PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

December 30, 2020

Wildfire Safety Division Evaluation of
Southern California Edison's Remedial Compliance Plan

The Wildfire Safety Division (WSD) finds that Southern California Edison's (SCE) Remedial Compliance Plan (RCP) is Insufficient. WSD reviewed SCE's RCP in accordance with guidance set out in Resolution WSD-002, Resolution WSD-004 and the WSD letter titled "Guidance on the Remedial Compliance Plan & Quarterly Report Process Set Forth in Resolution WSD-002," provided to electrical corporations on July 17, 2020.[1]

1. Introduction

These findings act on the Remedial Compliance Plan (RCP) submitted by SCE on July 27, 2020. RCP submittals were required in the Wildfire Safety Division's (WSD) "Conditional Approval" of SCE's 2020 Wildfire Mitigation Plan (WMP). RCPs were required to address all Class A deficiencies identified by the WSD in its review of SCE's 2020 WMP. In this document, the WSD issues its determination of whether SCE's RCP is "Sufficient" or "Insufficient." In accordance with the letter titled "Guidance on the Remedial Compliance Plan & Quarterly Report Process Set Forth in Resolution WSD-002" (RCP & QR Guidance Letter) issued by the WSD on July 17, 2020, if an RCP is deemed "Sufficient" no further action related to the RCP is required; however, in the event that an RCP is found "Insufficient," the WSD may provide further direction on necessary actions SCE must take to deliver a sufficient RCP and recommend potential enforcement action.

The WSD finds that SCE's RCP is Insufficient. SCE was required to satisfy the Class A deficiencies shown in Table 1 and set forth in Resolution WSD-002 and Resolution WSD-004.

Table 1: Class A Deficiencies from SCE's 2020 WMP

Deficiency/Condition No.	Class	Deficiency Title	Sufficiency Finding
Guidance-3	A	Lack of risk modeling to inform decision-making.	Insufficient
SCE-2	A	Determining cause of near misses.	Insufficient
SCE-12	A	SCE does not provide evidence of effectiveness of increased vegetation clearances	Insufficient
SCE-13	A	Lack of advancement in vegetation management and inspections	Sufficient

[1] https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/WSD%20Guidance%20Statement%20on%20RCP%20QP%2020200717.pdf

Due to the WSD's determination that SCE's RCP is Insufficient, in its 2021 WMP update, SCE is required to address all Actions identified in Section 5.1 of this document. Nothing in this document should be construed as a decision by WSD or the CPUC not to pursue other compliance or enforcement mechanisms if appropriate.

2. Background

On February 7, 2020, electrical corporations submitted their 2020 WMPs in accordance with the 2020 WMP Guidelines issued through an Administrative Law Judge Ruling (ALJ) on December 16, 2019. Pursuant to its statutory mandate, the WSD reviewed and issued its disposition of electrical corporation's 2020 WMPs via the 2020 WMP Resolutions.[2] Upon review of electrical corporations' 2020 WMPs, the WSD identified several elements that were missing or inadequate in the filings. Each of these issues was identified as a "Deficiency." A corresponding "Condition," intended to remedy the identified deficiency, was imposed on the electrical corporation as part of the WSD's "Conditional Approval" of 2020 WMPs. Each deficiency and associated condition were categorized into one of the following classifications, with Class A being the most serious:

- **Class A** - Aspects of the WMP are lacking or flawed;
- **Class B** - Insufficient detail or justification provided in WMP; and
- **Class C** - Gaps in baseline or historical data, as required in 2020 WMP Guidelines.

Consequently, upon review of SCE's 2020 WMP, the WSD issued a "Conditional Approval." The Conditional Approval requires SCE to satisfy the set of conditions set forth in Resolution WSD-002 and Resolution WSD-004. Table 2 below presents a summary of the number of conditions, grouped by classification.

Class A conditions are intended to address aspects of electrical corporations' 2020 WMPs which the WSD found lacking or flawed and were of highest concern. Class A conditions require each electrical corporation to file an RCP, which is broadly defined in Resolution WSD-002 as follows:

> *An RCP must present all missing information and/or articulate the electrical corporation's plan, including proposed timeline, to bring the electrical corporation's WMP into compliance.*

Pursuant to Ordering Paragraph (OP) 7 of Resolution WSD-002, SCE was required submit an RCP within 45 days of California Public Utilities Commission's (CPUC or Commission) ratification of SCE's 2020 WMP Resolution, WSD-004. The Commission ratified the 2020 WMP Resolutions[3] on Thursday, June 11, 2020; therefore, SCE was required to file an RCP by Monday July 27, 2020. SCE timely filed its RCP on Monday, July 27, 2020. Public comment on electrical corporations' RCPs were filed on August 10, 2020 by the Commission's Public

[2] These included Resolutions WSD-002, WSD-003, WSD-004, WSD-005, WSD-007, WSD-008, WSD-009, and WSD-010.
[3] These included Resolutions WSD-002, WSD-003, WSD-004, WSD-005, WSD-007, WSD-008, WSD-009, and WSD-010.

Advocates Office, Mussey Grade Road Alliance, and Protect Our Communities Foundation. SCE filed reply comments August 17, 2020.

Table 2: 2020 WMP Resolutions - Conditions Summary for SCE

Condition Class	WSD-002	WSD-004	Total
Class A	1	3	**4**
Class B[4]	10 (1)	18 (3)	**28 (4)**
Class C	1	1	**2**
Total	**12**	**22**	**34**

3. Summary of WSD's Assessment of RCPs

An RCP's fundamental intent is for electrical corporations to present a plan to resolve WMP deficiencies with the level of specificity, detail, and scope outlined in the respective condition. Accordingly, the WSD has determined whether an electrical corporation's RCP filing sufficiently resolves the deficiency and meets the intent of the condition. To make this determination, the WSD looked to Resolution WSD-002 and the factors used to evaluate 2020 WMPs. While all four factors used in evaluating WMP approval were not applicable[5], the WSD evaluated the sufficiency for each Class A deficiency and RCP filing in accordance with the following factors:

- Completeness – The RCP is complete and comprehensively responds to the condition;
- Effectiveness - The plans and remedies outlined in the RCP will reasonably resolve the deficiency;
- Feasibility - The plans and remedies outlined in the RCP are reasonably feasible considering the electrical corporation's resources and the scope and timeline identified.

Outlined in Table 3: RCP Evaluation Criteria, below, are the approval criteria the WSD used to evaluate whether an RCP filing is sufficient. In this document, the WSD issues one of the following determinations:

- Sufficient - The RCP is sufficient, and no further action is required;
- Insufficient - The RCP is insufficient.

If the WSD finds that an RCP is Insufficient, the WSD will require the electrical corporation to address the insufficiencies in its 2021 WMP update, in accordance to the specific actions outlined in Section 5.1 of this document. The WSD will assess the responses in its evaluation of the 2021 WMP update and will factor noncompliance into its review and may recommend enforcement action be taken by the CPUC.

[4] Values in parenthesis indicate the number of Class B deficiency and condition pairs that require ongoing reporting. All other Class B deficiency and condition pairs will be addressed in the electrical corporations' first quarterly report submission.

[5] Forward-looking growth is not applicable to assessing sufficiency of RCPs because the RCP, by its nature, is intended to address a current plan of action to address lacking or flawed aspects of 2020 WMPs and does not require an assessment of maturity growth.

Table 3: RCP Evaluation Criteria

Category	Criteria
Completeness	Does the RCP provide all the information identified in the condition?
	If not, does the utility provide an explanation of why the RCP is incomplete and a timeline for when the completed information will be provided?
	Does the RCP include a timeline for implementation and completion of remedial actions?
Effectiveness	Does the RCP identify reasonably effective plans and remedies to resolve the identified deficiencies?
	Is the timeline identified in the RCP sufficient, given the importance of the deficiency and its potential impact on wildfire risk?
Feasibility	Does the utility reasonably have the resources required to execute the plans and remedies in its RCP in accordance with the identified scope and timeline?

4. Public and Stakeholder Comments

On August 10, 2020, Mussey Grade Road Alliance submitted comments on SCE's RCP. Provided below is a non-exhaustive summary of the major issues raised in stakeholder comments.

Mussey Grade Road Alliance

- SDG&E, PG&E, and SCE should, separately from the extended vegetation clearance data, collect and coordinate "fall-in"/"blow-in" data that relates to trees outside of the typical clearance distance as these are also fire ignition causes.
- SCE's risk scores should properly incorporate probability and consequence of ignitions during extreme weather conditions, and this should be used to set priorities.
- WSD should request that SCE reclassify wire-to-wire contact as a subcategory of equipment failure.

5. Discussion of the WSD's RCP Assessment

In accordance with guidance set out in Resolution WSD-002 and the RCP & QR Guidance Letter, in Table 4 below the WSD presents its findings of sufficiency for SCE's RCP in totality.

Table 4: Review of SCE's RCP by Evaluation Criterion

Category	Criteria	Yes	No
Completeness	Does the RCP provide all the information identified in the condition?		X
	If not, does the utility provide an explanation of why the remedy is incomplete and a timeline for when the completed information will be provided?		X
	Does the RCP include a timeline for implementation and completion of remedial actions?	X	
Effectiveness	Does the RCP identify reasonably effective plans and remedies to resolve the identified deficiencies?		X
	Is the timeline identified in the RCP sufficient, given the importance of the deficiency and its potential impact on wildfire risk?	X	
Feasibility	Does the utility reasonably have the resources required to execute the plans and remedies in its RCP in accordance with the identified scope and timeline?	X	

Accordingly, the WSD finds SCE's RCP to be Insufficient.

WSD requests clarification or additional information to remediate its finding of Insufficient RCP elements. In its 2021 WMP update, SCE is required to address all Actions identified in Section 5.1.

5.1. Discussion of the WSD's Condition Assessment

Pursuant to WSD-002, these findings and the subsequent discussion comprise the WSD's review of SCE's RCP, which includes input from the public and other stakeholders. The following is an assessment of SCE's response to each Class A condition, as presented in its RCP. Provided in the discussion are the detailed elements pertaining to the requirements for each SCE Class A condition, with a corresponding required "action" to sufficiently address the scope, purpose, and intent of the specific element in each applicable condition. Each action identified in the subsequent sections are individually numbered and must be completely addressed in SCE's 2021 WMP update to meet the WSD's expectation of a sufficient RCP.

5.1.1. Condition (Guidance-3, Class A): Lack of Risk Modeling to Inform Decision-Making

WSD finding for SCE's Condition Guidance-3 response: Insufficient

Below, is an analysis of the itemized requirements within Condition Guidance-3, corresponding discussions of specific insufficiencies for SCE's response to Guidance-3, and the necessary actions required to make SCE's RCP Sufficient.

Each electrical corporation shall submit in its remedial correction plan (RCP) the following:

i. How it intends to apply risk modeling and risk assessment techniques to each initiative in its WMP, with an emphasis on much more targeted use of asset management, vegetation management, grid hardening and PSPS based on wildfire risk modeling outputs;

SCE prepared a risk table[6] that is well thought out and relatively complete. The WSD finds that this table is an effective presentation of the requested information and is considering requiring the other utilities to submit information in a similar format. While sufficient for the time being, WSD requests SCE expand upon this risk table for its 2021 WMP update filing to encompass all initiatives.

> **Action SCE-1:** In its 2021 WMP update, SCE shall: 1) provide a table and narrative similar to that provided in the RCP filing that includes all 136 initiatives from the 2020 WMP, as well as any additional initiatives added in the 2021 filing, and 2) provide additional narrative about the choice of model(s) being used for each initiative.

ii. Identify all wildfire risk analyses it currently performs (including probability and consequence modeling) to determine which mitigation is targeted to circuits and assets where initiatives will provide the greatest benefit to wildfire risk reduction;

SCE provides a detailed initiative level discussion of its current risk models, current capabilities, and future capabilities. The plan is both reasonably effective and feasible. However, SCE needs to provide additional details for the WSD to fully understand the models being described. Additional information includes historical data, reasoning behind certain decisions, algorithm(s) used, and interactions between models.

> **Action SCE-2:** In its 2021 WMP update, SCE shall: 1) describe how it determined 5,000 as the setpoint for distinction of ignition outcomes, 2) provide the range of historical data used for wildfire consequence modeling, and any non-SCE data used, 3) provide the algorithm(s) used to calculate the unitless risk score and baseline wildfire risk score for both distribution and transmission, and 4) describe the useful life of each mitigation, and provide how such was calculated.

> **Action SCE-3:** In its 2021 WMP update, SCE shall: 1) provide each asset-specific Point of Ignition (POI) model, 2) describe the frequency and method(s) in which POI models are tested for accuracy, and 3) describe the frequency in which SCE plans on updating POI models, including details on what will be updated.

> **Action SCE-4:** In its 2021 WMP update, SCE shall: 1) describe how all the models outlined in SCE's RCP response interact with one another, and 2) describe the process SCE uses to determine when to use each model.

[6] SCE RCP at p. 9

iii. A timeline to leverage its risk modeling outputs to prioritize and target initiatives and set PSPS thresholds, including at least asset management, grid operations, vegetation management, and system hardening initiatives;

SCE provided feasible timelines for implementation or improvement at the initiative level.

iv. How it intends to incorporate future improvements in risk modeling into initiative prioritization and targeting processes; and

Future improvements for risk modeling are presented on an initiative level and are given reasonable timelines.

v. How it intends to adapt its approach based on learnings going forward.

SCE makes a commitment to improve their process over time and plans to elaborate on process improvement in their Quarterly Report in response to Condition Guidance-12, Class B. Any such additional material will be evaluated as part of SCE's Quarterly Report review.

5.1.2. Condition (SCE-2, Class A): Determining Cause of Near Misses

WSD finding for SCE's Condition SCE-2 response: Insufficient

Below is an analysis of the itemized requirements within Condition SCE-2, corresponding discussions of specific insufficiencies for SCE's response to SCE-2, and the necessary actions required to make SCE's RCP Sufficient:

SCE shall submit a Remedial Compliance Plan (RCP) to provide a detailed description of:

i. the processes, procedures, protocols and tools utilized in making outage cause determinations,

SCE provides a broad overview of the actors and basic processes essential to determining the cause of an outage but does not provide any specific protocols and procedures which could be reviewed by the WSD for process improvement. SCE also notes that it has "launched a new program to conduct deeper investigations into ignitions caused by [its] infrastructure"[7] but again, does not provide any specific details and supporting materials.

> **Action SCE-5:** In its 2021 WMP update, SCE shall provide the specific protocols, including supporting documentation (e.g. reports, analysis, procedures, checklists, etc.), used for determining outages.
>
> **Action SCE-6:** In its 2021 WMP update, SCE shall provide all supporting documentation (e.g. reports, analysis, procedures, checklists, etc.) relating to its "deeper investigations into ignitions".

[7] SCE RCP at p. 3

ii. the percent of these "other" ignitions that are known to SCE, and for each known ignition driver, a breakdown of each of the drivers contained in "other" ignitions,

SCE's re-analysis of outage data is comprehensive and sufficient. The previously vague "other" category of ignitions has been sufficiently explained and SCE is expected to ensure that the "other" category in future submissions is clearly explained. SCE has also found ways to improve outage reporting and commits to additional outage reporting training by the end of 2020. However, SCE needs to provide more data to facilitate clear understanding of the pervasiveness of previous errors that caused incorrectly identified ignitions as "other" in order to properly determine the effectiveness of SCE's proposed solution, including statistics on intentional interruptions incorrectly identified as equipment failures.

> **Action SCE-7:** In its 2021 WMP update, SCE shall provide the number and percentage of crew-initiated interruptions classified as equipment failures.

iii. the qualifications and training of personnel assigned to determine outage causes,

SCE describes all actors in outage determination and how each are trained for their roles. For some roles, SCE includes "up to 16 hours" of continuing refresher education every two years, however, "up to" is imprecise and not effective. Staff should be prescribed mandatory continuing education.

> **Action SCE-8:** In its 2021 WMP update, SCE shall 1) explain how it determines which staff are required to take outage determination training, and 2) describe how SCE tracks that the mandatory outage determination training is properly taken and continued to be taken by such staff.

The WSD recommends that SCE quantify the results of its new outage reporting training as it is implemented.

> **Action SCE-9:** In its 2021 WMP update, SCE shall 1) explain how it determines which outage-related staff are required to receive the at least 16 hours of continuing education every two years, and 2) describe how SCE tracks that the training is properly taken and continued to be taken by such staff. [8]

iv. its Quality Assurance/Quality Control program for verification of outage cause data; and

SCE seems committed to process improvement and describes a three-step process for Quality Assurance/Quality Control (QA/QC), however it did not provide sufficient details on the process and the extent to which it is utilized.

[8] As described for System and Substation operators, SCE RCP at p.6 and 7.

Action SCE-10: In its 2021 WMP update, SCE shall describe when it began improving its training programs to reduce "other" and "no cause found" categorizations and provide all supporting training materials and procedures used.

Action SCE-11: In its 2021 WMP update, SCE shall provide the percentage and number of outages selected for validation per month and provide the supporting procedures for performing the validation.

Action SCE-12: In its 2021 WMP update, SCE shall describe its current QA/QC process for Outage Database & Reliability Metrics System (ODRM) validation.

Action SCE-13: In its 2021 WMP update, SCE shall describe its current QA/QC process to ensure that training being taken by staff is effective in determining the proper cause of outages by decreasing the number of falsely entered causes.

v. the actions it is taking to drive down the number of near misses and outages attributed to "other" causes, including a timeline for such actions.

SCE has different plans for transmission and distribution, but both focus on eliminating "no cause found" category outages, however, SCE fails to provide supporting materials and detailed explanations of its new initiatives. SCE also described the use of an algorithm to determine the most likely cause for some outages, but it is unclear the extent that the algorithm is used and how it is vetted for accuracy.

Action SCE-14: In its 2021 WMP update, SCE shall provide a list of all new situational awareness tools that were deployed and describe how they are being utilized to inform outage cause determinations.

Action SCE-15: In its 2021 WMP update, regarding the algorithm that assigns a cause to outages classified as "no cause found", SCE shall: 1) provide the percentage and number of outages that are assigned a cause by the algorithm, 2) describe how SCE checks the algorithm for accuracy, 3) provide all QA/QC procedures related to the algorithm, including frequency of QA/QC assessments, and 4) provide an analysis demonstrating the effectiveness and accuracy of the algorithm.

5.1.3. Condition (SCE-12, Class A): SCE Does Not Provide Evidence of Effectiveness of Increased Vegetation Clearances

WSD finding for SCE's Condition SCE-12 response: Insufficient

Below is an analysis of the itemized requirements within Condition SCE-12, corresponding discussions of specific insufficiencies in SCE's response to SCE-12, and the necessary actions required to make SCE's RCP Sufficient:

SCE shall submit an RCP with a plan for the following:

i. Comparing areas with and without enhanced post-trim clearances to measure the extent to which post-trim clearance distances affect probability of vegetation caused ignitions and outages;

SCE's enhanced vegetation clearance plan is comprehensive and provides targets for analysis once data is collected, however, SCE does not specify how it will analyze the data. The WSD understands that plans may change but requires SCE to plan for specific analyses so data can be collected accordingly. Without specific proposed statistical analysis, it is unclear how effective this study will be.

> **Action SCE-16:** In its 2021 WMP update, SCE shall submit a detailed plan on how the data will be statistically analyzed.

> **Action SCE-17:** In its 2021 WMP update, SCE shall 1) describe how it plans to address the fact that only 60% of the trees scheduled for full expanded clearances have been completed, 2) explain if SCE will be able to reach the goal of 100% by the end of the year[9], and 3) provide a comprehensive and extensive explanation as to the reason SCE is behind schedule.

ii. Collaborating with PG&E and SDG&E, in accordance with PGE-26 and SDGE-13, to develop a consensus methodology for how to measure post-trim vegetation clearance distance impacts on the probability of vegetation caused ignitions and outages.

SCE presents definitions, data standards, methodology, assumptions, and a timeline which the utilities have supposedly agreed to, however, SCE's presentation is inconsistent with the presentations from Pacific Gas and Electric (PG&E) and San Diego Gas & Electric (SDG&E). Collaborative meetings seem to have occurred but there are too many inconsistencies between the utilities to conclude that the meetings were effective and the efforts are being well coordinated.

> **Action SCE-18:** In its 2021 WMP update, SCE along with PG&E and SDG&E shall submit a joint, unified plan that reflects collaborative efforts and contains uniform definitions, methodology, timeline, data standards, and assumptions.

[9] SCE Advice Letter 4327-E Attachment A, "VM-3: Expand clearances for legacy facilities" coded as "Behind Plan, Likely to Meet Year-end Goal"

5.1.4. Condition (SCE-13, Class A) Lack of Advancement in Vegetation Management and Inspections

WSD finding for SCE's Condition Guidance-3 response: Sufficient

SCE shall file a Remedial Compliance Plan (RCP) to provide a detailed plan for addressing the following:

i. how it uses risk models and their outputs to identify and prioritize vegetation management work in areas that provide the largest reduction in utility ignition risk;

SCE states that it will use risk modeling to prioritize Vegetation Management (VM) scheduling, and that it "may be feasible to adjust work for the riskiest locations,"[10] referring to its response to Guidance-3. SCE needs to demonstrate and commit that such is feasible, as prioritization during work adjustment and scheduling should be given to the riskiest locations while working within the confines of environmental restrictions.

> **Action SCE-19:** In its 2021 WMP update, SCE shall 1) demonstrate how it is implementing risk models for prioritizing the highest risk areas when scheduling vegetation management work, and 2) explain the determination of such areas as highest risk, including all supporting analysis.

ii. whether and how it targets VM work in areas that are historically prone to vegetation-caused outages and ignitions;

SCE states that it performs supplementary patrols in areas it deems historically prone to vegetation caused outages and ignitions. It does not seem that these patrols currently utilize data to determine which areas are fire prone and which are not, but SCE states it intends to improve patrol prioritization by using risk modeling. SCE also states that the supplementary patrols are performed using existing resources. The WSD encourages SCE to perform a cost-benefit analysis on expanding baseline VM resources.

> **Action SCE-20:** In its 2021 WMP update, SCE shall 1) provide a GIS map showing the locations of supplemental patrols in 2020 broken down by type (e.g. Canyon Patrols, Summer Readiness), and 2) provide the number of instances for vegetation work prescribed found by type of patrol, both in total number as well as in number of instances per circuit mile.

iii. what measures and metrics it uses to track the effectiveness and efficiency of its vegetation management work; and

SCE uses reductions in Tree-Caused Circuit Interruptions (TCCI) and vegetation-caused ignitions to measure the effectiveness of its VM work.

[10] SCE RCP at p. 2

iv. how it plans to integrate and leverage new technology to enhance its current vegetation inspection and management efforts.

SCE gives specific examples of technologies which it intends to integrate, including LiDAR, Artificial Intelligence/Machine Learning, and Tree Risk Index. The WSD encourages SCE to continue to look for additional technology to integrate into VM patrol and management as technology advances.

6. Conclusion

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electric utilities must continue to make progress toward reducing utility-related wildfire risk. With the finding of "Insufficient" for SCE's RCP, the WSD intends to send a clear message to SCE that its WMP, RCP, and QRs must be of the highest quality and include sufficient detail and plans to facilitate transparency, allow for efficient review, and effectively implement potentially lifesaving wildfire risk mitigation initiatives. The WSD will continue to ensure SCE is held accountable for successfully executing the wildfire risk reduction initiatives presented in its 2020 WMP, RCP, and other required updates through the Division's continued audit and compliance work. As indicated in Section 5.1 above, SCE shall address the insufficient elements of its RCP submission by taking the actions identified by the WSD and presenting the required information and detail in its 2021 WMP update.

Finally, along with the issuance of this action statement, the WSD concurrently issues a Notice of Noncompliance document summarizing the findings and noncompliance issues detailed herein. The WSD notes that nothing in this action statement or the concurrent Notice of Noncompliance precludes the Commission from exercising its enforcement authority related to any findings or matters addressed in the instant document.

Sincerely,

Caroline Thomas Jacobs
Director, Wildfire Safety Division
California Public Utilities Commission