Not Field Verifiable<br>Mitigations: Large Volume Quantifiable Goal - Field Verifiable |
| | VM-5 | Vegetation Management Quality Control | Perform 3,000 risk-based HFRA circuit mile vegetation management Quality Control inspections. | Large Volume Quantifiable Goal - Not Field Verifiable |

## 5.2 IE Initiative Risk Reduction Rating Tool

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
|---|---|---|---|---|---|---|
| **Grid design and system hardening** | **5.3.3.3** | 15. Covered conductor installation | Installation of covered or insulated conductors to replace standard bare or unprotected conductors (defined in accordance with GO 95 as supply conductors, including but not limited to lead wires, not enclosed in a grounded metal pole or not covered by: a "suitable protective covering" (in accordance with Rule 22.8), grounded metal conduit, or grounded metal sheath or shield). In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D. | 10 | Bare wire contact poses a high risk of wildfire ignition | High |
| **Grid design and system hardening** | **5.3.3.16** | 28. Undergrounding of electric lines and/or equipment | Actions taken to convert overhead electric lines and equipment to underground (i.e., located underground and in accordance with GO 128). | 10 | Changing wire from overhead to underground seriously reduces the risk of contact and wildfire ignition | High |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
|---|---|---|---|---|---|---|
| **Vegetation management and inspections** | **5.3.5.20** | 64. Vegetation management to achieve clearances around electric lines and equipment | Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs. | 10 | Vegetation contact with energized equipment poses a very high fire risk | High |
| **Grid operations and protocols** | **5.3.6.4** | 68. Protocols for PSPS re-energization | Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards. | 10 | PSPS can significantly reduce the risk of wildfire ignition. | High |
| **Emergency planning and preparedness** | **5.3.9.4** | 81. Disaster and emergency preparedness plan | Development of plan to deploy resources according to prioritization methodology for disaster and emergency preparedness of utility and within utility service territory (such as considerations for critical facilities and infrastructure), including strategy for collaboration with Public Safety Partners and communities. | 10 | Establishing, training on, and communicating disaster and emergency plans is essential to an effective, prompt, and thorough response when needed. | High |
| **Grid design and system hardening** | **5.3.3.6** | 18. Distribution pole replacement and reinforcement, including with composite poles | Remediation, adjustments, or installations of new equipment to improve or replace existing distribution poles (i.e., those supporting lines under 65 kV), including with equipment such as composite poles manufactured with materials reduce ignition probability by increasing pole lifespan and resilience against failure from object contact and other events. | 9 | Pole failure due to loading or wind contributes to a substantial wildfire risk | High |
| **Grid design and system hardening** | **5.3.3.7** | 19. Expulsion fuse replacement | Installations of new and CAL FIRE-approved power fuses to replace existing expulsion fuse equipment. | 9 | Traditional expulsive fuses can emit hot gases and molten | High |

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| | | | | | metal which can ignite fires. | |
| **Asset management and inspections** | **5.3.4.1** | 30. Detailed inspections of distribution electric lines and equipment | In accordance with GO 165, careful visual inspections of overhead electric distribution lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded. | 9 | Failure to regularly inspect distribution equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | High |
| **Grid operations and protocols** | **5.3.6.1** | 65. Automatic recloser operations | Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence. | 9 | Reclosing relays automatically reclose after a set number of cycles/duration following a fault. If the fault is caused by debris on a line/equipment and the circuit recloses the debris may ignite. | High |
| **Grid design and system hardening** | **5.3.3.9** | 21. Installation of system automation equipment | Installation of electric equipment that increases the ability of the utility to automate system operation and monitoring, including equipment that can be adjusted remotely such as automatic reclosers (switching devices designed to detect and interrupt momentary faults that can reclose automatically and detect if a fault remains, remaining open if so). | 9 | System automation can automatically respond or rapidly prompt a system operator to respond to changing system and weather conditions. This not only improves situational awareness but also allows for | High |

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| | | | | | remote disabling of reclosers, activation of PSPS actions, and more. All of these may reduce fire risk and reduce safety risks to field personnel that would otherwise be required in the field. | |
| **Emergency planning and preparedness** | **5.3.9.5** | 82. Preparedness and planning for service restoration | Development of plans to prepare the utility to restore service after emergencies, such as developing employee and staff trainings, and to conduct inspections and remediation necessary to re-energize lines and restore service to customers. | 9 | Proper restoration planning and orders will require patrol inspections before re-energizing following wind, fire, or PSPS events, allow for synchronization and balancing of resources to promote grid stability. These measures reduce fire, personnel safety, and equipment damage risks | High |
| **Asset management and inspections** | **5.3.4.2** | 31. Detailed inspections of transmission electric lines and equipment | Careful visual inspections of overhead electric transmission lines and equipment where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded. | 8 | Failure to regularly inspect transmission equipment can lead to equipment failure, especially under weather stressors, which creates | High |

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| | | | | | significant wildfire risk. | |
| **Vegetation management and inspections** | **5.3.5.2** | 46. Detailed inspections of vegetation around distribution electric lines and equipment | Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded. | 8 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. | High |
| **Vegetation management and inspections** | **5.3.5.3** | 47. Detailed inspections of vegetation around transmission electric lines and equipment | Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded. | 8 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. | High |
| **Vegetation management and inspections** | **5.3.5.16** | 60. Removal and remediation of trees with strike potential to electric lines and equipment | Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur. | 8 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure | High |

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| | | | | | that proper clearances are maintained, and hazard trees are removed. | |
| **Stakeholder cooperation and community engagement** | **5.3.10.4** | 87. Forest service and fuel reduction cooperation and joint roadmap | Strategy and actions taken to engage with local, state, and federal entities responsible for or participating in forest management and fuel reduction activities; and design utility cooperation strategy and joint stakeholder roadmap (plan for coordinating stakeholder efforts for forest management and fuel reduction activities). | 8 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. A substantial portion of the vegetation which may contact energized lines/equipment is growing on land not owned/maintained by the utility therefore cooperation with outside groups is necessary. | High |

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| **Asset management and inspections** | **5.3.4.13** | 42. Pole loading assessment program to determine safety factor | Calculations to determine whether a pole meets pole loading safety factor requirements of GO 95, including planning and information collection needed to support said calculations. Calculations shall consider many factors including the size, location, and type of pole; types of attachments; length of conductors attached; and number and design of supporting guys, per D.15-11-021. | 8 | Pole failure due to loading or wind contributes to a substantial wildfire risk | High |
| **Stakeholder cooperation and community engagement** | **5.3.10.3** | 86. Cooperation with suppression agencies | Coordination with CAL FIRE, federal fire authorities, county fire authorities, and local fire authorities to support planning and operations, including support of aerial and ground firefighting in real-time, including information-sharing, dispatch of resources, and dedicated staff. | 8 | Coordination with outside agencies for fire suppression and incident command is essential. Utility suppression capabilities are minimal or non-existent. | High |
| **Grid design and system hardening** | **5.3.3.5** | 17. Crossarm maintenance, repair, and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing crossarms, defined as horizontal support attached to poles or structures generally at right angles to the conductor supported in accordance with GO 95. | 7 | Crossarm failure can lead to energized wire contacts with other wires, equipment, or vegetation and create ignitions. | High |
| **Grid design and system hardening** | **5.3.3.10** | 22. Maintenance, repair, and replacement of connectors, including hotline clamps | Remediation, adjustments, or installations of new equipment to improve or replace existing connector equipment, such as hotline clamps. | 7 | Failure to regularly maintain, repair, and replace damaged equipment can lead to equipment failure, especially under weather stressors, which creates | High |

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| | | | | | significant wildfire risk. | |
| **Grid design and system hardening** | **5.3.3.14** | 26. Transformer maintenance and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing transformer equipment. | 7 | Failure to regularly maintain, repair, and replace transformers can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | High |
| **Asset management and inspections** | **5.3.4.7** | 36. LiDAR inspections of distribution electric lines and equipment | Inspections of overhead electric transmission lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). | 7 | Failure to regularly inspect equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | High |
| **Vegetation management and inspections** | **5.3.5.7** | 51. LiDAR inspections of vegetation around distribution electric lines and equipment | Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). | 7 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are | High |

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| | | | | | maintained, and hazard trees are removed. | |
| **Vegetation management and inspections** | **5.3.5.8** | 52. LiDAR inspections of vegetation around transmission electric lines and equipment | Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). | 7 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. | High |
| **Vegetation management and inspections** | **5.3.5.11** | 55. Patrol inspections of vegetation around distribution electric lines and equipment | Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business. | 7 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. | High |
| **Vegetation management and inspections** | **5.3.5.12** | 56. Patrol inspections of vegetation around transmission electric lines and equipment | Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business. | 7 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are | High |

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| | | | | | maintained, and hazard trees are removed. | |
| **Vegetation management and inspections** | **5.3.5.15** | 59. Remediation of at-risk species | Actions taken to reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species, such as trimming, removal, and replacement. | 7 | Vegetation contact with energized equipment poses a very high fire risk. At-risk species tend to increase fire risk more than others. Therefore, special care must be provided to attain and maintain proper clearances through removal/replacement or trimming. | High |
| **Grid operations and protocols** | **5.3.6.5** | 69. PSPS events and mitigation of PSPS impacts | Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents. | 7 | PSPS can significantly reduce the risk of wildfire ignition but increase other risks to the community due to lack of power for traffic lights, healthcare needs, gas pumps, water pumps, etc. Therefore, utilities must have clearly articulated triggers for | High |

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| | | | | | implementing PSPS, communicate the imposition and expected duration of a PSPS event (with regular updates), and actions in place to mitigate the community impacts of PSPS events. | |
| **Asset management and inspections** | **5.3.4.8** | 37. LiDAR inspections of transmission electric lines and equipment | Inspections of overhead electric transmission lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances). | 6 | Failure to regularly inspect equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. Transmission generally poses a lower risk than distribution due to larger rights-of-way, among other factors. | Medium |
| **Grid design and system hardening** | **5.3.3.2** | 14. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault | Remediation, adjustments, or installations of new equipment to improve or replace existing fast switching circuit breaker equipment to improve the ability to protect Electrical circuits from damage caused by overload of electricity or short circuit. | 6 | Failure to regularly maintain equipment can lead to equipment failure, especially under weather stressors, which creates | Medium |

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| | | | | | significant wildfire risk. | |
| **Grid design and system hardening** | **5.3.3.4** | 16. Covered conductor maintenance | Remediation and adjustments to installed covered or insulated conductors. In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D. | 6 | Failure to regularly maintain equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | Medium |

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| **Grid design and system hardening** | **5.3.3.8** | 20. Grid topology improvements to mitigate or reduce PSPS events | Plan to support and actions taken to mitigate or reduce PSPS events in terms of geographic scope and number of customers affected, such as installation and operation of electrical equipment to sectionalize or island portions of the grid, microgrids, or local generation. | 6 | PSPS can significantly reduce the risk of wildfire ignition but increase other risks to the community due to lack of power for traffic lights, healthcare needs, gas pumps, water pumps, etc. Therefore, if utilities can reduce the size of the area or the period of time an area is affected by a PSPS to only the area with the risk requiring a PSPS action, the harm to the community from lack of power is reduced. | Medium |
| **Grid design and system hardening** | **5.3.3.17** | 29. Updates to grid topology to minimize risk of ignition in HFTDs | Changes in the plan, installation, construction, removal, or undergrounding to minimize the risk of ignition due to the design, location, or configuration of utility electric equipment in HFTDs. | 6 | Reducing the number of energized line miles and pieces of equipment in HFTDs through topology changes reduces the likelihood of ignition, the likelihood of PSPS events, and impact to equipment from wildfires. | Medium |

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| **Situational awareness and forecasting** | **5.3.2.1** | 07. Advanced weather monitoring and weather stations | Purchase, installation, maintenance, and operation of weather stations. Collection, recording, and analysis of weather data from weather stations and from external sources. | 6 | Use of advanced weather monitoring stations enhances system operator's situational awareness of critical fire conditions in the service territory that may be significantly different from the larger area. High winds and low humidity need to be closely monitored to decide whether mitigating grid operations need to be implemented such as disabling reclosers or enacting PSPS. | Medium |
| **Situational awareness and forecasting** | **5.3.2.3** | 09. Fault indicators for detecting faults on electric lines and equipment | Installation and maintenance of fault indicators. | 6 | Enhances situational awareness of system operators of faults which may be due to contact with bare line or energized equipment. | Medium |

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| **Emergency planning and preparedness** | **5.3.9.6** | 83. Protocols in place to learn from wildfire events | Tools and procedures to monitor effectiveness of strategy and actions taken to prepare for emergencies and of strategy and actions taken during and after emergencies, including based on an accounting of the outcomes of wildfire events. | 6 | Identifying what went wrong from previous utility wildfire events can help the utility prevent recurrence and prevent others from creating similar dangerous conditions. Continuous improvement and continuous risk reduction should be the goal. This can also reduce or eliminate wasteful spending on initiatives that don't successfully reduce risk. | Medium |
| **Situational awareness and forecasting** | **5.3.2.6** | 12. Weather forecasting and estimating impacts on electric lines and equipment | Development methodology for forecast of weather conditions relevant to utility Operations, forecasting weather conditions, and conducting analysis to incorporate into utility decision-making, learning, and updates to reduce false positives and false negatives of forecast PSPS conditions. | 5 | Understanding detailed weather forecasts and integrating them into system planning and operations can reduce fire risk events and influence whether to implement PSPS events. | Medium |

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| **Grid design and system hardening** | **5.3.3.1** | 13. Capacitor maintenance and replacement program | Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment. | 5 | Failure to regularly maintain equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | Medium |
| **Grid design and system hardening** | **5.3.3.11** | 23. Mitigation of impact on customers and other residents affected during PSPS event | Actions taken to improve access to electricity for customers and other residents during PSPS events, such as installation and operation of local generation equipment (at the community, household, or other level). | 5 | PSPS events significantly reduce fire risks but introduce other risks to the community especially for vulnerable populations. Local generation can mitigate these risks. | Medium |
| **Grid design and system hardening** | **5.3.3.13** | 25. Pole loading infrastructure hardening, and replacement program based on pole loading assessment program | Actions taken to remediate, adjust, or install replacement equipment for poles that the utility has identified as failing to meet safety factor requirements in accordance with GO 95 or additional utility standards in the utility's pole loading assessment program. | 5 | Pole failure due to loading or wind contributes to a substantial wildfire risk. More resilient poles can reduce or eliminate this risk. | Medium |

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| **Grid design and system hardening** | **5.3.3.15** | 27. Transmission tower maintenance and replacement | Remediation, adjustments, or installations of new equipment to improve or replace existing transmission towers (e.g., structures such as lattice steel towers or tubular steel poles that support lines at or above 65 kV). | 5 | Transmission tower failure due to loading or wind contributes to a substantial wildfire risk. More resilient poles can reduce or eliminate this risk. | Medium |
| **Asset management and inspections** | **5.3.4.11** | 40. Patrol inspections of distribution electric lines and equipment | In accordance with GO 165, simple visual inspections of overhead electric distribution lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. | 5 | Failure to regularly inspect equipment can lead to equipment failure, especially under weather stressors, which creates significant wildfire risk. | Medium |
| **Asset management and inspections** | **5.3.4.12** | 41. Patrol inspections of transmission electric lines and equipment | Simple visual inspections of overhead electric transmission lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business. | 5 | Failure to regularly inspect equipment can lead to equipment failure, especially under weather stressors, which creates | Medium |

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| | | | | | significant wildfire risk. | |
| **Vegetation management and inspections** | **5.3.5.5** | 49. Fuel management and reduction of "slash" from vegetation management activities | Plan and execution of fuel management activities that reduce the availability of fuel in proximity to potential sources of ignition, including both reduction or adjustment of live fuel (in terms of species or otherwise) and of dead fuel, including "slash" from vegetation management activities that produce vegetation material such as branch trimmings and felled trees. | 5 | Removing vegetation and fuel sources from vegetation management activities reduces the likelihood that if an ignition occurs that such ignition will sustain itself and spread to create a wildfire. | Medium |
| **Vegetation management and inspections** | **5.3.5.14** | 58. Recruiting and training of vegetation management personnel | Programs to ensure that the utility is able to identify and hire qualified vegetation management personnel and to ensure that both full-time employees and contractors tasked with vegetation management responsibilities are adequately trained to perform vegetation management work, according to the utility's WMP, in addition to rules and regulations for safety. | 5 | It is important to use and retain qualified vegetation management personnel so that they can understand and implement proper clearances based upon the management cycles and the growth potential of the vegetation, identify and treat at-risk species, identify hazard trees, | Medium |

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| | | | | | appropriately clear around poles, treat/remove slash, and ensure vegetation management actions are performed safely. | |
| **Vegetation management and inspections** | **5.3.5.18** | 62. Substation vegetation management | Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment. | 5 | Vegetation contact with energized equipment poses a very high fire risk. Inspections ensure that proper clearances are maintained, and hazard trees are removed. Substations typically have wide clearances and thick layers of gravel between electrified equipment and outside vegetation but encroachments from the outside and growth from the inside must be controlled. | Medium |

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| **Data governance** | **5.3.7.4** | 74. Tracking and analysis of risk event data | Tools and procedures to monitor, record, and conduct analysis of data on near miss events. | 5 | Tracking outages and events, their causes, and whether any ignitions took place as a result is key to forming lessons learned and promoting continuous improvement. | Medium |
| **Emergency planning and preparedness** | **5.3.9.3** | 80. Customer support in emergencies | Resources dedicated to customer support during emergencies, such as website pages and other digital resources, dedicated phone lines, etc. | 5 | Customer support during emergencies can, among other things, prevent distractions for essential personnel, maintain order, and speed evacuation orders. | Medium |
| **Situational awareness and forecasting** | **5.3.2.2** | 08. Continuous monitoring sensors | Installation, maintenance, and monitoring of sensors and associated equipment used to monitor the condition of electric lines and equipment. | 4 | Continuous monitoring sensors can detect equipment problems before inspection or regular maintenance discovers the issue. This increases the margin for safety and prevents equipment failures which may create ignitions. | Medium |

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| **Situational awareness and forecasting** | **5.3.2.4** | 10. Forecast of a fire risk index, fire potential index, or similar | Index that uses a combination of weather parameters (such as wind speed, humidity, and temperature), vegetation, and fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. A sufficiently granular index shall inform operational decision-making. | 4 | Knowledge of fire risk indexes can inform daily operation planning, require the disabling of reclosers, halt maintenance activities, and indicate the need for a PSPS event. | Medium |
| **Situational awareness and forecasting** | **5.3.2.5** | 11. Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions | Personnel position within utility service territory to monitor system conditions and weather on site. Field observations shall inform operational decisions. | 4 | Increases response time and informs operational decision making by providing real-time observations to system operators. | Medium |
| **Asset management and inspections** | **5.3.4.3** | 32. Improvement of inspections | Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors. | 4 | Continuous improvement to existing procedures. As gaps and deficiencies are uncovered, reassessment of activities will enable more risk reduction value in future inspection practices | Medium |

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| **Asset management and inspections** | **5.3.4.4** | 33. Infrared inspections of distribution electric lines and equipment | Inspections of overhead electric distribution lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment. | 4 | Above baseline of risk establishment, allows for real-time determination of electrical equipment that is at risk of failure | Medium |
| **Asset management and inspections** | **5.3.4.15** | 44. Substation inspections | In accordance with GO 175, inspection of substations performed by qualified persons and according to the frequency established by the utility, including record-keeping. | 4 | Failure to inspect and maintain equipment creates unnecessary risk. Adhering to GOs and technical requirements ensures baseline state of equipment management | Medium |
| **Vegetation management and inspections** | **5.3.5.4** | 48. Emergency response vegetation management due to red flag warning or other urgent conditions | Plan and execution of vegetation management activities, such as trimming or removal, executed based upon and in advance of forecast weather conditions that indicate high fire threat in terms of ignition probability and wildfire consequence. | 4 | Establishing operational procedures for high risk conditions, which may include de-accelerating work or setting limitations based on ignition potential index. This is above baseline risk determination | Medium |

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| **Vegetation management and inspections** | **5.3.5.6** | 50. Improvement of inspections | Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors. | 4 | Continuous improvement to existing procedures. As gaps and deficiencies are uncovered, reassessment of activities will enable more risk reduction value in future inspection practices | Medium |
| **Vegetation management and inspections** | **5.3.5.17** | 61. Substation inspections | Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping. | 4 | Failure to inspect and maintain equipment creates unnecessary risk. Adhering to GOs and technical requirements ensures baseline state of equipment management | Medium |
| **Grid operations and protocols** | **5.3.6.2** | 66. Crew-accompanying ignition prevention and suppression resources and services | Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on site work | 4 | Continual assessment of utility resource and personnel sufficiency year over year. Greater emphasis on emergencies and service restoration, reducing time and scale of impact. Small ignitions are less | Medium |

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| | | | | | destructive but can quickly spread if unmanaged. | |
| **Grid operations and protocols** | **5.3.6.3** | 67. Personnel work procedures and training in conditions of elevated fire risk | Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed. | 4 | Establishing operational procedures for high risk conditions, which may include de-accelerating work or setting limitations based on ignition potential index. This is above baseline risk determination | Medium |
| **Grid operations and protocols** | **5.3.6.6** | 70. Stationed and on-call ignition prevention and suppression resources and services | Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities or standing by to respond to calls for fire suppression assistance. | 4 | Continual assessment of utility resource and personnel sufficiency year over year. Greater emphasis on emergencies and service restoration, reducing time and scale of impact. Small ignitions are less destructive but can quickly spread if unmanaged. | Medium |

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| **Emergency planning and preparedness** | **5.3.9.1** | 78. Adequate and trained workforce for service restoration | Actions taken to identify, hire, retain, and train qualified workforce to conduct service restoration in response to emergencies, including short-term contracting strategy and implementation. | 4 | Continual assessment of utility resource and personnel sufficiency year over year. Greater emphasis on emergencies and service restoration, reducing time and scale of impact. | Medium |
| **Asset management and inspections** | **5.3.4.5** | 34. Infrared inspections of transmission electric lines and equipment | Same as above, but with transmission requirements | 4 | Above baseline of risk establishment, allows for real-time determination of electrical equipment that is at risk of failure | Medium |
| **Risk assessment and mapping** | **5.3.1.1** | 01. A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment | Development and use of tools and processes to develop and update risk map and simulations and to estimate risk reduction potential of initiatives for a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates. | 3 | This activity establishes a baseline of risk to measure fire/ignition potential with current and planned system upgrades, additions, and removals. | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| **Risk assessment and mapping** | **5.3.1.2** | 02. Climate-driven risk map and modeling based on various relevant weather scenarios | Development and use of tools and processes to estimate incremental risk of foreseeable climate scenarios, such as drought, across a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates. | 3 | This activity establishes a baseline of risk to measure fire/ignition potential with current and planned system upgrades, additions, and removals. | Low |
| **Risk assessment and mapping** | **5.3.1.3** | 03. Ignition probability mapping showing the probability of ignition along the electric lines and equipment | Development and use of tools and processes to assess the risk of ignition across regions of the grid (or more granularly, e.g., circuits, spans, or assets). | 3 | This activity establishes a baseline of risk to measure fire/ignition potential with current and planned system upgrades, additions, and removals. | Low |
| **Risk assessment and mapping** | **5.3.1.4** | 04. Initiative mapping and estimation of wildfire and PSPS risk reduction impact | Development of a tool to estimate the risk reduction efficacy (for both wildfire and PSPS risk) and risk-spend efficiency of various initiatives. | 3 | This activity establishes a baseline of risk to measure fire/ignition potential with current and planned system upgrades, additions, and removals. | Low |
| **Risk assessment and mapping** | **5.3.1.5** | 05. Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment | Development and use of tools and processes to assess the impact of potential ignition and risk to communities (e.g., in terms of potential fatalities, structures burned, monetary damages, area burned, impact on air quality and greenhouse gas, or GHG, reduction goals, etc.). | 3 | This activity establishes a baseline of risk to measure fire/ignition potential with current and planned system upgrades, additions, and removals. | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| **Grid design and system hardening** | **5.3.3.12** | 24. Other corrective action | Other maintenance, repair, or replacement of utility equipment and structures so that they function properly and safely, including remediation activities (such as insulator washing) of other electric equipment deficiencies that may increase ignition probability due to potential equipment failure or other drivers. | 3 | A standardized assessment on categories with "other" require more assumptions to rank higher | Low |
| **Asset management and inspections** | **5.3.4.6** | 35. Intrusive pole inspections | In accordance with GO 165, intrusive inspections involve movement of soil, taking samples for analysis, or using more sophisticated diagnostic tools beyond visual inspections or instrument reading. | 3 | GO rules and regulations apply. Establishes baseline of risk reduction for incremental activities | Low |
| **Vegetation management and inspections** | **5.3.5.19** | 63. Vegetation inventory system | Inputs, operation, and support for centralized inventory of vegetation clearances updated based upon inspection results, including (1) inventory of species, (2) forecasting of growth, (3) forecasting of when growth threatens minimum right-of-way clearances ("grow-in" risk) or creates fall-in/fly-in risk. | 3 | Should be an ongoing effort to establish the baseline for vegetation fuel and fuel type inventory | Low |
| **Resource allocation methodology** | **5.3.8.2** | 76. Risk reduction scenario development and analysis | Development of modeling capabilities for different risk reduction scenarios based on wildfire mitigation initiative implementation; analysis and application to utility decision making. | 3 | Risk reduction modeling is spearheaded by RAMP and S-MAP proceedings as well as expectation of enhancements to risk spend efficiency modeling approaches and the WSD data schema. Utilities will vary in subjectivity to this activity standard | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| | | | | | and thus ranked lower as this activity establishes more of a baseline determination based on the utility's applicability. | |
| **Resource allocation methodology** | **5.3.8.3** | 77. Risk spend efficiency analysis | Tools, procedures, and expertise to support analysis of wildfire mitigation initiative risk-spend efficiency, in terms of MAVF or MARS methodologies. | 3 | Risk reduction modeling is spearheaded by RAMP and S-MAP proceedings as well as expectation of enhancements to risk spend efficiency modeling approaches and the WSD data schema. Utilities will vary in subjectivity to this activity standard and thus ranked lower as this activity establishes more of a baseline determination based on the utility's applicability. | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| **Asset management and inspections** | **5.3.4.9** | 38. Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations | Inspections of overhead electric distribution lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. | 2 | A standardized assessment on categories with "other" require more assumptions to rank higher | Low |
| **Asset management and inspections** | **5.3.4.10** | 39. Other discretionary inspection of transmission electric lines and equipment, beyond inspections mandated by rules and regulations | Inspections of overhead electric transmission lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. | 2 | A standardized assessment on categories with "other" require more assumptions to rank higher | Low |
| **Asset management and inspections** | **5.3.4.14** | 43. Quality assurance / quality control of inspections | Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision making and related integrated workforce management processes. | 2 | Data verification in support of data management and repository/database development and contributes to other activities. Means of execution has less than medium impact on risk of ignition events. | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| **Vegetation management and inspections** | **5.3.5.1** | 45. Additional efforts to manage community and environmental impacts | Plan and execution of strategy to mitigate negative impacts from utility vegetation management to local communities and the environment, such as coordination with communities to plan and execute vegetation management work or promotion of fire-resistant planting practices | 2 | Coordination efforts must run in parallel and may develop over the course of the executed WMP cycle. | Low |
| **Vegetation management and inspections** | **5.3.5.9** | 53. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations | Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept. | 2 | A standardized assessment on categories with "other" require more assumptions to rank higher | Low |
| **Vegetation management and inspections** | **5.3.5.10** | 54. Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations | Same as above, but with transmission requirements | 2 | A standardized assessment on categories with "other" require more assumptions to rank higher | Low |
| **Vegetation management and inspections** | **5.3.5.13** | 57. Quality assurance / quality control of inspections | Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision making and related integrated workforce management processes. | 2 | Data verification in support of data management and repository/database development and contributes to other activities. Means of execution has | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| | | | | | minimal impact on risk of ignition events. | |
| **Data governance** | **5.3.7.1** | 71. Centralized repository for data | Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources. | 2 | Data management and schema development will be an iterative process and crucial in parallel activities to reducing risk of wildfire consequence and PSPS impacts. | Low |
| **Data governance** | **5.3.7.3** | 73. Documentation and disclosure of wildfire-related data and algorithms | Design and execution of processes to document and disclose wildfire-related data and algorithms to accord with rules and regulations, including use of scenarios for forecasting and stress testing. | 2 | Data management and schema development will be an iterative process and crucial in parallel activities to reducing risk of wildfire consequence and | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| | | | | | PSPS impacts. Disclosure of resources are structured by WSD compliance guidelines until a centralized repository for all wildfire information is generated amongst respondent entities | |
| **Resource allocation methodology** | **5.3.8.1** | 75. Allocation methodology development and application | Development of prioritization methodology for human and financial resources, including application of said methodology to utility decision-making. | 2 | Continual assessment of utility resource and personnel sufficiency year over year. | Low |
| **Emergency planning and preparedness** | **5.3.9.2** | 79. Community outreach, public awareness, and communications efforts | Actions to identify and contact key community stakeholders; increase public awareness of emergency planning and preparedness information; and design, translate, distribute, and evaluate effectiveness of communications taken before, during, and after a wildfire, including Access and Functional Needs populations and Limited English Proficiency populations in particular. | 2 | Assessment of customer needs and criteria for communications support. This activity does not directly reduce wildfire consequence but does reduce impacts from PSPS activation and restoration activities | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| **Risk assessment and mapping** | **5.3.1.6** | 06. Weather-driven risk map and modeling based on various relevant weather scenarios | Removed for 2021 | 1 | This initiative activity has been removed in 2021 and provides the justification for the lower risk rating | Low |
| **Data governance** | **5.3.7.2** | 72. Collaborative research on utility ignition and/or wildfire | Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and research groups, to include data-sharing and funding as applicable. | 1 | In comparison to initiative activities, utilities have little control over the sphere of technological advancements. Shared knowledge has been an implicit practice throughout the development of WMP guidelines and compliance requirements and thus, iterative. | Low |
| **Stakeholder cooperation and community engagement** | **5.3.10.1** | 84. Community engagement | Strategy and actions taken to identify and contact key community stakeholders; increase public awareness and support of utility wildfire mitigation activity; and design, translate, distribute, and evaluate effectiveness of related communications. Includes specific strategies and actions taken to address concerns and serve needs of Access and Functional Needs populations and Limited English Proficiency populations in particular. | 1 | While this greatly increases customer awareness to the threats of wildfire and PSPS impacts, the onus is on the utility to ensure activities are executed properly and inform the public of developments and | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| | | | | | project implementation. Third-party risk reduction is valued under this activity, though deemed out of scope of measuring utility risk reduction of wildfire consequence and PSPS impact | |
| **Stakeholder cooperation and community engagement** | **5.3.10.2** | 85. Cooperation and best practice sharing with agencies outside CA | Strategy and actions taken to engage with agencies outside of California to exchange best practices both for utility wildfire mitigation and for stakeholder cooperation to mitigate and respond to wildfires. | 1 | Collaboration with adjacent communities and local public safety partners have proven successful in comparison to exploring opportunities outside of the state. In the current WMP cycle, there has been minimum examples of interstate development apart from West Coast Commission gatherings and developed technologies vetted | Low |

| Initiative Category | WMP Activity Code | Initiative | WSD Definitions | Risk Reduction Scale (1 - 10) | Rationale for Risk Rating (for incremental work associated with Wildfire Mitigation activities for 2020). | Risk Reduction Rating |
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| | | | | | from countries like Australia | |

### 5.3 Data Request Submittal Log

| SUBMITTAL DATE | SUBMITTAL TITLE | Files Submitted | SUBMITTED BY | DUE DATE | DATE RETURNED |
|---|---|---|---|---|---|
| 5/20/21 | **SCE Data Request 1_210519** | | Andrew Dressel | 5/25/2021 | |
| 5/20/21 | Response | 001_2020 WMP IE Review - Evidence Guide.pdf<br>002_2020 WMP Compliance Evidence for IE Review Q. 002 Answer.pdf<br>002_SCE WMP Quality Program Summary 5-18-2021.docx<br>002_UVM-07 - V4.pdf<br>006_2020 Outage Data.xlsx<br>006_NV5-SCE-001 2020 WMP IE Revi-Init DR Mtls and Prgm Docs Q.006 Answer.pdf<br>007_NV5-SCE-001 2020 WMP IE Revi-Init DR Mtls and Prgm Docs Q. 007 Answer.pdf<br>008_NV5-SCE-001 2020 WMP IE Revi-Init DR Mtls and Prgm Docs Q. 008 Answer.pdf<br>008_SCE 2020 WMP ARC - PART C (Cost Variance Analysis).xlsx<br>008_SCE_2020 ARC_20210331.pdf<br>009_002_DIMP_Q1_2021.pdf<br>009_002_SCE Trans Maint Practices_Rev 7_ Final_12.10.2019.pdf<br>009_002_TOM IM-Section_Q3-2020.pdf | Johnny Parker | | 5/25/2021 |
| | | 009_NV5-SCE-001 2020 WMP IE Revi-Init DR Mtls and Prgm Docs Q. 009 Answer.pdf<br>010_NV5-SCE-001 2020 WMP IE Revi-Init DR Mtls and Prgm Docs Q. 010 Answer.pdf010_UVM-02 V6.pdf<br>010_UVM-03 V5.pdf<br>010_UVM-04 - V2.pdf<br>010_UVM-20 - V0.pdf<br>SCE_2020 ARC_20210331.pdf | Johnny Parker | | 5/25/2021 |

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| | 2020 WMP IE Rev- Ini Evidence | AT-1 MADEC Data Reports.pdf<br>AT-2.1 Dist Fault Anticipation Final.pdf<br>AT-2.2 UAS Final Report.pdf<br>AT-3.1 GFN Design Specs.pdf<br>AT-3.1 GFN Order Acknowledgement.pdf<br>AT-3.2 RGS Design Specs.pdf<br>AT-3.3 Isolation Transformer Install.xlsx<br>AT-3.4 Dist Open Phase Det Installs.xlsx<br>AT-4 DDS 10 Standard.pdf<br>AT-5 2020 Milestone Summary Report.pdf<br>AT-6 Trans Partial Discharge Final.pdf<br>AT-7 Early Fault Detector Installs.xlsx<br>AT-7 EFD Pilot Standard.pdf<br>AT-8 High Impedance Relay Installs.xlsx<br>DEP-1.1 Dear Neighbor Letter (HFRA).pdf<br>DEP-1.1 Dear Neighbor Letter (Non-HFRA).pdf<br>DEP-1.1 Mailing List Summary.xlsx<br>DEP-1.2 Community Safety Events WebPage.pdf<br>DEP-1.3 PSPS Ad Campaign.pdf<br>DEP-1.3 Survey + Metrics.xlsx | Johnny Parker | | 5/25/2021 |
| | 2020 WMP IE Rev- Ini Evidence (cont) | DEP-2 PSPS Training & Exercise Attendance.xlsx<br>DEP-2 Training Decks.pdf<br>DEP-3 Advice 4222-E.pdf<br>DEP-4 2020 LPA Community Meetings Report.pdf<br>DEP-4 CRC-CCV Visit Rpts-gift cards offered.pdf<br>DEP-4 CRC-CCV Visit Rpts-no gift cards.pdf<br>DEP-4 Medallia Voice of the Customer.pdf<br>DEP-4 SCE.com PSPS User Experience.pdf<br>IN-1.1 2020 Distribution Completed Insp.xlsx<br>IN-1.2 Transmission Ground Comp Insp.xlsx<br>IN-2 Quality Inspection Records.xlsx<br>IN-3 Planned vs Actual.xlsx<br>IN-4 Completed Infrared Inspections.xlsx<br>IN-5 Generation Inspections.xls<br>IN-6.1 Aerial Distribution Comp Insp.xlsx<br>IN-6.2 Trans Aerial Comp Insp.xlsx<br>IN-7 FMEA Final Report.pdf<br>OP-1 SOB 322 Revision History.pdf | Johnny Parker | | 5/25/2021 |

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| | 2020 WMP IE Rev- Ini Evidence (cont) | OP-2 BR & T&D Ops- PSPS Org Charts.pdfOP-3 UAS Completions.xlsxPSPS-1.1 Everbridge Event Report - 05-27-2020.pdfPSPS-1.1 Everbridge Event Report - 06-25-2020.pdfPSPS-1.1 Everbridge Event Report - 07-31-2020.pdfPSPS-1.1 Everbridge Event Report - 09-5-2020.pdfPSPS-1.1 Everbridge Event Report - 10-16-2020.pdfPSPS-1.1 Everbridge Event Report - 10-23-2020.pdfPSPS-1.1 Everbridge Event Report - 11-14-2020.pdfPSPS-1.1 Everbridge Event Report - 11-24-2020.pdfPSPS-1.1 Everbridge Event Report - 11-29-2020.pdfPSPS-1.1 Everbridge Event Report - 11-3-2020.pdfPSPS-1.1 Everbridge Event Report - 12-16-2020.pdfPSPS-1.1 Everbridge Event Report - 12-4-2020.pdfPSPS-1.2 CalOES Notifications.pdf | Johnny Parker | | 5/25/2021 |
| | 2020 WMP IE Rev- Ini Evidence (cont) | PSPS-1.3 CPUC Notification - 10-16-2020.pdf<br>PSPS-1.3 CPUC Notification - 10-23-2020.pdf<br>PSPS-1.3 CPUC Notification - 11-14-2020.pdf<br>PSPS-1.3 CPUC Notification - 11-24-2020.pdf<br>PSPS-1.3 CPUC Notification - 11-29-2020.pdf<br>PSPS-1.3 CPUC Notification - 11-3-2020.pdf<br>PSPS-1.3 CPUC Notification - 12-16-2020.pdf<br>PSPS-1.3 CPUC Notification - 12-4-2020.pdf<br>PSPS-1.3 CPUC Notification - 5-27-2020.pdf<br>PSPS-1.3 CPUC Notification - 6-26-2020.pdf<br>PSPS-1.3 CPUC Notification - 7-31-2020.pdf<br>PSPS-1.3 CPUC Notification - 9-04-2020.pdf<br>PSPS-1.4 Zip Code Alert In-Language VM.pdf<br>PSPS-1.4 Zip Code Alert.pdf<br>PSPS-2 CRC List 2020.xlsx | Johnny Parker | | 5/25/2021 |
| | 2020 WMP IE Rev- Ini Evidence (cont) | PSPS-3 San Jacinto HS Microgrid Pilot Prjt Final.pdf<br>PSPS-4 Eligible Customers.xlsx<br>PSPS-4 Outreach Letter.pdf<br>PSPS-5 Final Impact Report.pdf<br>PSPS-6 Final Impact Reports.pdf<br>PSPS-7 Social Media Samples.pdf<br>PSPS-7 Social Media App Report.xlsx<br>PSPS-7 Vehicle Identifiers.xlsx<br>PSPS-8 Initial Request for Proposal.pdf<br>PSPS-8 Second Request for Proposal.pdf<br>RA-1 WRRM Simulation Results.pdf<br>SA-1 Weather Stations Master List.xlsx | Johnny Parker | | 5/25/2021 |

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| | | SA-2 Initial FPI Calibration Report.pdf<br>SA-3 HPCC Output- Circuit Reports.csv<br>SA-3 HPCC Output- Ensemble Forecast.xlsx<br>SA-4 Fire Sim Rpt Samples with Firecast Output.pdf<br>SA-5 Fuel Sampling Reports.pdf<br>SA-6 Fuels Mapping Project Report.pdf<br>SA-7 Completed Milestones SOW.pdf<br>SA-8 Completed Milestones SOW.pdf<br>SH-1 Covered Conductor.xlsx<br>SH-10 Tree Attachments.xlsx | | | |
| | 2020 WMP IE Rev- Ini Evidence (cont) | SH-11 Avian Wildlife Protections.pdfSH-11 Grounding-Arrestor Report_Fontana.pdfSH-11 Grounding-Arrestor Report_Lytle.pdfSH-11 Low Voltage Facilities.xlsxSH-11 Risk Eval- Hydro Control Circuits.pdfSH-12.1 Distribution Remediations.xlsxSH-12.2 Transmission Remediations.xlsxSH-12.3 Generation Notifications.xlsSH-2 TUG Work Paper.pdfSH-3 Fire Resistant Poles.xlsxSH-4 Fuses.xlsxSH-5 RARs & RCSs.xlsxSH-6 MPO Document.xlsxSH-7 In Scope Circuits.xlsxSH-7 PSPS Mitigation Planning.pdfSH-8 Transmission Open Phase Det Installs.xlsxSH-9 TOH Implementation Plan.xlsxVM-1 2020 HTMP Asmnts Prescriptions.xlsxVM-2 2020 Poles Brushed.xlsxVM-3 Facilities Assessed.xlsxVM-4 2020 DRI Schedule.xlsxVM-4 2020 DRI Trees Id for Removal Arbora.xlsx | Johnny Parker | | 5/25/2021 |
| | 2020 WMP IE Rev- Ini Evidence (cont) | VM-4 2020 DRI Trees Id for Removal Fulcrum.xlsx<br>VM-4 2020 DRI Trees Removed Fulcrum.xlsx<br>VM-5 HFRA 2020 QC Mileage.xlsx | Johnny Parker | | 5/25/2021 |
| 5/21/21 | **SCE Data Request 2_210521** | SCE Data Request 2_210521<br>Transmittal_SCE_1003 | Andrew Dressel | 5/26/2021 | |

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|---|---|---|---|---|---|
| | Response | 001_NV5-SCE-002 2020 WMP IE Rev#2-Risk, QA,QC, Veg Mgmt, Insp Q. 001 Ans.pdf<br>001_SCE 2020 Annual GO 166 Compliance Rpt-PUBLIC.pdf<br>002_NV5-SCE-002 2020 WMP IE Rev#2-Risk, QA,QC, Veg Mgmt, Insp Q. 002 Answer.pdf<br>003_2020 Annual QC Plan - APPROVED (003)_Redacted.pdf<br>003_NV5-SCE-002 2020 WMP IE Rev#2-Risk, QA,QC, Veg Mgmt,Insp Q. 003 Answer.pdf<br>003_VM 2020 QC Performance Summary - for NV5 Data Request 2_Redacted.pdf<br>004_NV5-SCE-002 2020 WMP IE Rev#2-Risk, QA,QC, Veg Mgmt,Insp Q. 004 Answer.pdf<br>004_QCP-005 Intrusive Wood Pole Quality Control Inspection Process - Revision 4.doc<br>004_QCP-006 Overhead Detailed Quality Control Inspection Process - Revision 4.doc<br>004_QCP-014 Transmission Detail Insp Quality Control Inspection Process-Rev 0.doc | Johnny Parker | | 5/27/2021 |
| 5/21/21 | **SCE Data Request 3_210521** | | Andrew Dressel | 5/26/2021 | |
| | | 001 _2020 WMP IE Rev #3-Geo Loc of Initiative Activities Q. 001 Ans.pdf<br>001 _IN-2 Quality Inspection Records_Supplemental.xlsx<br>001 _SH-1 Covered Conductor_Supplemental.xlsx<br>001 _SH-3 Fire Resistant Poles _Supplemental.xlsx<br>001 _SH-6 MPO Document_Supplemental.xlsx<br>001 _VM-4 2020 DRI Trees Identified for Removal Arbora_Supplemental.xlsx<br>001 _VM-5 HFRA 2020 QCMileage_Supplemental_1.xlsx<br>001 _VM-5 HFRA 2020 QCMileage_Supplemental_2.xlsx | Johnny Parker | | 5/27/2021 |
| 5/27/21 | **SCE Data Request 4_210527** | SCE Data Request 4_210527<br>Transmittal_SCE_1005 | Andrew Dressel | 6/2/2021 | |

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| | 2020 WMP IE Review #4 - Field Verification Spec/Procedure Docs | 001 - 007_2020 WMP IE Review #4 - Field Verification Spec Procedure Docs Q. 001 - 007 Answer.pdf<br>001 - 007_Distribution Apparatus Construction Standards (DAP).pdf<br>001 - 007_Distribution Overhead Construction Standards (DOH).pdf<br>001 - 007_System Operating Bulletin No. 322.pdf | Masooma Tirmazi | | 6/2/2021 |
| 6/1/21 | **SCE Data Request 5_210601** | SCE Data Request 5_210601<br>Transmittal_SCE_1006 | Andrew Dressel | 6/3/2021 | |
| | Response | 001_2020 WMP IE Review #5 - WMP Initiative Classification Q. 001 Answer.pdf<br>001_Response to NV5 DR 5 Q1-4.docx<br>2020 WMP IE Review #5 - WMP Initiative Classification Q. 002 Answer | Masooma Tirmazi | | 6/2/2021 |
| 6/4/21 | **SCE Data Request 6_210604** | SCE Data Request 6_210604.pdfSCE Initiatives requiring sampling DR 6_ORIG.xlsxSCE_Initiatives requiring sampling_DR6 R1.xlsxSCE_Initiatives requiring sampling_DR6 R2.xlsxSCE_Initiatives requiring sampling_DR6 Update_R3.xlsxTransmittal_SCE_1007.pdfTransmittal_SCE_1008.pdfTransmittal_SCE_1010.pdf | Andrew Dressel | 6/9/2021 | |
| | Response | 001_2020 WMP IE DR 6-Supp Evd Q. 001 Answer.pdf<br>002_2020 WMP IE DR 6-Supp Evd Q. 002 Answer.pdf<br>003_2020 WMP IE DR 6-Supp Evd Q. 003 Answer.pdf<br>004_001_SH-3 Fire Resistant Poles_Supp ver 2 06-07-21.xlsx<br>004_2020 WMP IE DR 6-Supp Evd Q. 004 Answer.pdf<br>005_2020 WMP IE DR 6-Supp Evd Q. 005 Answer.pdf<br>006_2020 WMP IE DR 6-Supp Evd Q. 006 Answer.pdf<br>006_MICOP April and May Metrics.pdf<br>006_MICOP August Metrics.pdf<br>006_MICOP Jan through March Metrics.pdf<br>006_MICOP July Metrics.pdf<br>006_MICOP June Metrics.pdf<br>006_MICOP Sept Metrics.pdf<br>007_2020 WMP IE DR 6-Supp Evd Q. 007 Answer.pdf<br>007_MICOP Meeting 011720.pdf<br>007_MICOP Meeting 032620.pdf | Masooma Tirmazi | | 6/9/2021 |

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| | | 007_MICOP Meeting 080520.pdf<br>007_MICOP Meeting 080720.pdf<br>008_2020 WMP IE DR 6-Supp Evd Q. 008 Answer.pdf<br>008_ILC_SCE Teams Meeting Notice 013120.pdf<br>008_ILC_SCE Teams Meeting Notice 051220.pdf<br>008_ILC_SCE Teams Meeting Notice 080520.pdf<br>008_ILC_SCE_ConveningAgenda 051220.pdf<br>008_ILC_SCE_ConveningAgenda 080520.pdf<br>009_2020 WMP IE DR 6-Supp Evd Q. 009 Answer.pdf<br>009_At 8 Test Plan and RDB Screencaps.docx<br>010_2020 WMP IE DR 6-Supp Evd Q. 010 Answer.pdf<br>010_AT-4 Vibration Damper Workpaper.pdf<br>011_2020 WMP IE DR 6-Supp Evd Q. 011 Answer.pdf<br>012_2020 WMP IE DR 6-Supp Evd Q. 012 Answer.pdf<br>013_2020 WMP IE DR 6-Supp Evd Q. 013 Answer.pdf<br>014_2020 WMP IE DR 6-Supp Evd Q. 014 Answer.pdf<br>014_Q14 -0b5442ec-91dd-442e-b26a-96e29b8a56f2.pdf<br>014_Q14 -1a3b3a11-47e9-4bae-8f48-7e97e2251429.pdf<br>014_Q14 - 33a4d03f-86aa-4c2e-b410-25553dac1ac8.pdf<br>014_Q14 -35369640-6457-4ab1-8a2b-3d41e82b0c9a.pdf<br>014_Q14 - 367e9297-2f17-463f-8724-0a0edce4841c.pdf<br>014_Q14 - 376832d9-b078-4461-89e7-bb85a4216197.pdf<br>014_Q14 - 4192c84c-9dbf-4cf0-a372-729896dc29b0.pdf<br>014_Q14 - 46e79408-97d9-4ae9-832a-0ea4362f14d8.pdf<br>014_Q14 - 4c308ed4-8f0d-44dd-a461-a01c3e196976.pdf<br>014_Q14 - 57ba4e98-218c-47be-a374-b67ee507cbdb.pdf<br>014_Q14 - 5869492f-ea9f-47c1-b818-d2b738c3680d.pdf<br>014_Q14 - 667bab49-6e57-4b5e-9c60-760afcb7f78d.pdf<br>014_Q14 - 6ef3b6eb-d280-4c7b-8659-d1b0973b54a8.pdf<br>014_Q14 - 76406f75-72a7-481f-94d4-bb0792229286.pdf<br>014_Q14 - 7789d4a6-678a-47a7-998e-2c487052e4d5.pdf<br>014_Q14 - 8945a77d-2f90-4202-82ea-9de51dbac689.pdf<br>014_Q14 - 923a7eb8-03d4-4d86-b79d-d768b8db29b8.pdf<br>014_Q14 - 9dce59c7-ba18-4ca4-8440-3000cc6081e3.pdf<br>014_Q14 - a6031cc0-3732-40eb-907f-f589cc4ea858.pdf<br>014_Q14 - a81f4ed3-c7ac-421f-bfe7-d2edcd9a2de1.pdf<br>014_Q14 - a83fa447-20ef-42a6-8260-e4e07a3bf06c.pdf<br>014_Q14 - a8ccbb71-b796-49cb-9668-d45bba8e7b6e.pdf | | |

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| 6/9/21 | **SCE Data Request 7_210609** | SCE Data Request 7_210609<br>Transmittal_SCE_1012 | Andrew Dressel | 6/11/2021 | |
| | Response | 001_2020 WMP IE Review No 7 - TOH Implementation & Risk Interview Q. 001 Answer.pdf<br>001_SH-9 Anchor Assembly Report.pdf<br>001_SH-9 Avian Clearance Update Report.pdf<br>001_SH-9 Tension Table Update Report.pdf<br>001_SH-9 TOH Publication Q4-2020.pdf | Masooma Tirmazi | | |

### 5.4 IE Findings on 2020 Performance

Overall findings and associated recommendations are included in the table below.

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.2.1 | SA-1 | Weather Stations | The IE determined with reasonable assurance that the evidence SCE provided demonstrated that that SCE met its planned targets and exceeded the initial target of 375 and the increased objectives of 475 and 575 weather stations installed by the end of 2020. | Time constraints during the evaluation period prevented detailed discovery with SME interview or requests of materials and labor order corroboration. No noncompliance notices resulted from this review. |
| WMP Activity Completion | 5.3.3.3 | SH-1 | Covered Conductor Installation | Due to time constraints, the IE was unable to make a final determination if SCE has met the entire program target | The IE recommends further exploration into the work orders associated with the Covered Conductor Installation, as well as possible SME interview to gain a better understanding of how line miles are tracked upon completion of work and how installation dates are recorded. |
| WMP Activity Completion | 5.3.3.6 | SH-3 | Fire Resistant Poles | The IE was unable to make a complete verification of all hardening efforts and replacements due to the limitations of the accelerated evaluation period. | The IE recommends further analysis of this data, more validation inquiries and validation of pole replacements to determine if the committed number of poles for remediation for 2020 were all executed. |
| WMP Activity Completion | 5.3.3.7 | SH-4 | Branch Line Protection Strategy (Expulsion Fuse Replacement) | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has installed/replaced fuses at 3,025 locations. | The sampling of initiative volume revealed satisfactory evidence for completed work. |
| WMP Activity Completion | 5.3.3.3 | SH-10 | Tree Attachment Remediation | Based on the sampling evidence reviewed, the IE has reasonable assurance that the minimum 325 tree attachment remediations have been performed but it is unclear if the remediations were performed in 2020. | The IE has reasonable assurance that at least 22 of the 29 sampled tree remediations have been performed. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.12 | SH-12.1 | Remediations - Distribution | SCE missed projected targets of 100 percent remediations complete by three percent of the 2020 WMP target, which was verified by the IE's review. | This attributed to the underrun of expenditures associated with these activities, for which SCE cited reduced inspection rates, COVID-19 pandemic, and operational challenges. No direct field verifications contributed to this result. |
| WMP Activity Completion | 5.3.3.12 | SH-12.2 | Remediations - Transmission | There is reasonable evidence to substantiate that SCE performed 6,319 transmission notification remediations associated with the WMP Initiative Activity. | SCE reported that it did not complete five percent of the total objective planned for 2020. The IE was unable to verify whether this missed performance objective is accurate. |
| WMP Activity Completion | 5.3.3.12 | SH-12.3 | Remediations - Generation | There is reasonable evidence to substantiate that SCE performed associated generation asset remediations planned for 2020 based on the reviewed desktop evidence. | The IE did not have sufficient time to verify activities through the sampled field inspection and did not include these types of assets in the proposed inspection list. |
| WMP Activity Completion | 5.3.5.5 | VM-2 | Expanded Pole Brushing | SCE reported they exceeded objectives in 2020, reporting 231,326 poles cleared within the HFRA. The IE verified that an upwards of 200,000 poles were cleared from the desktop data review. | The IE subsequently evaluated activities through field inspection sampling and found the 8 of 25 sampled to have noncompliant conditions due to overgrowth, encroachment, and brush found within the 10-foot ground and vertical clearance. |
| WMP Activity Completion | 5.3.4.9 | IN-1.1 | Distribution High Fire Risk Informed Inspections in HFRA | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed inspections of 199,050 distribution facilities. | Time constraints prevented a more detailed review of sampled work order accounts. |
| WMP Activity Completion | 5.3.4.10 | IN-1.2 | Transmission High Fire Risk Informed Inspections in HFRA | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed inspections of 34,670 transmission facilities in exceedance of the 2020 goal of 22,500. | Time constraints prevented detailed review of sampled work order accounts. |
| WMP Activity Completion | 5.3.4.9 | IN-6.1 | Aerial Inspections – Distribution | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed full aerial inspections of 163,418 distribution facilities and partial inspections of | Time constraints prevented detailed review of sampled work order accounts. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| | | | | 4,329 facilities. | |
| WMP Activity Completion | 5.3.4.10 | IN-6.2 | Aerial Inspections – Transmission | Based on the WMP target and supporting evidence, the IE has reasonable assurance SCE has performed full aerial inspections of 29,839 transmission facilities and partial inspections of 1,542 facilities. However, this does not meet SCE's stated goal of 33,500 inspections. | Time constraints prevented a more detailed review of sampled work order accounts. |
| WMP Activity Completion | 5.3.5.16 | VM-1 | Hazard Tree Management Program | Based on the 2020 WMP target and supporting evidence, the IE has reasonable assurance SCE has met the minimum requirement to assess 75,000 trees. | The IE recommends further sampling to verify activities. |
| WMP Activity Completion | 5.3.5.16 | VM-4 | Drought Relief Initiative (DRI) Inspections and Mitigations | The IE did not receive an independent statistically valid sample despite a detailed submitted request. The IE cannot validate whether SCE has met these objectives. | This is due to SCE submitting incorrect sample date from what was requested by the IE. |
| WMP Activity Completion | 5.3.3.2 | AT-8 | High Impedance Relay Evaluations | The IE could not concretely determine the detailed installation activities associated with this initiative. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative |
| WMP Activity Completion | 5.3.6.5 | PSPS-7 | Community Outreach | The IE has reasonable assurance SCE has met the obligation of this initiative. | SCE provided substantial evidence to support this initiative's activities in 2020. |
| WMP Activity Completion | 5.3.3.9 | SH-5 | Installation of System Automation Equipment – RAR/RCS | Due to time constraints, the IE was not able to inquire further nor validate the 48 installations claimed in the documents nor the 2 RARs/RCSs that did not have a device number associated with them. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.3 | AT-4 | Alternative Technology Implementation – Vibration Dampers | Due to time constraints, the IE was unable to complete the evaluation to determine the evaluations of damper technologies for both small and large diameter covered conductor applications actually occurred for 2020. | Further validation and inquiry is recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.6.1 | OP-1 | Annual SOB 322 Review | The IE finds the operational practices to be sufficient and reasonably assumes activities are occurring during the appropriate high risk condition window. | The qualitative evidence transmitted supports the procedural details with practical assurance. |
| WMP Activity Completion | 5.3.6.5 | PSPS-5 | MICOP Partnership | Although some evidence of meetings was provided by SCE, without additional evidence showing consistent periodic meetings between MICOP and SCE, and along with the response from the data request stating that meetings were informal and did not include agendas, the IE was unable to definitively determine whether SCE had regular meetings with MICOP. | However, SCE did provide sufficient evidence of progress reports with MICOP. Additionally, SCE provide evidence of a final impact report that showed the progress throughout the 2020 year. |
| WMP Activity Completion | 5.3.6.5 | PSPS-6 | Independent Living Centers Partnership | Due to time constraints the IE was unable to ask SCE for additional evidence to definitively determine if SCE is having regular meeting as committed. | However, SCE provided a final impact report that provides some reasonable assurance of the commitment for progress reports. The IE recommends further inquiry for evidence of periodic progress reports as was provided for PSPS-5 to determine the robustness of this initiative. |
| WMP Activity Completion | 5.3.3.16 | SH-2 | Undergrounding Overhead Conductor | Due to time constraints the IE was not able to validate whether the new additions yielded a more refined evaluation methodology as committed. | Further validation and inquiry are recommended to determine the completion of the commitments for this initiative. |
| WMP Activity Completion | 5.3.3.18 | SH-9 | Transmission Overhead Standards (TOH) Review | While a general overall report was not developed for the review of TOH standards, the IE believes that SCE has met is qualitative target to proactively review its transmission and sub-transmission construction and design standards based on the reports and standard updates provided by SCE | The IE found the qualitative documents to be sufficient. |

| SOW Category | 2020 Initiative Number | SCE WMP Identifier | Initiative Name | Finding | Detail on finding |
|---|---|---|---|---|---|
| WMP Activity Completion | 5.3.3.19 | SH-11 | Legacy Facilities | Per the 2020 WMP and the provided evidence and documentation, SCE has met the Qualitative target for the calendar year 2020. | The IE found the documents to be sufficient. |