OFFICE OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report on the Results of Operations for
Southern California Edison Company General Rate Case
Test Year 2018

Safety and Risk-Informed Decision Making

San Francisco, California
April 7, 2017
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SAFETY AND RISK-INFORMED DECISION MAKING

I. INTRODUCTION

This report presents the analyses and recommendations of the Office of Ratepayer Advocates (ORA) regarding Southern California Edison Company’s (SCE) safety and risk-informed decision-making process in this General Rate Case (GRC). This is not a Risk Assessment and Mitigation Phase (RAMP) submission. SCE will file its RAMP submission in the next (Test Year 2021) GRC.¹

The report focuses on risk-informed decision-making. The safety aspect of the GRC, which includes public safety, employee safety, and contractor safety, by and large, are covered as part of Operational Services by the ORA witness in Exhibit (Ex.) ORA-16.

SCE’s Operation and Maintenance (O&M) and capital expenditure forecasts for this GRC will not be addressed in this report. The GRC forecasts were developed and risk mitigation alternatives were selected before the detailed analysis for risk and mitigation scoring was performed. The ORA witness for each business or operational area will review and comment on the details breakdown of the expenditure forecasts.

The Risk Assessment and Safety Advisory Staff of the California Public Utilities Commission’s (CPUC’s) Safety & Enforcement Division (SED) performed an in-depth review of the risk and safety aspect of SCE’s GRC filing. SED’s detailed findings are provided in the report “Risk and Safety Aspects of Southern California Edison’s 2018-2020 General Rate Case Application 16-09-001”.

This ORA report presents ORA’s review of SCE’s demonstration of the detailed risk analysis process through a set of pilots in Transmission and Distribution (T&D) and non-T&D areas.

¹ D.16-08-018, p. 154.
II. SUMMARY OF RECOMMENDATIONS

The following summarizes ORA’s recommendations regarding SCE’s safety and risk-informed decision making testimony:

- The Commission should not base its decision on safety-related cost recovery on SCE’s risk-informed decision-making analyses. The current methodology is insufficiently developed to be applied in this GRC. The methodology is still evolving and additional work is needed to develop it fully in the Safety Mitigation and Assessment Plan (S-MAP) proceeding.

- The testimony in Ex. ORA-5 (this testimony) does not have any specific recommendation on Corporate Health and Safety (CHS) based on the overall examination of the risk-informed decision-making processes utilized by SCE, however, recommendations on the broader CHS program may be provided in Ex. ORA-16.

III. RISK-INFORMED DECISION MAKING

A. SCE’s Proposal

The Commission initiated Order Instituting Rulemaking R.13-11-006 to Develop a Risk-Based Decision-Making Framework to Evaluate Safety and Reliability Improvements and Revise the General Rate Case Plan for Energy Utilities. SCE provides extensive testimony on risk-informed decision-making in this GRC. The topics of the testimony include SCE’s risk-informed decision-making approach, the progress and future state of its risk-informed decision-making process, and detailed risk analysis with the current risk models in selected Transmission and Distribution (T&D) and non-T&D piloted areas.

SCE’s testimony on risk-informed decision making initially were presented in separate SCE exhibits sponsored by different witnesses. These testimonies were eventually consolidated into one supplemental testimony (Ex. SCE-14) at the request of SED.

The risk-informed decision making analysis was performed on T&D and non-T&D piloted areas to assess and develop SCE’s capability to manage risk across the company. Most of the detailed analysis for risk and mitigation scoring was performed after SCE’s GRC forecasts on O&M and capital expenditures were developed and mitigation alternatives were selected. Therefore, SCE’s proposed
budget requests in the GRC were derived without direct input from the risk-informed
decision-making process. As the process matures, SCE expects to develop project
scope and selection of alternatives with the aid of the results of such analyses in
future GRCs.² SCE will also implement all the required enhancements and
modifications to its risk-informed decision-making process to align with those from
the S-MAP³ proceeding.⁴

The risk-informed decision-making approach is described in Ex. SCE-01,
Policy. This information again is included the Section III of the consolidated volume
Ex. SCE-14. These exhibits describe SCE’s integrated approach to risk-informed
decision-making, which included five areas: Enterprise Risk Management (ERM),
Strategic Planning and Goal Setting, Financial Planning & Governance, Asset
Management and Operational Risk Management and Business Resiliency.⁵ The
objectives of the approach are: 1) to identify, communicate and discuss enterprise-
wide risk management in a more structured way, 2) to implement a common
framework and consistent methodologies across the entire company, 3) to be able to
allocate funding and resources to projects and programs in a systematic and refined
way and to facilitate decision-making based on the mitigation activities effectiveness,
4) to manage the transition to sustain improvement.⁶ The risk management
oversight will involve the Edison International and SCE Senior Leadership and the
Board of Directors.⁷

The risk-informed decision-making framework is described in Ex. SCE-08,
Volume 8, Financial Services, Audits and Enterprise Management and again in
Section IV of the consolidated volume Ex. SCE-14. This framework follows a six-

² Ex. SCE-14, Section III, p. 22, Ins. 12-18.
³ A.15-05-002, SCE’s Safety Model Assessment Proceeding application, submitted May
2015.
⁴ Ex. SCE-14, Section IV, p. 27, Ins. 8 to 9.
⁵ Ex. SCE-14, Section III, pp. 14 to 17.
⁶ Ex. SCE-14, Section III, p. 17.
⁷ Ex. SCE-14, Section III, pp. 18-19.
step process: 1) Risk Identification, 2) Risk Evaluation, 3) Risk Mitigation Identification, 4) Risk Mitigation Evaluation, 5) Decision-Making & Planning and 6) Monitoring & Reporting. The six-step process is described by SCE as consistent with the Cycla Corporation’s 10-step Evaluation Model adopted by the S-MAP Interim Decision. For each of the steps in the six-step process elements, SCE detailed activities of current enhancements and future enhancements. These detailed activities were summarized in a table for the SCE 2018 GRC Safety & Risk Workshop and shown in Table 1 below.

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8 Ex. SCE-14, Section IV, p. 23.
9 SCE 2018 GRC Safety & Risk Workshop, p. 18, November 2, 2016.
Table 1. Enterprise Risk Management Program Current Progress and Future Enhancements

<table>
<thead>
<tr>
<th>Steps</th>
<th>Progress To Date</th>
<th>Future Enhancements</th>
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<tbody>
<tr>
<td><strong>Risk Identification</strong></td>
<td>• Senior Leadership Discussions</td>
<td>• Centralized Risk Register</td>
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<td>• Information Sharing with Risk Management Groups</td>
<td>• Systematic Information Sharing</td>
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<td>• Benchmarking and Info Sharing with Peer Utilities</td>
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<td>• Risk Lexicon and Risk Taxonomy rollout</td>
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<td>• Standard Risk Templates</td>
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<td><strong>Risk Evaluation</strong></td>
<td>• Risk Evaluation Tool (RET) &amp; Initial Pilot</td>
<td>• RET Enhancements</td>
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<td>• Risk Calculator</td>
<td>• Calibration of Risk Scores</td>
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<td>• Training Workshops &amp; Tutorials</td>
<td>• Data Collection &amp; Analytics</td>
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<td><strong>Risk Mitigation Identification</strong></td>
<td>• Trenching Analysis (Pilot)</td>
<td>• Structured Risk Mitigation Identification</td>
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<td>• Leveraging of Breakout Analysis for Mitigation ID</td>
<td>• Synergies Across Risk Mitigation Alternatives</td>
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<td>• Risk Taxonomy for Drivers</td>
<td>• Mitigation Alternatives Portfolio Development</td>
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<td><strong>Risk Mitigation Evaluation</strong></td>
<td>• Initial Calibration</td>
<td>• Enhanced Prioritization</td>
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<tr>
<td></td>
<td>• Risk Mitigation Evaluation (Pilot)</td>
<td>• Enhanced Calibration</td>
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<td></td>
<td>• Risk Spend Efficiency (RSE) calculation (Pilot)</td>
<td>• Integration of RSE into Decision-Making (Pilot)</td>
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<tr>
<td><strong>Decision-Making &amp; Planning</strong></td>
<td>• Consistent Risk Scoring Methodology</td>
<td>• Integration with Financial Planning Process</td>
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<td>• Risk-Informed Decision-Making &amp; Planning in T&amp;D (Pilot)</td>
<td>• Decision-Making Based on Mitigation Effectiveness</td>
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<td>• Automated ERM Platform System</td>
<td>• Transition Management</td>
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<td><strong>Monitoring &amp; Reporting</strong></td>
<td>• New Reporting Tool</td>
<td>• Prioritization/Optimization</td>
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<td>• Reporting to Board of Directors &amp; Senior Leadership</td>
<td>• UU and Cross UU Risk Informed Decision Making</td>
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</table>
SCE envisions in the future, the ERM team will work with the Operational Units (OU), which will partner with the Finance organization to develop cost estimates, consolidate OU mitigation plans and the Finance organization will lead cross-OU prioritization and develop final budgets.  

This GRC proceeding is taking place concurrently with the S-MAP proceeding. SCE plans to coordinate closely with the Commission and the intervenors to insure congruency and alignment on risk management decision making across these two regulatory processes.  

SCE selected a set of pilots in both T&D and non-T&D to demonstrate the detailed risk analysis process. As mentioned earlier, most of the detailed analysis for risk and mitigation scoring, which was an essential step in the pilot demonstration, was performed after SCE’s GRC forecasts on O&M and capital expenditures were developed and mitigation alternatives were selected. Therefore, SCE’s proposed budget requests in the GRC were derived without direct input from the risk-informed decision making process.

1. Pilots in T&D

SCE performed detailed risk analysis for eight pilot areas in T&D. The analysis is intended to show how SCE’s risk framework has been applied to specific assets and activities. With risk models continuously improving, the current analysis is performed based on information available through March 2016. The eight areas are: Overhead Conductors, Poles, Underground Structures, Circuit Breakers, Transformers, Underground Cables, 4 kilovolt (kV) Circuits and Vegetation Management.  

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11 Ex. SCE-14, Section IV, pp. 43-44.  
12 Ex. SCE-14, Section IV, pp. 27-28.  
13 Ex. SCE-14, Section V, pp. 70-71.
The results of the analysis are presented in the Appendix to Ex. SCE-2, Volume 1 and in Ex. SCE-14, Section V, pages 75 to 139. The results presented for each pilot area includes Risk Identification, Current Residual Risk Evaluation, Mitigation Alternatives Identification, Mitigation Risk Reduction Evaluation, Risk Spend Efficiency and Key Takeaways.

2. Pilots in non-T&D

SCE selected a subset of five pilot areas in non-T&D organization to perform detailed risk analysis in order to expand beyond the T&D pilot areas. These five non-T&D areas are: Customer Service Re-Platform, Power Supply Hydro, Business Resiliency, Corporate Real Estate and Corporate Security.

The results of the analysis in the non-T&D areas are presented in various SCE Exhibits, but these results are consolidated in Section VI of Ex. SCE-14, Section VI, pages 140 to 171. The information presented for each area generally includes Risk Identification and Risk Statements, Current Residual Risk Evaluation, Driver Analysis, Mitigation Alternative Identification, Planned Residual Risk Evaluation, and Risk Analysis Challenges and Next Steps.

SCE concluded from the experience and results of the modeling exercises in both the T&D and non-T&D areas that the company made significant advancements in the implementation of a risk-informed decision-making methodology. However, some refinements will be necessary to use uniform methodologies across the company. Adequate or specific data is not always available, and the company still relies extensively on subject-matter expertise (SME) for risk and mitigation evaluation. Impact dimensions, levels and calibration across dimensions and levels still need to be refined to address the risks to be mitigated.\textsuperscript{14,15} SCE will continue to broaden its efforts to apply the risk-informed decision-making framework to more business and operational areas of SCE.\textsuperscript{16}

\textsuperscript{14} SCE 2018 GRC Safety & Risk Workshop, p. 23, November 2, 2016.
\textsuperscript{15} No quantification as to the level of SME was cited by SCE.
\textsuperscript{16} Ex. SCE-14, Section VII, p. 171.
B. ORA’s Position

ORA reviewed SCE’s testimony on risk-informed decision-making. SCE’s risk-informed decision-making methodology is a work-in-progress. SCE states that the 2018 GRC expenditure forecasts are not based on the risk-informed decision-making analysis. The analyses performed in the T&D and non-T&D pilot areas are essentially exercises to evaluate the risk-informed decision making methodology being developed up to March 2016. These analyses were performed by SCE after the GRC expenditure forecasts were derived, and therefore the use of the risk-informed decision-making methodology makes an insignificant contribution to SCE’s 2018 GRC funding proposals.

The framework of SCE’s risk-informed decision-making methodology was developed and described in the S-MAP application. SCE continues to enhance the framework utilizing industry best practices and apply lessons learned in the pilot analysis to further align with the S-MAP developments. Since the S-MAP proceeding is currently undergoing test pilots, ORA’s comments on SCE’s development of the risk-informed decision-making methodology are reserved for the S-MAP proceeding.

This report does not address the safety aspect of SCE’s O&M and capital expenditure proposals. SCE’s expenditure proposals, including the safety-related portions, are addressed by ORA witnesses in each asset area.

SED performed an in-depth review of the risk and safety aspect of SCE’s GRC filing. The detailed findings are provided in the report “Risk and Safety Aspects of Southern California Edison’s 2018-2020 General Rate Case Application 16-09-001”. It summarized the finding in the Major Findings section of the report on pages 6 and 7. SED describes SCE’s risk-based decision-making approach as still

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17 Ex. SCE-14, Section III, p. 22, Ins. 12-14.
19 D.16-08-018, Interim Decision Adopting the Multi-Attribute Approach (or Utility Equivalent Features) and Directing Utilities to Take Steps Toward a More Uniform Risk Management Framework.
evolving and most of the steps in the framework have yet to be implemented. SED found that the risk-spend efficiency metric is not matured enough to derive the 2018 GRC expenditure proposals, and much work remains to develop it fully. SCE is categorizing portions of many programs’ spending as safety-related, even though they relate more to issues of customer satisfaction or electric service reliability in contrast to safety. SCE’s risk-informed decision-making methodology is not ready as a basis for determining reasonableness of safety-related program expenditure requests. The current GRC is essentially a transitional case in the use of SCE’s risk-informed decision-making methodology.

ORA agrees with SED’s assessment.

ORA recommends that the Commission should not base its decision on safety-related cost recovery on SCE’s current risk-informed decision-making analyses. The current methodology is inadequately developed to provide meaningful cost guidance in this GRC. The methodology is still evolving and much work is needed to develop it fully in the S-MAP proceeding to be applied in the future GRCs.

IV. SAFETY OF THE PUBLIC AND EMPLOYEES

A. SCE’s Proposal

SCE stresses in the testimony that “[n]othing is more important at SCE than protecting the safety of the public and of our employees and contractors.”

The Corporate Health and Safety (CHS) organization provides guidance, governance and oversight of SCE’s safety program and activities. CHS is responsible for overseeing SCE’s corporate safety program in electrical safety, industrial ergonomics, industrial hygiene and contractor safety. Corporate Health

20 It is defined as risk reduction (difference between pre-mitigation and post-mitigation risk scores) divided by the cost of the risk mitigation program or project.

21 Ex. SCE-14, Section IV, p. 27, Ins. 5 to 11, and p. 28, Ins 1 to 2.

22 Ex. SCE-14, Section II, p. 3, Ins. 20-21.
and Safety is described in detail, in Volume 4 of Ex. SCE-07 and Section II of Ex. SCE-14.

CHS requests $5.688 million (constant 2015 dollars) of O&M expenses in FERC Account 925 for the 2018 Test Year.\textsuperscript{23}

**B. ORA’s Position**

The witness for this report does not have any specific comments on SCE’s proposals on Corporate Health and Safety at this time. The witness of Ex. ORA-16, where the related CHS issues and budget request are addressed, may submit comments and recommendations.