BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Order Instituting Investigation into the November 2018 Submission of Southern California Edison Risk Assessment and Mitigation Phase.	Investigation 18-11-006
NOT CONSOLIDATED	
Application of Southern California Edison Company (U 338-E) for Authority to Increase its Authorized Revenues for Electric Service in 2021, among other things, and to Reflect that Increase in Rates.	Application 19-08-013
NOT CONSOLIDATED	
Application of Southern California Edison Company (U 338-E) Regarding 2022 Risk Assessment Mitigation Phase.	Application 22-05-013

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) RISK SPENDING ACCOUNTABILITY REPORT FOR 2021

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Dated: **June 1, 2022**

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Application of Southern California Edison Company (U 338-E) Regarding 2022 Risk Assessment Mitigation Phase.	Application 22-05-013

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) RISK SPENDING ACCOUNTABILITY REPORT FOR 2021

Southern California Edison Company (SCE) submits its 2021 Risk Spending Accountability Report in Compliance with the Phase Two Decision Adopting Risk Spending Accountability Report Requirements and Safety Performance Metrics For Investor-Owned Utilities And Adopting A Safety Model Approach For Small And Multi-Jurisdictional Utilities, Decision (D.) 19-04-020 (Decision). This 2021 Report covers spend authorized in the Test Year 2021 General Rate Case (GRC) cycle for activities that address safety, reliability, and/or maintenance, consistent with Public Utilities Code Section 591.

Pursuant to the Decision, SCE is incorporating new requirements in this annual Risk Spending Accountability Report (RSAR). Consistent with guidance provided by the Energy Division in a September 7, 2021 letter, the 2021 RSAR is being filed and served to parties on the service lists for Proceedings I.18-11-006 (RAMP OIR), A.19-08-013 (2021 GRC), A.22-05-013

(2022 RAMP) and made available to the CPUC's Safety Policy Division, Safety Enforcement Division, and the Public Advocates Office. SCE is also providing the 2021 RSAR to the ED Tariff Unit by emailing the report to edtariffunit@cpuc.ca.gov. SCE's 2021 RSAR is provided as Attachment A. The September 7, 2021 letter from the Energy Division is provided as Attachment B.

Respectfully submitted,

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June 1, 2022

Attachment A

Southern California Edison Company's Risk Spending Accountability Report for 2021

Southern California Edison Company's
Risk Spending Accountability Report for 2021

June 1, 2022

Southern California Edison Company's
Risk Spending Accountability Report for 2021

Table of Contents

Southern California Edison Company's
Risk Spending Accountability Report for 2021

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I.

INTRODUCTION

Southern California Edison (SCE) appreciates the opportunity to present the data contained in this report and we look forward to further dialogue with the Energy Division of the California Public Utilities Commission (Commission or CPUC) and other interested parties regarding the content found in this report. SCE's Risk Spending Accountability Report (RSAR) for calendar year 2021 is organized into eleven chapters and two appendices.[1] The Background chapter summarizes the regulatory background giving rise to the report, including the decisions and guidance from the Energy Division regarding the contents and format of this report. Chapter III presents recorded aggregate operations and maintenance (O&M) expenses and capital expenditures for 2021 relative to what was authorized in SCE's Test Year 2021 General Rate Case (2021 GRC)[2] for the applicable safety, reliability and maintenance activities along with an overarching discussion of variance drivers.

In Chapter IV, SCE provides important context for its variance analysis and the 2021 authorized funding, which are based on forecast ratemaking over a multi-year GRC cycle. Chapter IV also discusses SCE's compliance with requirements from Decision (D.)19-04-020.

Chapter V describes the process by which activities impacting safety, reliability and maintenance were chosen for this report. Consistent with direction from the Energy Division, Chapter VI explains the process used to derive authorized dollars for GRC activities and Risk Assessment Mitigation Phase (RAMP) controls and mitigations.

Chapters VII through X describe the O&M expense and capital expenditure for Spending Accountability Report (SAR)-eligible activities, and variance calculations and variance

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[1] D.19-04-020 is the decision adopting risk spending accountability report requirements and safety performance metrics for the large IOUs and requires that SCE annually file and serve its RSAR on March 31. On January 21,2022 the CPUC granted our extension request to file the 2021 RSAR on June 1, 2022.

[2] Application (A.)19-08-013.

explanations for the Distribution, Transmission, Generation and Other categories.[3] The variance explanations are provided for: (a) expense activities with a difference of at least $10 million, or a percentage difference of at least 20% subject to a minimum difference of $5 million; and (b) capital expenditures with a difference of at least $20 million, or a percentage difference of at least 20% subject to a minimum difference of $10 million. In addition, SCE has included explanations of variances in recorded versus authorized units, where appropriate, in accordance with D.19-04-020.[4]

Finally, Chapter XI summarizes SCE spending in 2021 on safety, reliability, and maintenance activities specific to balancing and memorandum accounts.

The materials in the appendices include the following:

- Appendix A maps Risk Assessment Mitigation Phase control and mitigation activities to GRC activities.
- Appendix B provides a list of projects performed in 2021 that were not presented in the 2021 GRC and cancelled or deferred projects.

During 2021, SCE continued to focus on delivering safe and reliable service to its customers and their communities. SCE prioritized overall authorized spending and prudently varied from what was authorized when circumstances changed, needs emerged, or new and better solutions later appeared.

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[3] For those activities meeting the materiality thresholds, the Energy Division also directed that SCE provide: (a) a description of the programs; (b) location in GRC testimony where the program is described; (c) a list of projects that were canceled or deferred within each program; and (d) projects not presented in either rate case but that were taken up anyway. See Energy Division letter dated February 14, 2020, Attachment at p. 2.

[4] See D.19-04-020, Attachment 2, p. 7 ("We direct the IOUs to provide narrative explanations of activities for those risk mitigation programs for which work unit data is available and where the deviation between authorized work units and performed work units is equal to or greater than 20 percent. The IOUs shall describe deviations of 20 percent or more both in the quantity of work units performed and in the type of work units performed.").

II.

BACKGROUND

In D.14-12-025, the Commission revised the Rate Case Plan to incorporate a risk-based decision-making framework encompassing two new procedures – the RAMP and Safety Model Assessment Proceeding (S-MAP) – to support developing and implementing risk-based methodologies in rate case filings. In addition, the Commission required the filing of risk spending accountability reports to "assist in the goal of improving utility accountability for the ratepayer money spent on risk mitigation efforts."[5] The Commission's Energy Division was assigned responsibility for developing the requirements and reviewing the filed reports.

Throughout 2018, the Energy Division conducted a series of workshops to refine the scope and nature of the reports. Among other things, the Energy Division expanded the scope of the reports beyond spending on items associated with risk mitigation. The reports would also include all maintenance items, consistent with the statutory requirements specified in Public Utilities Code 591. On January 3, 2019, Energy Division Director Edward Randolph sent a letter to SCE requesting an interim Spending Accountability Report for specified activities[6] covering years 2018 to 2020 ("January 3rd, 2019 Letter").[7] [8] In addition to showing authorized versus actual spending for the record year (expressed in terms of dollars and percentages), the Energy

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5 D.14-12-025, p. 43.

6 Specifically, the Energy Division required SCE to include "programs authorized or in effect during each record year that were identified as impacting safety or reliability within SCE's Risk Informed Planning Process and Risk Evaluation Methodology filed as part of the 2018 GRC [see Exhibit SCE-01 and associated workpapers, served in A.16-09-001], as well as programs associated with a maintenance activity."

7 On February 14, 2020, the Energy Division notified SCE of their recommendation that SCE submit the RSAR covering calendar year 2019 no later than March 31, 2020. On February 27, 2020, SCE submitted a request to file on the original due date of May 31, 2020. On April 10, 2020, Energy Division issued a schedule for its review of Risk Spending Accountability Reports in 2020. In that document, Energy Division confirmed that SCE could file its 2019 RSAR by May 31, 2021. See Energy Division Annual Risk Spending Accountability Report 2020 Review Schedule (issued April 10, 2020), fn. 3.

8 In 2020, SCE received three letters from the Energy Division concerning its review of SCE's 2016-2017, 2018 and 2019 RSARs. In all, the Energy Division found that SCE had met the applicable requirements for RSARs.

Division asked SCE to include a derivation of authorized amounts,[9] and to discuss (where applicable) related balancing or memorandum accounts.[10]

In 2019, the Commission adopted a new reporting framework in D.19-04-020, Ordering Paragraph 10. This new framework applies to SCE's 2021 GRC, which was filed on August 30, 2019. This is SCE's first RSAR under these new requirements. The most notable modifications to the RSAR framework in D.19-04-020 compared to the guidance originally provided by the Energy Division in the January 3rd, 2019 Letter are: 1) the separation of risk mitigation programs identified in RAMP and other programs related to safety, reliability and maintenance in the GRC; and 2) the reporting on authorized activities and actual activities performed, for each program, using "work units" as the unit of reporting where applicable. Attachment 2 to D.19-04-020 provides example tables for reporting authorized and recorded spending and work units. While this is the first RSAR in which SCE is required to include the two items above, SCE has been incorporating the work unit information into our previous RSARs. SCE was unable to incorporate the first item above – the separation of risk mitigation programs – until we received a decision on our 2021 GRC application that included the integration of our 2018 RAMP. In compliance with D.19-04-020, the tables in Sections VII to X below provide the link from GRC activities to RAMP risk mitigation programs, as well as the comparison of authorized to actual units where applicable.[11]

SCE followed the guidance provided by Energy Division regarding Sempra's 2020 RSAR. In response to SDG&E and SoCalGas' request for clarification of applying the variance selection criteria, Energy Division provided the following guidance in an email dated February 14, 2020: "We have reviewed pages 41-43 of D.19-04-020 and believe that you should apply the selection criteria and explanations for all GRC programs as well as the risk mitigation programs, where work unit data is available. That is to say that you will only need to provide greater details

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[9] *See* Section VI below.
[10] *See* Section XI below.
[11] Please refer to Appendix A for the RAMP control and mitigation activity mapping to GRC activities.

for the unitized risk mitigation programs."[12] SCE followed this guidance and applied the variance criteria thresholds at the GRC activity level, except for GRC activities that comprised a RAMP activity that had work units. For example, SCE's Underground Structure Replacement Distribution capital GRC activity is comprised of a RAMP component, Covered Pressure Relief Restraint (CPRR), and a non-RAMP component (vault replacements and shoring). Since both of these components are forecasted using work units, SCE applied the variance threshold criteria to the RAMP and non-RAMP components.

SCE has diligently sought to incorporate work units into this RSAR and will continue to refine this approach in future reports. Authorized and recorded work units are provided for activities where there were clearly defined work units in the 2021 GRC. Work units were not created for activities which were not clearly presented in that format in our 2021 GRC.[13] There are a number of specific projects which are not unit-based. For example, Load Growth, where SCE's forecast is based on multiple independent projects of varying scopes and forecasts, is not translatable into units. Unit costs in various infrastructure replacement programs can span multiple years (e.g., planning costs incurred 2020 for work completed in 2021) such that taking the annual expenditures and dividing by the total units does not provide an accurate unit cost. Further, SCE uses historical averages and last year recorded (LYR) in many of our GRC activity forecasts. Both of these methodologies have been accepted and approved by the CPUC[14] and are not unit based and work units cannot be directly imputed from the forecasts.

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[12] *See* Risk Spending Accountability Report of San Diego Gas & Electric Company and Southern California Gas Company for 2020, p. 9.

[13] If the total activity forecast was not entirely comprised of units * unit cost we did not consider that activity to be unit-based (for instance if 75% of an activity's authorized spending is units * unit cost and 25% is based on historical spend or some other forecast methodology, then units were not included).

[14] For instance, in D.89-12-057, and subsequently in D.04-07-022, the CPUC stated that if recorded expenses have significant fluctuations from year to year, or expenses are influenced by external forces beyond the utility's control, an average of recorded-expenses is appropriate. Also in D.89-12-057, and subsequently in D.04-07-022, the CPUC stated that if recorded expenses have been relatively stable for three or more years, the last recorded year is an appropriate base estimate.

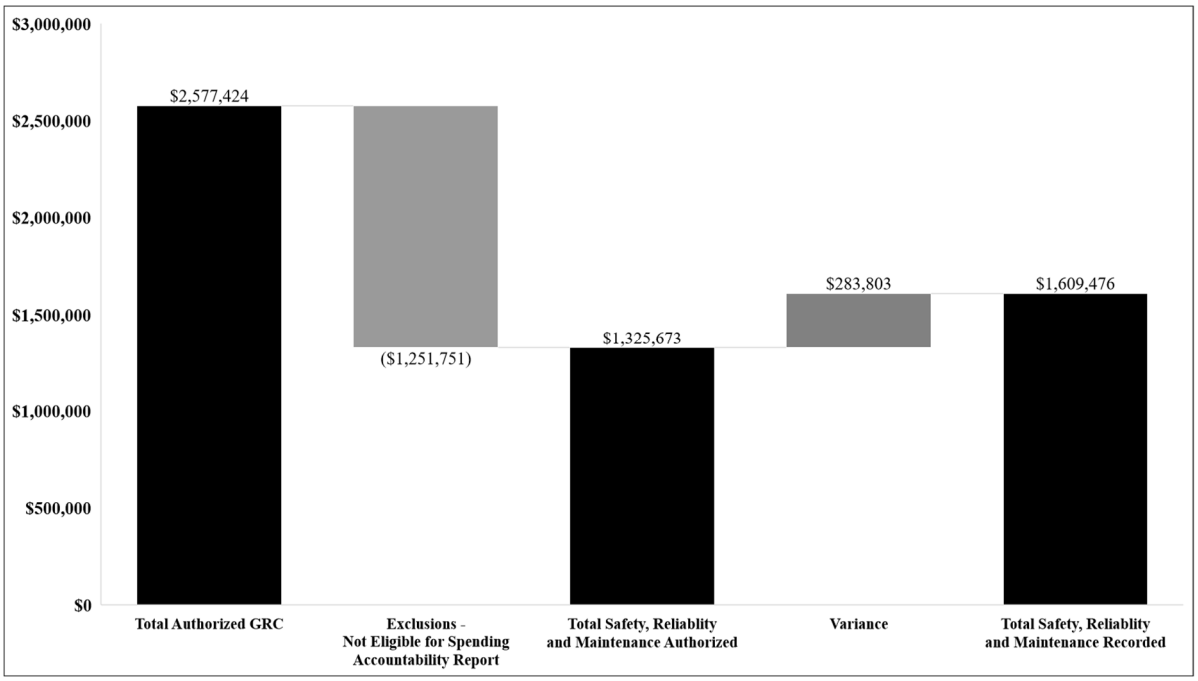
III.

OVERVIEW OF AGGREGATE SPENDING VERSUS AUTHORIZED IN SELECT SAFETY, RELIABILITY AND MAINTENANCE PROGRAMS

A. O&M

Figure III-1 below depicts the total GRC authorized and recorded expense for SAR-eligible O&M activities.

Figure III-1
2021 O&M GRC Authorized vs. Recorded - ($000s)



For 2021, recorded O&M expenses were approximately $284 million more than the 2021 GRC authorized funding for the SAR-eligible activities, as shown in Table III-1 below. This represents a variance of 22%. While SCE experienced a greater spending variance in Distribution wildfire risk mitigation related activities, SCE spent within five percent of authorized for Transmission, Generation and Other activities. Further explanations for these categories are provided below.

Table III-1
O&M Spending Accountability Report Variances by Function- ($000s)

Category	2021 Recorded	2021 Authorized	Variance (Recorded - Authorized)	% Variance ((Rec. - Auth.)/ Auth.)
Distribution	$767,723	$468,949	$298,774	64%
Transmission	$121,015	$114,970	$6,045	5%
Generation	$155,471	$160,265	($4,795)	-3%
Other	$565,268	$581,489	($16,221)	-3%
Grand Total	**$1,609,476**	**$1,325,673**	**$283,803**	**21%**

Within the Distribution category, SCE prudently spent more than authorized by approximately $300 million, or 64%. The majority of this $300 million is attributed to routine distribution vegetation management and enhanced overhead inspections and remediations. SCE's additional spending on distribution routine vegetation management was influenced by two key drivers. First, in SB 247 the Legislature set a higher pay rate for tree trimmers in California. Because the 2021 GRC was filed in 2019, prior to SB 247's enactment, SCE submitted its 2021 forecast based on its best understanding at the time and could not have foreseen or factored into its vegetation management forecasts the monetary impact associated with SB 247. Although SCE submitted Update Testimony seeking to increase the 2021 forecast to account for the impact of this wildfire risk mitigation-inspired legislation, SCE's request was denied on procedural grounds. Thus, the authorized amount initially set for 2021 and the post-test years did not include the substantial impact of SB 247 on the cost of tree trimming (and other labor cost pressures known at the time of Update Testimony and set forth therein). In lieu of including the forecast for SB 247 costs, the Commission in the 2021 GRC Track 1 Decision established a balancing account that will allow SCE to record more than what was initially adopted in the decision and provided the avenue for seeking recovery of amounts recorded in excess of those initial amounts. SB 247 rates impacted both High Fire Risk Area (HFRA) and non-HFRA work, as tree trimmers were deployed across grids irrespective of classification. In addition, starting in 2021, the

Commission-authorized Vegetation Management Balancing Account does not differentiate between work and costs in HFRA versus non-HFRA.

The second key driver was that in 2021, vegetation management experienced a nearly six-month safety stand down of its largest contractor. This resulted in SCE paying roving rates to several smaller contractors, on top of weekend and overtime hours, in order to meet compliance deadlines. Additionally, new environmental review processes contributed to increased contractor rates. SCE also experienced an overall increase in Enhanced Overhead Inspections (EOI) primarily due to SCE's strategy of moving to an increasingly more targeted scope in 2020 and 2021, which utilized a more refined risk-based approach. This change in inspection strategy increased the overall volume of inspections.

Within the Transmission category, SCE spent more than authorized by approximately $6 million, or 5%. Similar to Distribution, the main driver of the additional spend was transmission routine vegetation management. The same cost drivers that are discussed above for distribution routine vegetation management apply to transmission and are not repeated here.

Within the Generation category, SCE spent less than authorized by approximately $5 million, or 3%. The majority of the decreased spend was related to Mountainview Generating Station (Mountainview) GRC activity. SCE cancelled the General Electric (GE) contractual service agreement. After reevaluating the terms and conditions of the GE Contract in light of current operating conditions, and following several rounds of discussions with GE, SCE found it was prudent to discontinue the contract from both an operational and overall cost standpoint. This will not impact SCE's ability to safely and reliably operate Mountainview. There was also decreased inspections and maintenance work as a result of lower-than-forecasted run hours.

Within the Other category, SCE spent more than authorized by approximately $11 million, or 2%. In 2021, SCE spent above authorized on Public Safety Power Shutoff (PSPS) Customer Support and PSPS Execution GRC activities. This included approximately $20 million for SCE's Critical Care Backup Battery (CCBB) program, which was not included in the 2021 GRC request. In July of 2020, SCE launched the Critical Care Backup Battery (CCBB) program

to provide a battery-powered portable backup solution to operate critical medical equipment during power outages due to PSPS events or other emergencies. The program is meant to address the needs of SCE's income-qualified Medical Baseline (MBL) customers residing in HFRA by fully funding the cost of a battery-powered portable backup solution to operate medical equipment during PSPS events. In 2021, SCE expanded the CCBB program to include customers who are 1) enrolled in MBL; 2) enrolled in either the CARE or FERA program; and 3) that reside in the HFRA. Additionally, SCE increased program awareness through marketing and outreach by utilizing direct mail, outbound phone calls, door knocking, and through increased engagement with community-based organizations (CBOs) to help inform and educate their community members. The offset to the increased spend for PSPS-related activities occurred in various information technology (IT) activities. Some of the drivers of this underspend included utilizing lower cost vendors and reprioritization of certain software replacement and maintenance activities.

Table III-2 below shows the recorded and authorized O&M expenses by SCE's 2018 RAMP risks.

Table III-2
O&M Spending Variances by SCE 2018 RAMP Risk- ($000s)

SCE 2018 RAMP Risk	2021 Recorded	2021 Authorized	Variance (Recorded less Authorized)	% Variance
Wildfire	$114,013	$58,293	$55,720	96%
Physical Security	$21,891	$27,064	($5,173)	-19%
Cyber Attack	$16,045	$26,410	($10,365)	-39%
Contact with Energized Equipment	$6,051	$6,821	($770)	-11%
Climate Change	$3,799	$3,744	$55	1%
Building Safety	$3,725	$8,769	($5,045)	-58%
Employee, Contractor & Public Safety	$3,554	$9,053	($5,499)	-61%
Grand Total	**$169,077**	**$140,155**	**$28,923**	**21%**

B. Capital

Figure III-2 below depicts the total GRC authorized and recorded spend for SAR-eligible Capital activities.

Figure III-2
2021 Capital GRC Authorized vs. Recorded - ($000s)

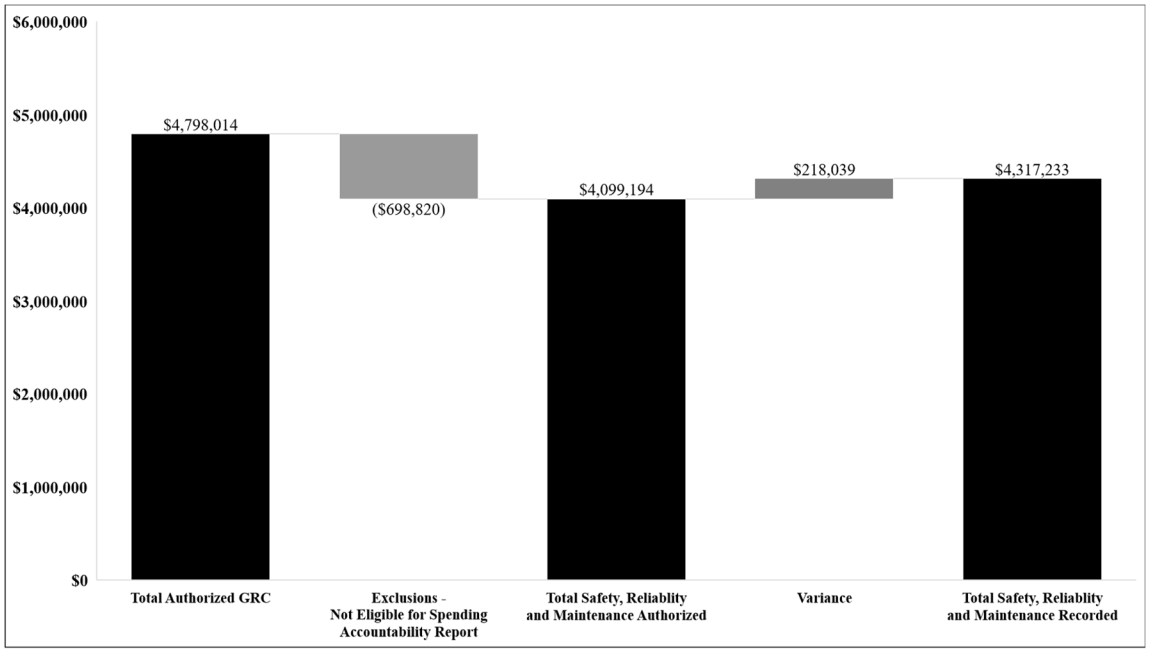


Table III-3 below shows the authorized to recorded comparison of SCE's 2021 GRC capital activities supporting safety, reliability and maintenance and an aggregate additional spend of approximately $218 million, or 5%. The additional spend in Distribution was offset by lower spending than authorized in Transmission, Generation and Other. Further explanations for these categories are provided below.

Table III-3
Capital Spending Accountability Report Variances by Function- ($000s)

Category	2021 Recorded	2021 Authorized	Variance (Recorded - Authorized)	% Variance ((Rec. - Auth.)/
Distribution	$2,656,738	$2,187,265	$469,473	21%
Transmission	$919,250	$1,080,240	($160,991)	-15%
Generation	$93,561	$94,298	($738)	-1%
Other	$647,685	$737,391	($89,706)	-12%
Grand Total	**$4,317,233**	**$4,099,194**	**$218,039**	**5%**

Within the Distribution category, SCE spent more than the amounts initially adopted in the Track 1 GRC decision. The majority of this spend was driven by SCE's necessary efforts to mitigate wildfire risk. SCE did not remove the amounts over authorized for wildfire activities. SCE felt it was prudent to include these costs in the recorded amounts to provide the Commission with the details behind SCE's efforts to mitigate wildfire risk, despite potential reasonableness review depending on the overall spending for WCCP from 2019 - 2023. In 2021, SCE spent more than the imputed amount initially adopted in the Track 1 GRC decision for Wildfire Covered Conductor Program (WCCP) by $362 million.[15] SCE installed 384 more miles of covered conductor than the imputed miles from the Track 1 Final Decision and experienced increased unit costs. The unit costs, driven by work in certain SCE regions, such as North Coast

[15] In the Track 1 Final Decision, the Commission authorized a scope of 4,500 miles of covered conductor and its associated capital-related revenue requirement for the WCCP for the period 2019-2023 (with the ability to seek cost recovery after a reasonableness review for costs above 110 percent of the authorized revenue requirement threshold). *See, e.g.*, D.21-08-036 at Conclusion of Law (CoL) 74. SCE has completed approximately 2,500 miles of covered conductor through the end of 2021 and forecasts the completion of an additional 1,250 miles of WCCP installation in both 2022 and 2023 (i.e., approximately 5,000 miles total through YE 2023). To the extent the total recorded costs of the estimated 5,000 miles through YE 2023 exceed 110 percent of the Track 1 Final Decision's authorized amount, SCE will seek reasonableness review and cost recovery for those costs via a separate Application after 2023 recorded costs are finalized, consistent with D.21-08-036. For WCCP specifically, there is not a set authorization number of covered conductor miles or associated dollars for any particular year in the 2019-2023 cycle *per se*; instead, the Track 1 authorization is cumulative for the entire cycle. For purposes of this RSAR, SCE imputed the 2021 authorized units by subtracting out the recorded 2019-2020 WCCP miles and then averaging the remaining miles over the 2021-2023 period.

and Rurals, were higher than initially anticipated, driven by higher contractor rates in mountainous areas compared to other flat-terrain areas. A similar situation applied to the San Jacinto and Rurals regions where SCE encountered areas that were more challenging to complete covered conductor work in due to factors such as terrain, narrow roads, and limited space for staging. In general, assets/equipment located in mountainous and remote areas required helicopter sets or special vehicles to reach, which added costs associated with the additional environment review, additional permits, and potential monitors with construction crews on scheduled days of work. The necessary adjustments to work activities as a result of these constraints resulted in increased unit costs.

Additionally, SCE spent above authorized for EOIs and Remediations by $85 million. In 2021, SCE completed repairs and replacements deriving from risk-informed and compliance-based inspections, including ground-based, aerial, and infrared, and prioritized those repairs based on regulatory compliance due dates. When scheduling and performing compliance-driven remediation work, SCE also considers work bundling, outage requirements, permitting restrictions, crew availability and specialty equipment needs. SCE continues to bundle the work at the structure and circuit segment levels to the extent feasible for economic efficiency and to minimize the impact of remediation work on customers, as well as to reduce the volume of repeat outages, road closures and traffic restrictions. In certain cases, this resulted in future-year scope being accelerated in advance of the established compliance due date (e.g., pole replacement being accelerated from a future year to align with a crossarm replacement due in the current year). Additionally, there were several earlier-year due notifications that were not completed due to prior-year operating constraints such as resource availability, permitting delays, and weather deferrals. This contributed to SCE's increased spend as compared to authorized.

Within the Transmission category, SCE spent less than authorized by approximately $161 million or 15%. SCE notes that a portion of this lower spend was associated with Federal Energy Regulatory Commission (FERC) jurisdictional projects and programs. SCE experienced

several project delays and deferrals for Transmission Line Rating Remediation (TLRR) projects that require licensing. SCE also experienced delays in the Eldorado-Lugo-Pisgah 220 kV transmission project as we reassessed potential alternative solutions. SCE spent above authorized in Transmission Substation Plan (TSP). One of the key drivers for the higher spend in TSP was due to project scope changes for the Valley-Ivyglen 115 kV project, which is predominantly FERC jurisdictional. Although a reasonable effort was made to forecast the future costs, SCE added additional items to the project scope that are further discussed below in Section VIII.B.3.

Within the Generation category, SCE spent less than authorized by less than $1 million or 1%. SCE did not have any activities in this category that required a variance explanation.

Within the Other category, SCE spent less than authorized by approximately $90 million or 12%. Similar to the above-authorized spend in 2020, the underrun in 2021 for Communications is due to SCE's decision in mid-2020 to select Private LTE (PLTE) technology as the solution for the new FAN instead of the M.esh Radio Network (MRN) technology. At the time of the filing for the 2021 GRC, SCE's evaluation of PLTE as a solution for the FAN was still ongoing and continued until July 2020. As such, SCE proceeded with using the data based on the Mesh Radio Network (MRN) plan that was available at the time of the 2021 GRC filing (August 2019). This MRN plan assumed costs for equipment and field deployment in 2021 which did not materialize due to SCE's decision in 2020 to pursue a PLTE solution instead. Consequently, the FAN scope for 2021 was focused on the new PLTE solution design and RFP development efforts and did not include any equipment purchase or field deployment. This resulted in significantly lower capital costs in 2021 for FAN.

Also in the Other category, SCE spent above authorized for PSPS Customer Support in 2021. SCE made enhancements and improvements in the Customer Notifications space that were not requested in the TY 2021 GRC. The scope of this works included the PSPS Incident Commander Dashboard, Operational Data and GIS improvement, and Customer Notifications Enhancements. In addition, SCE developed a back-up site as an alternative in case the primary

SCE.com site was not available. A significant contributor to the capital was the 2021 PSPS Action Plan, which identified the need for a Centralized Data Platform as the foundation for PSPS data collection.

SCE also spent above authorized on our Grid Management System in 2021. The variance is attributed to several factors, including accelerated spend on hardware purchases. The global Covid-19 pandemic has resulted in widespread global supply chain delays and disruptions, so SCE decided to accelerate the purchase of hardware in 2021 to mitigate supply chain risks. SCE also incurred additional investments necessary to meet Grid Cybersecurity standards for Secured Internet Connectivity to Grid System (e.g., pre-production vulnerability assessment, project risk assessment, architecture standards review and implementation, etc.), GMS Integration with SCE Enterprise systems, Password Management, and to set up dedicated onsite Cybersecurity penetration testing system environment to support all GMS Releases.

Table III-4 below shows the recorded and authorized capital expenditures by SCE's 2018 RAMP risks.

Table III-4
Capital Spending Report Variances by SCE 2018 RAMP Risk- ($000s)

SCE 2018 RAMP Risk	2021 Recorded	2021 Authorized	Variance (Recorded less Authorized)	% Variance
Wildfire	$947,088	$563,584	$383,503	68%
Cyber Attack	$88,848	$104,500	($15,652)	-15%
Contact with Energized Equipment	$84,713	$72,641	$12,072	17%
Underground Equipment Failure	$36,467	$24,587	$11,880	48%
Physical Security	$33,370	$48,980	($15,610)	-32%
Hydro Asset Safety	$20,827	$19,237	$1,590	8%
Building Safety	$6,391	$7,369	($978)	-13%
Employee, Contractor and Public Safety	$1,975	$2,512	($537)	-21%
Grand Total	**$1,219,677**	**$843,409**	**$376,269**	**45%**

IV.

SCE'S REPORT PLACED IN CONTEXT

As the report compares SCE's recorded spending for selected activities with Commission authorized amounts, it is essential that the report be analyzed in the proper context. The key starting point was the Commission's examination of SCE's forecasts in its 2021 GRC. In a consistent line of decisions, the Commission has confirmed that GRC forecasts represent reasonable estimates of what the utility expects to spend in a given area.[16]

SCE's 2021 GRC encompassed test year 2021, and attrition years 2022 and 2023. The April 17, 2020 Amended Scoping Memo and Ruling (Amended Scoping Memo) established Track 4, which is pending, to consider funding for a third post-test year rate mechanism covering 2024.[17] SCE followed the schedule established by the Commission and presented its forecasts in 2019. The Commission issued its final GRC decision on August 20, 2021.[18] By the time SCE received the Commission's guidance on what SCE was authorized to spend in connection with its forecasts,those forecasts were nearly three years old. In the intervening years, conditions changed, new opportunities to improve operations and gain efficiencies were found, and additional needs emerged.

The Commission has repeatedly recognized that actual spending can differ from authorized spending, and that utilities have the flexibility to apply their best judgment in managing the business.[19] The Commission has stated that "[u]nder GRC ratemaking, the utilities are given an authorized revenue requirement to manage various parts of their utility business.

Recognizing that the utilities may need to re-prioritize spending and spend more or less in a particular area of their business, the Commission affords them substantial flexibility to decide

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16 See, e.g., D.08-09-026, Section 6.2 ("A GRC is used to set rates based on reasonable estimates of the costs the utility will incur in providing service. It is not generally intended to set a specific budget. Actual costs for the test year, including plant additions, may vary.")

17 *See* Amended Scoping Memo, p. 1.

18 D.21-08-036.

19 See, e.g., Re California-American Water Co., D.02-07-011, (mimeo), pp. 6-7, 2002 Cal. PUC LEXIS 423, 220 P.U.R. 4th 556.

how much to spend in any particular area."[20] Moreover, the Commission has specifically recognized that "new programs or projects may come up, others may be cancelled, and there may be reprioritization. This process is expected and is necessary for the utility to manage its operations in a safe and reliable manner."[21] In providing guidance on spending accountability reports, the Energy Division has similarly confirmed that "a utility is allowed the flexibility to reprioritize the authorized funds in order to ensure safe and reliable operations."[22]

Additionally, SCE's activities during 2021 were still impacted by conditions created by the COVID-19 pandemic; however, SCE was generally better able to adapt to the realities of the pandemic in 2021 than 2020. These conditions and their impacts on SCE's operations and capital projects could not have been reasonably foreseen at the time SCE's 2021 GRC was submitted.

V.

APPLICABLE SAFETY, RELIABILITY, AND MAINTENANCE RELATED PROGRAMS

In D.19-04-020, the Commission directed SCE to develop a list of programs that include activities relating to safety, reliability or maintenance authorized or in effect during the applicable year.

In SCE's 2018 GRC (A.16-09-001), a risk mapping of GRC activities to risk events, outcomes and impacts was developed.[25] This mapping:

- Examined each GRC activity;
- Identified what type of risk event was targeted for mitigation; and

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[20] CPUC Resolution E-4464 (May 10, 2012), at p. 7.
[21] D.11-05-018, at p. 27.
[22] Energy Division, Safety-Related Spending Accountability Report for Southern California Edison (May 2017), available at http:www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/SCESafety-RelatedSpending.pdf.

- Outlined potential outcomes and impact dimensions for that risk event, using a framework consistent with SCE's Safety Modeling Assessment filing (A.15-05-002) and the guidance the Commission provided in D.16-08-018.

This mapping served as the foundation for the Energy Division's report on Safety Related Spending for 2015 submitted in connection with SCE's 2018 GRC.

Consistent with our prior reports, this 2021 report utilizes the same mapping. First, the safety-related programs were identified by selecting any activity that scored in the Safety Impact dimension. Then, these criteria were expanded to include programs that scored in the Reliability Impact dimension. Because the mapping does not capture a Maintenance Impact dimension, SCE manually reviewed all programs that had not scored as related to Safety or Reliability and then added any program that met the criteria specified in the January 3, 2019 Letter and D.19-04-020.

VI.

DERIVATION OF AUTHORIZED DOLLARS

On August 30, 2019, SCE filed its 2021 GRC Application requesting, among other things, an increase in its base revenue requirements for the Test Year 2021 and Post-Test Years 2022 and 2023.[23]

The Commission issued the 2021 GRC Decision (D.21-08-036) on August 19, 2021. The GRC Decision adopted, among other things, a CPUC-jurisdictional base revenue requirement for the 2021 Test Year, effective January 1, 2021 (Advice Letter 4586-E). The authorized amounts for 2021 are outputs from the Results of Operations model. The Spending Accountability Report generally does not include activities recovered outside the GRC (*e.g.* Charge Ready, fuel and purchased power, and Energy Efficiency programs.) The Spending

[23] SCE's base revenue requirements include the costs of operating, maintaining, and investing in SCE's generation, distribution, transmission, and general functions, and exclude costs of fuel purchasing and power procurement.

Accountability Report, however, includes FERC-jurisdictional capital and O&M reviewed in the GRC.

VII.

DISTRIBUTION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For the Distribution expense activities that are SAR-eligible, Table VII-5 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table VII-5
Distribution Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Circuit Breaker Inspections and Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 51 - 57	SCE forecasted this work activity using Last Year Recorded and does not have a work unit that is applicable.	Includes the cost of labor, materials used, and expenses incurred in performing the inspection and maintenance of circuit breakers at distribution and transmission substations.
Dead, Dying and Diseased Tree Removal: *SCE-02 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE02V06A pp.161 - 167	The variety of work activities in this category makes it infeasible to identify a single unit of measurement. LYR was used as the forecast basis since the number of dead, dying, and diseased in any given year.	Costs incurred to proactively remove dead, dying, and diseased trees that could fall on or contact SCE's electrical facilities.
Distribution Apparatus Inspection and Maintenance: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 51 - 57	SCE used LYR as the forecast basis since the number of inspection and the number and type of maintenance items can verify from year-to-year	This activity includes the costs associated with the inspection and testing of all overhead and underground distribution apparatus specialized equipment for things such as remote monitoring and control.
Distribution Fault Anticipation: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE04V05APt01 pp. 337 - 345	HFRA Circuits with DFA devices installed	This activity includes the costs associated with rollout of Distribution Fault Anticipation devices as well as data services and analysis provided by Texas A&M.
Distribution Intrusive Pole Inspections: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V05 pp. 31 - 32	# of Intrusive Pole Inspections	The costs incurred for intrusive pole inspections of distribution poles. Intrusive inspections require inspectors with proper training and experience to drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable with external observation alone. Inspectors also does a visual inspection of the exterior of the pole to check for damage.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Distribution Overhead Detail Inspections: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 10 - 18	There are multiple work activities and non-labor costs that make up this activity making one unit infeasible.	Overhead Detail Inspections include costs for inspecting SCE's overhead distribution electrical system under GO 165 and SCE's DIMP. Activity includes the cost of labor, materials used and expenses incurred in performing overhead detail inspections. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Distribution Pole Loading Assessments: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 4-9	# of Poles Assessments	The costs incurred in performing pole loading assessments on distribution poles, including pole loading calculations. Through assessments, poles that do not meet GO 95 loading, temperature and safety factor requirements or, in areas with known local conditions such as high winds and SCE's loading, will be identified for repair or replacement.
Distribution Pole Loading Repairs: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 220-225	# of Repairs	The costs incurred to make repairs to distribution poles as part of the Pole Loading Program. Repairs involve the design and installation or modification of guy wires.
Distribution Preventive and Breakdown O&M Maintenance: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp.28 - 37	Distribution Preventive and Breakdown O&M Maintenance costs vary year-to-year based on the required number of preventive and breakdown maintenance items that need to be repaired in each year. The complexity of each repair also contributes to the variance in year-to-year costs. Given this, SCE used recorded data with an adder for new requirements to forecast this activity.	Distribution maintenance is performed on either a planned basis or an unplanned basis. Planned maintenance work is comprised of repairs to SCE's equipment and structures recorded as Priority 2 items, primarily driven from inspection activities. These repairs can be performed by inspectors or qualified electrical workers. Planned work is referred to as preventive maintenance. Unplanned activities, referred to as breakdown maintenance, include the repair of SCE equipment and structures that are damaged or fail in service. These items are typically identified as Priority 1 conditions under SCE's DIMP. Breakdown maintenance is typically performed in response to damage caused by equipment failures, degradation, metallic balloons, rodents, birds, or other causes. Unplanned maintenance does not include the costs for repairs performed as a result of a storm or a claim, such as a vehicle damaging SCE poles.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Distribution Request for Attachment Inspections: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 266-271	The forecast for this activity is based on a mix of work quantities and SCE labor to support this overall activity.	Includes cost for Pre Inspections and Final Inspections of distribution renter attachments to poles.
Distribution Routine Vegetation Management: *SCE-02 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE02V06A pp. 121 - 140	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Costs incurred for pre-inspections, trimming and removal of trees, expanded clearance distances, back-end quality assurance/checks; pole-brushing work, supplemental patrols, and substation-associated vegetation management work.
Distribution Underground Detail Inspections: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp.19 - 27	Inspection Count	This activity includes costs for inspecting SCE's underground distribution electrical system under GO 165 and SCE's DIMP. Activity includes the cost of labor, materials used and expenses incurred in performing underground detail inspections. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Enhanced Overhead Inspections and Remediations: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCEO4VO5APt01 pp. 370 - 389	Unable to identify a single unit due to multiple activities in this workpaper that support capital projects.	This activity includes the costs associated with performing Enhanced Overhead Inspections and remediation of findings across SCE's High Fire Risk Area. This includes Transmission EOI inspections, Distribution EOI Inspections, aerial inspections, Transmission and Distribution EOI repairs, the long span mitigation, vertical switches and EOI PMO costs.
Fire Hazard Prevention: *SCE-02 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE02V 06A p. 97	This is a sub-activity of routine vegetation management, and not forecasted on a unit basis.	SCE expanded its efforts to mitigate vegetation-related wildfire risks by implementing a Hazard Tree Management Program (HTMP). HTMP assesses the site and structural condition of trees that could fall into or otherwise impact electrical facilities and potentially lead to ignitions and outages.
Fusing Mitigation: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Fusing Mitigation*	WPSCE04V05APt01 pp. 319 - 330	# of Branch Line Fuses Installed	This activity includes the costs associated with the installation of branch line fusing as well as substation class fusing within SCE's High Fire Risk Area.
HFRA Sectionalizing Devices: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Remote-Controlled Automatic*	WPSCE04V05APt01 pp. 285 - 298	# of RARs, RCSs and CBs replaced	This activity includes the costs associated with the installation of Remote Automatic Reclosers (RARs), Remote-Controlled Switches (RCSs), and replacement of relay hardware in order to sectionalize circuits that traverse High Fire Risk Area boundaries.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Reclosers and Fast Curve Settings			
Infrared Inspection Program: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Infrared Inspection Program*	WPSCE04V05APt01 pp. 406 - 416	Distribution and Transmission Miles Inspected	This activity includes the costs associated with performing infrared inspections on High Fire Risk Area (HFRA) distribution circuits as well as infrared and corona inspections on transmission lines in HFRA.
Load Side Support: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4P2ChIII-IVBkC pp.296 - 302	SCE forecasted using a historical average since it is appropriate when the recorded amounts "are influenced by weather or other external forces beyond control of the utility" D.89-12-057. Therefore this is not unit based.	Load Side Support is SCE's program to address power quality problems such as voltage sags, transients, voltage imbalance, and harmonics that can affect transmission and distribution systems, generators, and customer equipment. Power Quality Specialists in T&D perform investigations at all levels from generation and transmission, to end-use equipment within customer facilities. Power Quality Specialists identify the cause of power quality problems and recommend solutions to customers and/or system owners.
Meter System Maintenance Design: *SCE-02 Vol : 1 Pt. 3:* RAMP Control/Mitigation: N/A	WPSCE02V1P3 pp. 31 - 27	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Advanced Metering Operations analyzes meter and communication data to identify failed devices, issue repair orders, optimize communication performance, update firmware, and mitigate system problems. These monitoring activities help ensure customer usage data is accurate and processed for use by other SCE operational units.
Monitoring and Operating Substations: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 9 - 15	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes the cost of labor, materials, and expenses incurred in operating distribution and transmission substations and switching stations. Includes labor incurred for activities such as: supervising station operation; inspecting station equipment; keeping station logs and records and preparing reports on station operation; and operating switching and other station equipment. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Other Substation Equipment Inspections and Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 79 - 85	Each asset within this category has different inspection/maintenance requirements, which vary year to year. As a result SCE used LYR as a basis as it represents the most recent year from the combined inspection, maintenance, and repair costs for misc. equip, and is reflective of the costs SCE will incur for those activities going forward.	Includes cost of labor and materials used and expenses incurred in inspecting and maintaining substation equipment not specifically provided for in any other final cost center (FCC). Such items include: cable trench covers; steel and wood pole racks; disconnect switches; auxiliary current transformers; potential transformers including bushings; lightning arrestors; potential devices and coupling capacitors; current transformers including bushings; supervisory and telemetering equipment; insulators; oil line tanks; cooling towers; direct current (DC) grounds; and mobile units.
Patrolling and Locating Trouble: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 45 - 50	The number, type, complexity, and duration of activities can vary from year-to-year and are not possible to be forecast. SCE used LYR as its forecast basis given the uncertainty of activities.	Includes the costs incurred by troublemen when patrolling distribution lines to locate trouble at the request of SCE's system operators or as the result of a customer reported problem. Activities include: patrolling, switching, locating the cause of the reported problem, and inspecting SCE equipment installed on customer's property, and repairs to the system to correct reported problem. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Relay Inspections and Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 65 - 71	Since the cost for maintenance can vary based on information gathered during field inspections and the type of repair required, we apply an averaging methodology for the activity forecast.	Includes the cost of labor, materials used, and expenses incurred in performing the inspection and maintenance of protection relay systems at distribution and transmission substations.
Streetlight Operations, Inspections, and Maintenance: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 63 - 68	Streetlight Inspections are performed on an annual basis for urban areas and every two years in rural areas in compliance with GO 95, however other maintenance	Includes the cost of labor, materials used and expenses incurred in: the operation of street lighting and signal system equipment. Labor costs include activities for: supervising street lighting and signal systems operation; replacing lamps and incidental cleaning of glassware and fixtures; routine patrolling for lamp outages, extraneous nuisances or encroachments; testing lines

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
		and repair work associated with this activity is not unit based and depends on the results of the inspections.	and equipment; maintenance of street lighting and signal system assets; and streetlight mapping. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Substation - Inspections and Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 100 - 106	Cost can vary depending on the type of repair activity and equipment in scope therefore SCE uses a five year average and not units to forecast.	Includes the cost of labor, materials used and expenses incurred in operating transmission substations and switching stations. Includes labor incurred for activities such as: supervising station operation; adjusting station equipment where such adjustment primarily affects performance; inspecting, testing and calibrating station equipment for the purpose of checking its performance; keeping station log and records and preparing reports on station operation; and operating switching and other station equipment. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense. These costs are incurred by SCE's Power Production Department.
Substation O&M Breakdown Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 93 - 99	Due to fluctuating recorded costs in this activity to varying inspection cycle of equipment and maintenance requirement of the composition of equip. from year to year, SCE uses a five-year avg. and not units to forecast.	Substation Construction & Maintenance - Includes the costs to perform unplanned breakdown maintenance, include the repair and replacement of SCE equipment and structures that are damaged or fail in service. Breakdown maintenance is typically performed in response to damage caused by equipment failures, degradation, rodents, birds, or other means. Unplanned maintenance does not include costs related to failures that occur during a storm or from a claim.
Wildfire Covered Conductor Program: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE04V05APt01 pp. 263 - 269	There was no associated 2021 forecast for this activity.	Activity includes the costs associated with installation of covered conductor, installation of fire-resistant poles, and mitigation of tree attachments in SCE's High Fire Risk Area.
Wildfire Vegetation Management: SCE-02 Vol : 6:	WPSCE02V06A pp. 170 - 188	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Costs incurred for the Hazard Tree Removal program, which proactively assesses dead, dying, and diseased trees that could fall on or contact SCE’s electrical facilities and remediates trees as appropriate to mitigate fire risks.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: *Expanded Vegetation Management*			

2. GRC Activities Variance Calculations

Table VII-6 below provides the authorized and recorded costs, and variance and percentage change values for each distribution expense activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table VII-6
Distribution Expense Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Circuit Breaker Inspections and Maintenance	N/A	$5,606	$5,178	$428	8%				N/A	No	No	No
Dead, Dying and Diseased Tree Removal	N/A	$16,165	$35,569	($19,403)	-55%				N/A	**Yes**	**Yes**	No
Distribution Apparatus Inspection and Maintenance	N/A	$5,259	$6,177	($918)	-15%				N/A	No	No	No
Distribution Fault Anticipation	N/A	$135	$0	$135	100%				N/A	No	No	No
Distribution Intrusive Pole Inspections	N/A	$5,563	$5,457	$106	2%	133,972	129,240	4,732	4%	No	No	No
Distribution Overhead Detail Inspections	N/A	$13,279	$5,198	$8,081	155%				N/A	No	**Yes**	No
Distribution Pole Loading Assessments	N/A	$3,999	$1,031	$2,968	288%	17,961	23,000	-5,039	-22%	No	No	**Yes**
Distribution Pole Loading Repairs	N/A	$5,343	$804	$4,539	565%	1,966	1,065	901	85%	No	No	**Yes**
Distribution Preventive and Breakdown O&M Maintenance	N/A	$108,181	$111,930	($3,749)	-3%				N/A	No	No	No
Distribution Request for Attachment Inspections	N/A	$1,195	$3,111	($1,916)	-62%				N/A	No	No	No
Distribution Routine Vegetation Management	N/A	$357,724	$108,070	$249,654	231%				N/A	**Yes**	**Yes**	No
Distribution Underground Detail Inspections	N/A	$7,549	$6,669	$880	13%	173,822	167,451	6,371	4%	No	No	No
Enhanced Overhead Inspections and Remediations	N/A	$117,237	$61,592	$55,645	90%				N/A	**Yes**	**Yes**	No
Fire Hazard Prevention	N/A	$349	$0	$349	100%				N/A	No	No	No
Fusing Mitigation	N/A	$36	$1,154	($1,119)	-97%				N/A	No	No	No
HFRA Sectionalizing Devices	N/A	$14	$0	$14	100%				N/A	No	No	No
Infrared Inspection Program	*Infrared Inspections*	*$464*	*$344*	*$120*	*35%*	*4,410*	*4,340*	*70*	*2%*	*N/A*	*N/A*	*No*
Infrared Inspection Program	*Non-RAMP*	*$94*	*$3,495*	*($3,402)*	*-97%*	*1,050*	*3,240*	*-2,190*	*-68%*	*N/A*	*N/A*	***Yes***
Infrared Inspection Program	Total	$558	$3,840	($3,282)	-85%	5,460	7,580	-2,120	-28%	No	No	**Yes**
Load Side Support	N/A	$727	$1,362	($635)	-47%				N/A	No	No	No
Meter System Maintenance Design	N/A	$3,336	$3,489	($153)	-4%				N/A	No	No	No
Monitoring and Operating Substations	N/A	$43,237	$44,863	($1,626)	-4%				N/A	No	No	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Other Substation Equipment Inspections and Maintenance	N/A	$1,399	$1,377	$22	2%				N/A	No	No	No
Patrolling and Locating Trouble	N/A	$27,315	$23,644	$3,671	16%				N/A	No	No	No
Relay Inspections and Maintenance	N/A	$2,703	$3,318	($616)	-19%				N/A	No	No	No
Streetlight Operations, Inspections, and Maintenance	N/A	$4,171	$6,968	($2,797)	-40%				N/A	No	No	No
Substation - Inspections and Maintenance	N/A	$959	$1,320	($361)	-27%				N/A	No	No	No
Substation O&M Breakdown Maintenance	N/A	$2,709	$2,591	$119	5%				N/A	No	No	No
Wildfire Covered Conductor Program	N/A	$545	$0	$545	100%				N/A	No	No	No
Wildfire Vegetation Management	Expanded Vegetation Management	$32,432	$24,238	$8,194	34%				N/A	No	**Yes**	No

3. Variance Explanations

Table VII-7 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VII-7
Distribution Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Dead, Dying and Diseased Tree Removal *$:Yes, %:Yes, Units: N/A*	To ensure the safety of our contractors, SCE implemented multiple contractor safety stand-downs and new environmental processes which ultimately slowed SCE's ability to complete certain planned removals, resulting in SCE recording less than its 2021 authorized amount.
Distribution Overhead Detail Inspections *$:No, %:Yes, Units: N/A*	In 2021, SCE used contractors, which are more costly compared to SCE resources, to perform the vast majority of required inspections compared to a forecast that assume the vast majority of ODIs would be performed by SCE employees which lead to higher costs. This was necessary as SCE resources were re-prioritized to focus on High Fire inspection activities.
Distribution Pole Loading Assessments *$:No, %:No, Units: Yes*	The Distribution Pole Loading Assessments activity is reaching the end of the one-time program to assess all distribution poles. The number of assessments is lower than authorized due to lower remaining poles to complete the program. However, as we reach the end of the program, the remaining poles are the harder ones to assess which resulted in higher contractor costs for more difficult work and included the use of more helicopters to reach and assess difficult and remote poles.
Distribution Pole Loading Repairs *$:No, %:No, Units: Yes*	SCE assessments identify potential repairs which are reviewed during the planning process. SCE made improvements in the assessments phase to more accurately identify the need for repairs, which resulted in fewer repairs "falling out" during the planning phase. Historically the fallout rate for repairs was around 45%-60% of all repairs. This means that 45%-60% of all repairs would fall out of scope. The 2021 fallout rate was closer to 20% to 25% which led to a higher number of repairs than anticipated.
Distribution Routine Vegetation Management *$:Yes, %:Yes, Units: N/A*	Legislature implemented SB 247 and set a higher pay rate for tree trimmers in California. Because the 2021 GRC was filed in 2019, prior to SB 247's enactment, SCE submitted its 2021 forecast based on its best understanding at the time and could not have foreseen or factored into its vegetation management forecasts the full monetary impact of SB 247 – the extent of which was not yet known. SCE's update testimony, which would have increased the 2021 forecast, was denied on procedural grounds. Thus, the authorized amount for 2021 and the post-test years did not include the

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	substantial impact of SB 247 on the cost of tree trimming. SB 247 rates impacted both HFRA and non-HFRA work, as tree trimmers were deployed across grids irrespective of classification. In 2021, vegetation management experienced a nearly six-month safety stand down of its largest contractor. This resulted in SCE paying roving rates to several smaller contractors, on top of weekend and overtime hours, in order to meet compliance deadlines. Additionally, new environmental review processes led to sub-optimal scheduling, which also increased contractor rates.
Enhanced Overhead Inspections and Remediations *$:Yes, %:Yes, Units: N/A*	In 2019, SCE inspected most of its structures in the HFRA within a few months prior to the start of the traditional wildfire season. Following these inspections, SCE launched the Inspection Redesign initiative to examine and further improve upon the inspection program in the HFRA. SCE commenced this new inspection strategy, which combined the inspection criteria for wildfire risk-focused inspections (formerly EOIs, distribution Overhead Detail Inspections (ODI), transmission and generation). In 2020 and continuing into 2021, in response to evolving conditions, SCE introduced a new inspection methodology as part of the Inspection Redesign initiative, known as the Area of Concerns (AOCs). AOCs are specific geographic areas that are marked by environmental and asset conditions that significantly increase wildfire risk, such as an abundance of dry fuel and exposure to high winds. In 2021, SCE expanded on the AOC mitigation efforts by including both summer and fall AOC-specific inspection regimens. In addition, SCE now incorporates and coordinates AOC inspections with our overall holistic asset inspection cadence. The increase over authorized was driven by this shift in inspection strategy, which increased the overall volume of inspections accompanied by an increase in contractor rate increases.
Infrared Inspection Program *$:No, %:No, Units: Yes*	The variance for this activity is driven by the Transmission IR and Corona inspections. SCE executed at the authorized scope and dollars for the distribution IR inspections that were associated with our 2018 RAMP report. When SCE filed its 2021 GRC in September 2019, the thinking at the time was that it would be possible (and most cost effective) to conduct Transmission Aerial Inspections in conjunction with Corona and Infrared Scanning, and thus the forecast for both activities was combined in the Transmission IR & Corona Scans GRC activity. However, as SCE's wildfire strategies evolved between 2019 and 2020, it became clear that coordinating these two activities

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	together would be impractical given the operational realities of both, and not cost effective. Thus, the activities were separated, and both analyzed using a risk/cost basis and each program developed independently, as detailed in SCE's subsequent Wildfire Mitigation Plan filings. After conducting Corona & IR Scans on the entirety of its HFRA Transmission system in 2019, SCE settled on a 1,000 mile/year basis for this program.
Wildfire Vegetation Management *$:No, %:Yes, Units: N/A*	Legislature implemented SB 247 and set a higher pay rate for tree trimmers in California. Because the 2021 GRC was filed in 2019, prior to SB 247's enactment, SCE submitted its 2021 forecast based on its best understanding at the time and could not have foreseen or factored into its vegetation management forecasts the full monetary impact of SB 247 – the extent of which was not yet known. SCE's update testimony, which would have increased the 2021 forecast, was denied on procedural grounds. Thus, the authorized amount for 2021 and the post-test years did not include the substantial impact of SB 247 on the cost of tree trimming. SB 247 rates impacted both HFRA and non-HFRA work, as tree trimmers were deployed across grids irrespective of classification. In 2021, vegetation management experienced a nearly six-month safety stand down of its largest contractor. This resulted in SCE paying roving rates to several smaller contractors, on top of weekend and overtime hours, in order to meet compliance deadlines. Additionally, new environmental review processes led to sub-optimal scheduling, which also increased contractor rates.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For the Distribution capital activities that are SAR-eligible, Table VII-8 provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table VII-8
Distribution Capital Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
4 kV Cutovers: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 89 - 90	# of Transformers Removed	The 4 kV Cutover Program is the conversion, or cutover, of all circuits fed from the selected substation from the lower voltage class to a higher voltage class. The 4 kV Cutover Program is a part of the larger 4 kV Substation Elimination Program, which has the purpose of addressing equipment obsolescence, safety, and reliability.
4 kV Cutovers - Load Growth Driven: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4P2ChIIBkA pp. 332-336	# of Transformers Removed – *SCE did not provide a specific unit count in GRC testimony or workpapers for 2021.*	The 4 kV Cutovers – Load Growth Driven Program addresses overloads on 4 kV circuits and substations due to load growth in areas that these circuits and substations serve. To maintain safe and reliable service to the customers that are currently served from islanded 4 kV systems, SCE plans to cutover sections of circuit or full circuits that do not have adequate operational flexibility.
4 kV Substation Eliminations: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 91 - 100	# of 4 kV Substations Removed	4 kV Substation Eliminations include substation equipment removal, soil remediation, and removal of associated buildings. 4 kV Substation Eliminations is a part of the larger 4 kV Substation Elimination Program which has the purpose of addressing equipment obsolescence, safety, and reliability.
Automatic Reclosers Replacement Program: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 85 - 88	# of Automatic Reclosers Replaced	Automatic Reclosers Replacement Program includes costs associated with replacing automatic reclosers (ARs). ARs are used in distribution circuits to interrupt the supply of electricity to that portion of the circuit downstream of its location. They act similar to circuit breakers but are installed in a distribution circuit rather than a substation.
Automation: *SCE-02 Vol : 4 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V4Pt1ChIIBkA pp. 169 – 175	This includes multiple sub-programs that vary in unit types. Therefore providing one unit type is not feasible.	Automation includes costs for incorporating automation equipment, technologies, and operations into our electric system which allows SCE to (1) provide system operators the flexibility to safely isolate faults, (2) safely restore additional customers more quickly following a fault, (3) reduce the number of customer outages, (4) measure load and DER behavior, and (5) manage groups of DERs. The Distribution Automation Programs will help to enable

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			system operators to overcome masked load and DER variability concerns to safely manage a system with many DERs.
Cable Life Extension (CLE) Program: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: *Cable Replacement Programs (CIC)*	WPSCE02V1P2 pp. 45 - 55	Cable Testing and Cable Injection, Conductor Miles	The Cable Life Extension (CLE) Program, in concert with the Cable-in-Conduit (CIC) Replacement Program, addresses the risks of radial cable failures. The CLE program performs two types of life-extension activities for CIC conductor: (1) testing and (2) injection.
Cable-in-Conduit (CIC) Replacement Program: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: *Cable Replacement Programs (CIC)*	WPSCE02V1P2 pp. 56 - 59	Conductor Miles Replaced	The Cable-in-Conduit (CIC) Replacement Program proactively replaces segments of SCE's Cable-in-Conduit population that are approaching the end of their service life. The objective of the program is to reduce the number of in-service failures of CIC cable and thus drive down the number of unplanned outages for SCE customers.
Capacitor Bank Replacement Program: SCE-02 Vol : 1 Pt. 1: RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 77 - 80	Capacitor Banks Replaced	The Capacitor Bank Replacement Program replaces or removes failed and obsolete distribution capacitor banks and their associated capacitor switches. Capacitor banks are flagged within field inspection in order to be targeted for replacement as a part of cyclic inspections or found in field. Each capacitor bank is composed of three capacitor units, fuses, a rack, and mounting hardware.
DER-Driven Grid Reinforcement: *SCE-02 Vol : 4 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V4P1ChIIBkA. P . 208	This activity is comprised of SCE's Sub transmission Relay Upgrade and is not unit based.	Capital expenditures in DER Hosting Capacity Reinforcement include the subset of projects that SCE has identified for reliability and technology pilot purposes. SCE's load growth planning process and its related DER studies have identified Grid Reinforcement projects driven by immediate capacity and other planning criteria needs.
Distribution Circuit Upgrades: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkA pp. 30-33	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	The Distribution Circuit Upgrades Program covers forecast expenditures for work outside of the substation required to relieve heavily loaded distribution circuits and substations expected to exceed distribution planning criteria limits. This includes all work required on distribution circuits to solve distribution needs. This work enables distribution circuits to carry more electric current and/or make necessary transfers between distribution circuits and substations to mitigate situations where equipment is forecast to exceed capacity

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			limits. Typical work includes installing new switches, upgrading cable or conductor, or installing new conductor to create circuit ties to facilitate load transfers between substations and circuits.
Distribution Claim: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 58 - 61	This activity is driven by factors outside of SCE's control and that can vary significantly from year to year. Accordingly, the capital forecast is based on historical average of recorded expenditures and is not unit based.	Distribution Claim includes the costs incurred by SCE to repair damage to the distribution system caused by another party. In cases where SCE is able to identify the party responsible for the damage, SCE pursues recovery of the costs to repair the damage.
Distribution Deteriorated Pole Replacement: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 147-148; 210	# of Distribution Pole Replacements	The costs incurred for intrusive pole inspections of distribution and transmission poles. Intrusive inspections require inspectors with proper training and experience to drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable with external observation alone. Additionally, the inspector does a visual inspection of the exterior of the pole to check for damage.
Distribution Fault Anticipation: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE-04Vol.05A, pp. 331 - 336	# of HFRA Circuits	This activity includes the costs associated with the rollout of Distribution Fault Anticipation devices as well as data services and analysis provided by Texas A&M.
Distribution Plant Betterment: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkbkB pp. 338-342	As the work can vary in this activity, the forecasted spend used a historical average of completed projects and is not unit based.	Distribution Plant Betterment is an activity that performs system improvements and projects to address local needs that are not covered by the Distribution Circuit Upgrades (DCU) Program. This activity can include projects to address changes in load profiles that drive local low voltage problems, new protection devices and switches needed for safety and reliability, new developments that require a single-phase circuit voltage where none exists, new street or freeway improvements that impact SCE's electric infrastructure, and more.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Distribution Pole Loading Program Pole Replacement: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 149-150	# of Distribution Pole Replacements	The costs incurred for intrusive pole inspections of distribution poles. Intrusive inspections require inspectors with proper training and experience to drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable with external observation alone. Additionally, the inspector does a visual inspection of the exterior of the pole to check for damage.
Distribution Preventive and Breakdown Capital Maintenance: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 38 - 43	The annual costs vary from year-to-year based on the volume of preventive and breakdown maintenance items found during inspections, as well as the complexity of the required repair. Given this, SCE used recorded data to forecast this activity.	The maintenance activity captures the labor, equipment, and other material costs to remove and replace failed distribution equipment.
Distribution Storm Response Capital: *SCE-04 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE04V2 pp. 44 - 45	Storm events are driven by weather and other environmental factors outside of SCE's control and that can vary significantly from year to year. Accordingly, the capital forecast for Storm Response is based on a five-year average of recorded expenditures and is not unit based.	Distribution Storm Response Capital includes costs related to repair and replacement performed as part of a storm response on Distribution facilities.
Distribution Substation Plan (DSP) Circuits: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkA pp. 34-41	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	As part of the DSP Program, new distribution circuits are required to provide new capacity outside the substation fence in areas where multiple distribution circuits in the same geographical region are expected to exceed capacity; to serve new residential or commercial developments in areas with no existing electrical infrastructure; and to relieve existing circuits projected to exceed capacity in geographically isolated areas with limited usable circuit ties to transfer load.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Distribution Substation Plan Substations: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkbkA pp. 42-141	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	SCE identifies required substation projects through the Distribution Substation Planning process when lower cost solutions, such as distribution circuit upgrades or new circuits, do not adequately address an overload. Substation projects include capacity additions or upgrades to facilities at existing substations and within the existing perimeter of the substation property, additions or upgrades that require perimeter expansion of the substation property, and new substations.
Distribution Tools and Work Equipment: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 83 - 86	The variety of tool and work equipment in this category makes it infeasible to identify a single unit of measurement.	The activity, Distribution Tools and Work Equipment includes purchasing portable tools and specialized test equipment used by distribution personnel when performing work on SCE's distribution grid. These expenditures are for tools or equipment costing more than $1,000.
Distribution Transformers: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 92 - 107	# of Distribution Transformers	SCE replaces distribution transformers when they fail in service, or when we observe deterioration during inspection or other fieldwork. Deterioration includes leaks, corrosion, and damage caused by vehicle collisions or acts of nature. In addition to the material cost for the transformer, this activity includes associated costs such as waste removal, material retirement/cleanup, material testing, and transformer coatings.
Distribution Volt VAR Control and Capacitor Automation Program: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkbkB pp. 352-359	# of Programmable Capacitor Controls Replaced	The Programmable Capacitor Control (PCC) Replacement Program and the associated Distribution Volt VAR Control (DVVC) algorithm are implemented at SCE to allow for Conservation Voltage Regulation (CVR) to decrease energy consumption, while maintaining reliable voltage delivery to SCE customers.
Distribution Wood Pole Disposal: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 214-215; 218	The forecast for this activity is based on the number of pole replacements and the disposal unit cost. The unit cost is based on a five-year average. A five-year	Distribution Wood Pole Disposal are the costs incurred when safely disposing poles that are removed from service.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
		average was selected because the cost varies and is difficult to predict.	
Distribution Wood Pole Disposal - Pole Loading Program: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 216-218	The forecast for this activity is based on the number of pole replacements and the disposal unit cost. The unit cost is based on a five-year average. A five-year average was selected because the cost varies and is difficult to predict.	Distribution Wood Pole Disposal - Pole Loading Program are the costs incurred when safely disposing poles that are removed from service as part of the Pole Loading Program.
Engineering and Planning Software Tools: *SCE-02 Vol : 4 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V4P1ChIIBkA pp. 121 - 144	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Engineering and Planning Software Tools support SCE in calculating the amount of DERs that the distribution system can host without triggering a distribution infrastructure upgrade, and in forecasting SCE's short-term and long-term grid needs. E&P software tools include, Grid Connectivity Model, the Grid Analytics Application, the Long-term Planning Tool (LTPT) and System Modeling Toolset (SMT), Grid Interconnection Processing Tool and DRP External Portal. SCE's continued investments in these new E&P software tools will help resolve multiple limitations with SCE's legacy tools.
Enhanced Overhead Inspections and Remediations: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WP SCE-04 Vol. 05A, Part 1 pp. 390 - 405	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Enhanced Overhead Inspections and Remediations includes the costs associated with performing Enhanced Overhead Inspections and remediation of findings across SCE's High Fire Risk Area.
Fusing Mitigation: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Fusing Mitigation*	WPSCE-04Vol.05A, pp. 270 - 284	# of Current Limiting Fuses	Fusing Mitigation includes the costs associated with the installation of branch line fusing as well as substation class fusing within SCE's High Fire Risk Area.
HFRA Sectionalizing Devices: *SCE-04 Vol : 5*: RAMP Control/Mitigation:	WPSCE-04Vol.05A, pp. 309 - 318	# of CB Relay Hardware for Fast Curve	The activity, HFRA Sectionalizing Devices includes the costs associated with the installation of Remote Automatic Reclosers (RARs), Remote-Controlled Switches (RCSs), and

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Remote-Controlled Automatic Reclosers and Fast Curve Settings			replacement of relay hardware in order to sectionalize circuits that traverse High Fire Risk Area boundaries.
Meter System Maintenance Design: *SCE-02 Vol : 1 Pt. 3:* RAMP Control/Mitigation: N/A	WPSCE02V1P3 pp. 38 - 43	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Advanced Metering Operations analyzes meter and communication data to identify failed devices, issue repair orders, optimize communication performance, update firmware, and mitigate system problems. These monitoring activities help ensure customer usage data is accurate and processed for use by other SCE operational units.
New Capacitors: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkB pp.343-348	# of New Capacitors Installed– *SCE did not provide a specific unit count in GRC testimony or workpapers for 2021.*	The program plans installation of new capacitors on distribution circuits that have a reactive power (VAR) deficit in order to help maintain adequate power factor.
Overhead Conductor Program (OCP): *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: Overhead Conductor Program (OCP)	WPSCE02V1P2 pp. 81 - 84	Conductor Miles	The Overhead Conductor Program (OCP) is SCE's program to replace small overhead conductors that do not meet present standards with larger conductors, and to install protective devices to improve protection of overhead conductor.
PCB Transformer Removal: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 101 - 108	# of PCB Contaminated Transformers Replaced	The Polychlorinated biphenyls (PCB) Transformer Removal Program replaces distribution line transformers suspected of being contaminated with PCB oil greater than 50 parts per million (ppm). PCBs are chemicals that have dangerous effects on the environment and human health.
Prefabrication: *SCE-02 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 pp. 87 - 91	This activity comprises multiple types of work activities, and therefore providing a single work unit is not feasible.	Each of SCE's 34 district service centers has a prefabrication operation responsible for staging material for the construction crews, assembling prepackaged kits, and properly disposing of materials removed from jobsites.
Preventive Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 – pp. 107 - 115	These costs can vary from year to year, accordingly, the capital forecast for is based on a five-year average of recorded expenditures and is not unit based.	This maintenance activity captures the labor, equipment, and other material costs to remove and replace assets not identified in other replacement programs, on a programmatic basis.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
PSPS Execution: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *PSPS Protocol and Support Functions*	WPSCE04V5Pt2 pp. 55 - 58	This activity comprises multiple types of work activities, and therefore providing a single work unit is not feasible.	PSPS Execution includes the costs associated with activities and investments that support the active execution of Public Safety Power Shutoff (PSPS) events, which includes the IMT (organized command structure and support systems) and Line Patrols, deployed prior to a PSPS event and prior to re-energizing circuits.
Streetlight Maintenance and LED Conversions: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V1P2 p. 141	# of Streetlight Replacements and LED Conversions	SCE owns and maintains over 680,000 lights in our service territory. Most street lights on SCE's system are concrete electroliers with High Pressure Sodium Vapor (HPSV) luminaires. SCE plans to install LED technology that is more energy efficient and requires less maintenance as compared to HPSV luminaires.
Substation Emergency Equipment: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02Vol. 03, pp. 250-259	This activity comprises multiple types of work activities, and therefore providing a single work unit is not feasible.	SCE maintains an inventory of equipment requiring a long lead-time for ordering, especially as infrastructure ages. When equipment and parts must be reactively replaced, SCE minimizes delays through its Emergency Equipment Program (EEP). This inventory enables SCE to reduce outage time at the substation and minimizes interruption caused by an unplanned major equipment failure.
Substation Equipment Replacement Program: *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkbkB pp. 20-22	# of Substation Circuit Breakers Replaced	The Substation Equipment Replacement Program (SERP) replaces substation equipment identified to exceed their protection ratings to interrupt fault current. SCE identifies substation circuit breakers projected to exceed short circuit duty interrupting capabilities by comparing each circuit breaker's short circuit duty rating with the potential fault current that circuit breaker will have to interrupt.
Substation Tools and Work Equipment: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02Vol. 03, pp. 244-245	The variety of tool and work equipment in this category makes it infeasible to identify a single unit of measurement.	As SCE upgrades equipment inside and outside of the substation, it must also purchase new tools that are necessary for testing, commissioning, inspecting and maintaining this new equipment. Substation Tools and Work Equipment also includes the costs to replace obsolete work equipment. These tool expenditures include the costs for acquiring and retiring portable tools and equipment whose cost exceeds $1,000.
Targeted Undergrounding: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE-04Vol.05A, pp. 346 - 350	# of Circuit Miles	Undergrounding of existing overhead power lines consists of digging a continuous trench approximately 24" wide and anywhere from 36" to 62" deep, depending on number of conduits required. Vaults and manholes will be needed at

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			regular intervals along this trench to accommodate cable pulling and electrical connections, as well as any underground equipment being relocated from the overhead system. These structures vary in size from 7'x18'x8' for the largest vaults to 5'x10'6"x7' for the smallest standard manhole.
Underground Structure Replacements: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: *Cover Pressure Relief and Restraint (CPRR) Program*	WPSCE02V1P2 pp. 64 - 76	# of Underground Structure Replacements, # of CPRR Installed, and # of Underground Structures Shored	The Underground Structure Replacement program consists of three different sub-activities; structure replacements; vault shoring; and Cover Pressure Relief and Restraint (CPRR) intended to prevent primary distribution underground electrical equipment failures that could potentially lead to a vault or manhole explosion event.
Underground Switch Replacements: *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: *UG Oil Switch Replacement Program*	WPSCE02V1P2 pp. 60 - 63	# of Underground Switch Replacements	The Underground Switch Replacement program removes old oil-filled underground distribution switches located in underground structures and replaces them with newer technology switches. The primary reason for SCE's program to remove old oil-filled switches is that failures of oil-filled switches can damage adjacent electrical equipment (e.g., cable, transformers, switches).
Wildfire Covered Conductor Program: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Wildfire Covered Conductor Program*	WPSCE04V05APt01 pp. 247 - 262	# of Conductor Miles Replaced with Covered Conductor	Wildfire Covered Conductor Program includes the costs associated with installation of covered conductors, installation of fire-resistant poles, and mitigation of tree attachments in SCE's High Fire Risk Area.
Worst Circuit Rehabilitation (WCR): *SCE-02 Vol : 1 Pt. 1:* RAMP Control/Mitigation: *Worst Circuit Rehabilitation (WCR)*	WPSCE02V1P2 pp. 37 - 48	# of Conductor Miles	The Worst Circuit Rehabilitation (WCR) program has two primary objectives: (1) mitigate the safety and reliability risks associated with mainline cable failures; and (2) improve the reliability performance of Worst Performing Circuits (WPCs) within the SCE system.

2. GRC Activities Variance Calculations

Table VII-9 below provides the authorized, recorded, variance and percentage change values for each Distribution expenditure category activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table VII-9
Distribution Capital Expenditure Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
4 kV Cutovers	N/A	$26,155	$10,221	$15,934	156%	393	159	234	147%	No	**Yes**	**Yes**
4 kV Cutovers - Load Growth Driven	N/A	$18,800	$19,285	($486)	-3%					No	No	No
4 kV Substation Eliminations	N/A	$4,490	$3,366	$1,123	33%	3	6	-3	-50%	No	No	**Yes**
Automatic Reclosers Replacement Program	N/A	$2,239	$2,673	($434)	-16%	49	31	18	58%	No	No	**Yes**
Automation	N/A	$21,822	$36,908	($15,086)	-41%					No	**Yes**	No
Cable Life Extension (CLE) Program	Cable Replacement Programs (CIC)	$41	$0	$41	100%					No	No	No
Cable-in-Conduit (CIC) Replacement Program	Cable Replacement Programs (CIC)	$6,823	$6,133	$691	11%	34	18	16	88%	No	No	**Yes**
Capacitor Bank Replacement Program	N/A	$3,073	$2,781	$291	10%	54	70	-16	-23%	No	No	**Yes**
DER-Driven Grid Reinforcement	N/A	$405	$1,523	($1,119)	-73%					No	No	No
Distribution Circuit Upgrades	N/A	$41,140	$44,271	($3,131)	-7%					No	No	No
Distribution Claim	N/A	$42,879	$44,538	($1,659)	-4%					No	No	No
Distribution Deteriorated Pole Replacement	N/A	$218,326	$213,969	$4,356	2%	9,983	10,513	-530	-5%	No	No	No
Distribution Fault Anticipation	N/A	$8,362	$0	$8,362	100%	130	0	0	-	No	No	No
Distribution Plant Betterment	N/A	$21,226	$3,871	$17,355	448%					No	Yes	No
Distribution Pole Loading Program Pole Replacement	N/A	$279,422	$267,436	$11,986	4%	11,629	14,187	-2,558	-18%	No	No	No
Distribution Preventive and Breakdown Capital Maintenance	N/A	$338,638	$293,061	$45,578	16%					**Yes**	No	No
Distribution Storm Response Capital	N/A	$37,599	$42,910	($5,311)	-12%					No	No	No
Distribution Substation Plan (DSP) Circuits	N/A	$33,207	$55,432	($22,224)	-40%					**Yes**	**Yes**	No
Distribution Substation Plan Substations	N/A	$32,483	$65,867	($33,384)	-51%					**Yes**	**Yes**	No
Distribution Tools and Work Equipment	N/A	$1,971	$3,513	($1,541)	-44%					No	No	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Distribution Transformers	N/A	$97,069	$101,816	($4,746)	-5%	27,161	21,654	5,507	25%	No	No	**Yes**
Distribution Volt VAR Control and Capacitor Automation Program	N/A	$2,772	$2,595	$177	7%	524	450	74	16%	No	No	No
Distribution Wood Pole Disposal	N/A	$5,350	$3,069	$2,280	74%					No	No	No
Distribution Wood Pole Disposal - Pole Loading Program	N/A	$0	$1,719	($1,719)	-100%					No	No	No
Engineering and Planning Software Tools	N/A	$24,463	$27,866	($3,403)	-12%					No	No	No
Enhanced Overhead Inspections and Remediations	N/A	$135,028	$49,553	$85,475	172%					**Yes**	**Yes**	No
Fusing Mitigation	Fusing Mitigation	($479)	$0	($479)	100%					No	No	No
HFRA Sectionalizing Devices	Remote-Controlled Automatic Reclosers and Fast Curve Settings	$7,891	$5,334	$2,557	48%	95	34	49	144%	No	No	**Yes**
Meter System Maintenance Design	N/A	$384	$922	($538)	-58%					No	No	No
New Capacitors	N/A	$3,085	$3,783	($698)	-18%					No	No	No
Overhead Conductor Program (OCP)	Overhead Conductor Program (OCP)	$84,713	$72,641	$12,072	17%	344	367	-23	-6%	No	No	No
PCB Transformer Removal	N/A	$2,284	$1,990	$294	15%	202	250	-48	-19%	No	No	No
Prefabrication	N/A	$17,195	$22,935	($5,740)	-25%					No	No	No
Preventive Maintenance	N/A	$61,373	$48,595	$12,778	26%					No	**Yes**	No
PSPS Execution	PSPS Protocol and Support Functions	$3,309	$756	$2,554	338%					No	No	No
Streetlight Maintenance and LED Conversions	N/A	$45,836	$51,549	($5,714)	-11%	63,996	76,300	-12,304	-16%	No	No	No
Substation Emergency Equipment	N/A	$24,119	$24,704	($585)	-2%					No	No	No
Substation Equipment Replacement Program	N/A	$22,908	$37,680	($14,772)	-39%	188	217	-29	-13%	No	**Yes**	No
Substation Tools and Work Equipment	N/A	$5,762	$7,741	($1,980)	-26%					No	No	No
Targeted Undergrounding	N/A	$6,586	$23,047	($16,461)	-71%	5.5	6	-0.5	-8%	No	**Yes**	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Underground Structure Replacements	*Cover Pressure Relief and Restraint (CPRR) Program*	*$7,607*	*$8,622*	*($1,015)*	*-12%*	*355*	*347*	*8*	*2%*	*No*	*No*	*No*
Underground Structure Replacements	*Non-RAMP*	*$18,846*	*$5,265*	*$13,581*	*258%*	*33*	*25*	*8*	*32%*			*Yes*
Underground Structure Replacements	Total	$26,453	$13,887	$12,566	90%	388	383	5	1%	No	**Yes**	No
Underground Switch Replacements	UG Oil Switch Replacement Program	$3,230	$2,705	$525	19%	39	24	15	63%	No	No	**Yes**
Wildfire Covered Conductor Program	Wildfire Covered Conductor Program	$919,542	$557,495	$362,047	65%	1,427	1,043	384	37%	**Yes**	**Yes**	**Yes**
Worst Circuit Rehabilitation (WCR)	Worst Circuit Rehabilitation (WCR)	$18,764	$7,127	$11,638	163%	58	15	43	286%	No	**Yes**	**Yes**

3. Variance Explanations

Table VII-10 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VII-10
Distribution Capital Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
4 kV Cutovers *$:No, %:Yes, Units: Yes*	SCE had higher recorded expenditures and units as a result of work that was deferred in 2020 due to prioritization towards wildfire activities that were completed in 2021.
4 kV Substation Eliminations *$:No, %:No, Units: Yes*	SCE recorded costs in 2021 for 4 kV substation elimination projects that were not fully installed which contributed to the spending over authorized but the completion of less than authorized units.
Automatic Reclosers Replacement Program *$:No, %:No, Units: Yes*	SCE completed installation of a significant number of automatic reclosers in 2021 that had initial project spend in 2020.
Automation *$:No, %:Yes, Units: No*	SCE underspent in Automation due to reprioritization of resources to other distribution work, including wildfire prevention measures.
Cable-in-Conduit (CIC) Replacement Program *$:No, %:No, Units: Yes*	The scope of work executed in 2021 for the CIC replacement program involved projects that had a lower than average unit cost. These projects were located in areas where replacement was easier to access due to terrain, had easier permitting and/or had simpler or no civil permitting required.
Capacitor Bank Replacement Program *$:No, %:No, Units: Yes*	The unit cost forecast for this GRC activity is based on a combination of historical underground and overhead ratio of approximately 80:20. In 2021, SCE completed a higher than average percentage of underground capacitor replacements which are more expensive then overhead replacements. This, along with increases in material costs contributed to the slight additional spend and under execution compared to authorized units.
Distribution Plant Betterment *$:No, %:Yes, Units: No*	SCE forecasted this work in our TY 2021 GRC using a historical average. In 2021 SCE experienced a higher volume of work and spend due to greater than average distribution projects performed by the regions compared to the historical averages. These projects primarily focused on addressing voltage problems and related to new protection devices and switches. These projects are necessary for SCE to provide safe and reliable power.
Distribution Preventive and Breakdown Capital Maintenance *$:Yes, %:No, Units: No*	Increased volume of enhanced overhead inspections which drove a higher number of remediations. Higher spend resulted from (1) bundling of enhanced overhead inspections remediations for wildfire prevention with non-wildfire work which led to

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	non-wildfire treatment, (2) greater reliance on contractor resources, (3) more work being completed on premium time, and (4) use of contractor time and expense pay which is higher than unit price work. "Time and expense rates" are used in place of unit price contracts when an activity has a constrained timeline, the scope is difficult to ascertain, or unique circumstances where the defined units do not align with work being performed.
Distribution Substation Plan (DSP) Circuits *$:Yes, %:Yes, Units: No*	The underrun is due to the following reasons: 1) SCE experienced permitting delays for certain projects, 2) Resource Planning and Performance Management constraints, and 3) reduced project costs. SCE makes reasonable efforts to forecast future project costs, however in the case of several projects in 2021, current project costs are projected lower than the initially prepared engineering estimates.
Distribution Substation Plan Substations *$:Yes, %:Yes, Units: No*	As SCE reevaluated the Circle City/Mira Loma-Jefferson 66kV Licensing Project, SCE determined that there was no longer a need for this project. The overall project costs for the Lee Vining project were reduced due to reduced material pricing. Additional detail on canceled, deferred and emergent projects can be found in Attachment B.
Distribution Transformers *$:No, %:No, Units: Yes*	Lower transformer consumption and field use is mostly attributed to a reduction in heat storm activity during the height of the summer season and a mild wildfire season, which continued through the remainder of the year. These factors were the most significant impacts during what typically is the highest transformer utilization period.
Enhanced Overhead Inspections and Remediations *$:Yes, %:Yes, Units: No*	In 2021, SCE completed repairs and replacements associated identified through risk-informed and compliance-based inspections, including ground-based, aerial, and infrared, and prioritized those repairs based on regulatory compliance due dates. When scheduling and performing compliance-driven remediation work, SCE also considers work bundling, outage requirements, permitting restrictions, crew availability and specialty equipment needs. SCE continues to bundle the work at the structure and circuit segment levels to the extent feasible for economic efficiency and to minimize the impact of remediation work on customers, as well as to reduce the volume of repeat outages, road closures and traffic restrictions. In certain cases, this resulted in future-year scope being accelerated

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	in advance of the established compliance due date (e.g., pole replacement being accelerated from a future year to align with a crossarm replacement due in the current year). Additionally, there were several earlier-year due notifications that were not completed due to prior-year operating constraints such as resource availability, permitting delays, and weather deferrals. This contributed to SCE's increased spending compared to authorized.
HFRA Sectionalizing Devices *$:No, %:No, Units: Yes*	Prior to 2021, SCE targeted updates to circuits serving HFRA that had CBs with existing microprocessor-based relays. These activities concentrated on relay settings-only updates and not relay hardware replacements, which are most costly to complete. In 2021, SCE upgraded hardware for FC settings for 95 circuits. By upgrading the settings, SCE's system was able to increase the speed in which the relay detects and responds to a fault, further reducing the probability of ignition. In 2021, SCE installed 23 RAR/RCS devices on 15 HFRA circuits. These devices enable more granular operational capability at the circuit segment level. This approach allows for higher windspeed thresholds for calling PSPS events on those segments where covered conductor has been fully installed on an isolatable portion of a circuit, even if other segments of a circuit still contain bare overhead conductor. This activity was part of SCE's expedited grid hardening effort explained in the 2020 PSPS Action Plan
Preventive Maintenance *$:No, %:Yes, Units: No*	The approved forecast for Preventative Maintenance is based on historical averages since the work can fluctuate from year to year. In 2021 SCE experienced a higher volume of work and had some additional carryover work from 2021 that contributed to the increased spend as compared to authorized.
Substation Equipment Replacement Program *$:No, %:Yes, Units: No*	Main drivers of the underrun include: (1) partial costs included for deferred projects which includes circuit breaker replacement projects not yet finalized and which operating dates were deferred to 2022 and 2023, (2) two cancelled projects that were no longer needed, and (3) five projects with construction bids lower than originally estimated.
Targeted Undergrounding *$:No, %:Yes, Units: No*	In 2021, SCE incurred $6.58 million in capital expenditures associated with undergrounding. Since undergrounding projects span multiple years, the costs incurred in 2021 are associated with the approximately six miles of projects completed in 2021 and for projects to be completed in future years. These TUG projects included

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	construction costs, design and planning, division overheads, and the cost of materials. The miles selected for execution in 2021 were located on relatively straight and flat terrain (e.g., straight/minimal bends, minimal paving, and equipment). Therefore, SCE's 2021 costs were significantly lower than forecast future costs on a per-mile basis and lower than SCE's 2021 GRC-authorized costs, the forecast for which was based on Rule 20-A historical cost information. SCE expects future TUG scope to have varying levels of difficulty to complete, and costs will vary accordingly.
Underground Structure Replacements *$:No, %:Yes, Units: No*	As directed in the Track 1 GRC Decision, SCE prioritized the completion of underground structure replacements that are classified as Grade D and F in 2021[24]. While the total overall executed units are generally aligned with the authorized amounts, SCE completed more vault replacements which have significantly higher unit costs compared to shoring projects. SCE also experienced higher material costs which resulted in higher overall spend compared to authorized.
Underground Switch Replacements *$:No, %:No, Units: Yes*	The GRC unit cost forecast is based on historical replacement costs for a mixture of oil, BURD and civil switches. In 2021, SCE replaced a greater number of oil switches which have a lower unit cost. This resulted in a higher percentage of work executed (63%) with an increase in overall costs (19%).
Wildfire Covered Conductor Program *$:Yes, %:Yes, Units: Yes*	SCE spent more than the amounts initially adopted in the Track 1 GRC decision for Wildfire Covered Conductor Program (WCCP) by $362 million. SCE executed 384 more miles than the imputed miles and experienced increased unit costs. SCE experienced higher unit costs, driven by work in certain SCE regions, such as North Coast and Rurals, than initially anticipated, driven by the mountainous areas for which contractors' rates were higher than those in other flat-terrain areas. A similar situation applied to the San Jacinto and Rurals regions where SCE encountered areas that were more challenging to complete covered conductor work due to factors such as terrain, narrow roads, limited space for staging, etc. In general, assets/equipment located in mountainous and remote areas sometimes required helicopter sets or special vehicles to reach the locations. This added costs associated with the additional environment review, additional permits, and potential monitors with construction crews on scheduled days of

[24] *See* D.21-08-036, pp. 42 – 43.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	work. The necessary adjustments to work activities as a result of these constraints resulted in increased unit costs.[25]
Worst Circuit Rehabilitation (WCR) *$:No, %:Yes, Units: Yes*	SCE completed installation on a number of WCR replacement projects in 2021 that had initial project spend in 2020. This resulted in higher recorded units compared to the recorded spend on a per unit basis.

[25] In the Track 1 Final Decision, the Commission authorized a scope of 4,500 miles of covered conductor and its associated capital-related revenue requirement for the WCCP for the period 2019-2023 (with the ability to seek cost recovery after a reasonableness review for costs above 110 percent of the authorized revenue requirement threshold). *See, e.g.*, D.21-08-036 at Conclusion of Law (CoL) 74. SCE has completed approximately 2,500 miles of covered conductor through the end of 2021 and forecasts the completion of an additional 1,250 miles of WCCP installation in both 2022 and 2023 (i.e., approximately 5,000 miles total through YE 2023). To the extent the total recorded costs of the estimated 5,000 miles through YE 2023 exceed 110 percent of the Track 1 Final Decision's authorized amount, SCE will seek reasonableness review and cost recovery for those costs via a separate Application after 2023 recorded costs are finalized, consistent with D.21-08-036. For WCCP specifically, there is not a set authorization number of covered conductor miles or associated dollars for any particular year in the 2019-2023 cycle *per se*; instead, the Track 1 authorization is cumulative for the entire cycle. For purposes of this RSAR, SCE imputed the 2021 authorized units by subtracting out the recorded 2019-2020 WCCP miles and then averaging the remaining miles over the 2021-2023 period.

VIII.

TRANSMISSION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For the Transmission expense activities that are SAR-eligible, Table VIII-11 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table VIII-11
Transmission Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Equipment Washing: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 86 - 92	Equipment washing differs from site to site. Based on the unpredictable nature of the level of work activity, a five-year avg was applied to generate the forecast and is not unit based.	Includes the cost of labor, materials used, and expenses incurred in performing the equipment washing activity at distribution and transmission substations.
Insulator Washing: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 32 - 38	Factors that impact the need to wash insulators are beyond SCE's control. SCE's 2021 test year forecast methodology selected as the three-year historical avg from 2016-2018 and is not unit based.	Includes the costs of labor for proactive maintenance on transmission line insulators by washing. Insulator washing is performed by spraying high-pressure water onto insulators to remove contaminants such as salt, dirt, or automobile exhaust. Excessive contamination on an insulator reduces its ability to insulate the energized line from the grounded support structure. Excess contamination and debris can cause an energized circuit to short circuit. Includes related costs such as: transportation expenses, meals, traveling, lodging, and incidental expenses.
Monitoring Bulk Power System: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp.3 - 8	SCE used LYR recorded as the forecast basis as this amount provide the necessary funding to perform this activity going forward.	Transmission and Distribution Grid Operations activities including Management and Operation of the Grid Control Center. Includes the cost of labor and other expenses incurred by SCE's centralized control centers for real time electric operations encompassing transmission and distribution systems. Activities include: execution of California Independent System Operator (CAISO) instructions regarding the operations of the SCE electrical system under CAISO operational control; develop and maintain switching procedures under CAISO purview; coordinate planned outages consistent with CAISO approval; and maintaining situation awareness. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense. Also includes Informational Technology as Grid Network Solutions is responsible for the overall health and performance of SCE's communications network and Supervisory

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			Control and Data Acquisition (SCADA) systems used to monitor and control the company's electric grid and conduct daily business operations.
Roads and Rights of Way: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 39 - 45	SCE used last recorded year to forecast and there is no associated work units.	Includes the costs of labor, materials and expenses incurred in performing brushing and clearing activities to maintain transmission roads and right-of-way. Includes related costs such as: transportation expenses, meals, traveling, lodging, and incidental expenses.
Telecommunication Inspection and Maintenance: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 46 - 54	SCE uses LYR plus adj in anticipation of incremental work required in the Test Year to support new telecommunications inspection and maintenance practices.	Includes the costs of labor, materials and expenses incurred in performing the following activities: telecommunication line patrols, proactive maintenance, breakdown maintenance, storm response, claims resolution and relocation activities. Includes related costs such as transportation expenses, meals, traveling, lodging, and incidental expenses.
Transformer Inspections and Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 58 - 64	Since the cost for transformer maintenance can vary based on field inspections and the type of repair required, SCE forecasted 2021 expenses by using a four-year average of 2015-2018 recorded expenses and is not unit based.	Includes the cost of labor, materials used, and expenses incurred in performing the inspection and maintenance of transformers at distribution and transmission substations.
Transmission Intrusive Pole Inspections: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 25-32	# of Transmission Intrusive Pole Inspections	The costs incurred for intrusive pole inspections of transmission poles. Intrusive inspections require inspectors with proper training and experience to drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable with external observation alone. Inspectors also does a visual inspection of the exterior of the pole to check for damage.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Transmission Line Patrols: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 3 - 9	SCE uses LYR + Adjustments and is not unit based.	Includes the cost of labor and expenses incurred in the inspection of transmission lines. Includes labor for activities such as routine line patrolling and overhead detailed inspections. Includes related costs such as transportation expenses, meals, traveling, lodging, incidental expenses, division overhead and supply and tool expense.
Transmission Line Rating Remediation (TLRR): *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 71 - 79	The forecast for TLRR O&M is based on the capital work executed is not unit based.	Includes the cost of labor, materials used and expenses incurred to remediate line clearance discrepancies. Includes related costs such as transportation expenses, meals, traveling, lodging, and incidental expenses.
Transmission O&M Maintenance: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 21 - 31	The use of the four-year average is appropriate as a forecast basis because costs can fluctuate due to the level of required maintenance from year-to-year and is not unit based.	Includes the cost of labor, materials used and expenses incurred in the maintenance of transmission lines, such as preventive, reactive and breakdown maintenance. Includes related costs such as transportation expenses, meals, traveling, lodging, incidental expenses, division overhead and supply and tool expense.
Transmission Pole Loading Assessments: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 10-15	# of Transmission Pole Loading Assessments	The cost incurred in performing pole loading assessments on transmission poles, including pole loading calculations. Through assessments, poles that do not meet GO 95 loading, temperature and safety factor requirements or, in areas with known local conditions such as high winds and SCE's loading, will be identified for repair or replacement.
Transmission Pole Loading Repairs: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 226-231	# of Transmission Pole Loading Repairs	The cost incurred to make repairs to transmission poles as part of the Pole Loading Program. Repairs involve the design and installation or modification of guy wires.
Transmission Request for Attachment Inspections: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 272-277	The forecast is based on LYR to perform the inspection and the labor to support the activity.	Costs for Pre Inspections and Final Inspections of transmission renter attachments to poles.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Transmission Routine Vegetation Management: *SCE-02 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE02V06A pp. 130 - 160	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Expenses incurred for activities include pre-inspections, trimming and removal of trees, expanded clearance distances, back-end quality assurance/checks; pole-brushing work, supplemental patrols, and substation-associated vegetation management work around transmission assets
Transmission Underground Structure Inspection: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V02A pp. 12 - 20	SCE used last recorded year to forecast and there is no associated work units.	SCE's underground lines and vaults require routine inspections to detect and remedy any degradation that may lead to safety hazards or system reliability issues. Inspections of the underground components, which include vaults, cable, splices, and shield arrestors, are performed at least once every three years in compliance with CPUC GO 165. Also included in this activity are SCE's Underground Service Alert (USA) location requests.

2. GRC Activities Variance Calculations

Table VIII-12 below provides the authorized and recorded costs, and variance and percentage change values for each Transmission expense activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table VIII-12
Transmission Expense Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Equipment Washing	N/A	$1,268	$1,381	($113)	-8%				N/A	No	No	No
Insulator Washing	N/A	$694	$820	($126)	-15%				N/A	No	No	No
Monitoring Bulk Power System	N/A	$45,294	$56,667	($11,374)	-20%				N/A	**Yes**	**Yes**	No
Roads and Rights of Way	N/A	$6,559	$4,813	$1,746	36%				N/A	No	No	No
Telecommunication Inspection and Maintenance	N/A	$4,341	$2,591	$1,750	68%				N/A	No	No	No
Transformer Inspections and Maintenance	N/A	$1,275	$1,352	($78)	-6%				N/A	No	No	No
Transmission Intrusive Pole Inspections	N/A	$403	$608	($205)	-34%	10,150	14,360	-4,210	-29%	No	No	**Yes**
Transmission Line Patrols	N/A	$4,562	$7,512	($2,949)	-39%				N/A	No	No	No
Transmission Line Rating Remediation (TLRR)	N/A	$129	$1,861	($1,732)	-93%				N/A	No	No	No
Transmission O&M Maintenance	N/A	$9,051	$21,461	($12,410)	-58%				N/A	**Yes**	**Yes**	No
Transmission Pole Loading Assessments	N/A	$1,264	$109	$1,155	1056%	2,105	1,600	505	32%	No	No	**Yes**
Transmission Pole Loading Repairs	N/A	$806	$379	$426	112%	132	224	-92	-41%	No	No	**Yes**
Transmission Request for Attachment Inspections	N/A	$323	$351	($28)	-8%				N/A	No	No	No
Transmission Routine Vegetation Management	N/A	$42,574	$12,963	$29,611	228%				N/A	**Yes**	**Yes**	No
Transmission Underground Structure Inspection	N/A	$2,472	$2,101	$371	18%				N/A	No	No	No

3. Variance Explanations

Table VIII-13 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VIII-13
Transmission Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Monitoring Bulk Power System *$:Yes, %:Yes, Units: N/A*	O&M recorded for Monitoring Bulk Power Systems of $45.3M is less than the 2021 GRC authorized amount of $56.7M. This GRC activity consists of sub-work activities Grid Network Solutions (IT) and Grid Operations (T&D) both being less than authorized. * Grid Network Solutions (IT) 2021 actuals of $34.8M is $11.1M lower than GRC authorized of $45.9M. This is driven by SCE labor/expenses (i.e., delayed hiring/deferrals to 2022) as personnel were not needed to support Grid Modernization efforts, as the network was not yet in service. Hardware maintenance is lower than authorized. This was primarily due to the capitalization of Cisco Network. In addition, consulting & professional services costs were less than authorized as a result of COVID, Enterprise services requiring less support (i.e., Wireless LAN). SCE also experienced lower rents/leases, site maintenance, and vehicle costs in 2021. * Grid Operations (T&D) underrun was primarily due to vacancies and lower normal time labor incurred by the Grid Ops' Power Ops System Specialists.
Transmission Intrusive Pole Inspections *$:No, %:No, Units: Yes*	SCE's inspection forecast is based on an annual assumption regarding the mix of distribution and transmission poles. For 2021, intrusive pole inspection mix required more distribution and fewer transmission inspections compared to the authorized forecast.
Transmission O&M Maintenance *$:Yes, %:Yes, Units: No*	SCE's TY 2021 forecast included approximately $12 million for aerial inspections and remediations in non-HFRA. SCE ultimately decided not to inspect the non-HFRA transmission lines in 2021 to prioritize higher risk HFRA transmission lines, resulting in the lower spend compared to authorized.
Transmission Pole Loading Assessments *$:No, %:No, Units: Yes*	The Transmission Pole Loading Assessments activity is reaching the end of the one-time program to assess all transmission poles. The number of assessments is higher than authorized due to higher remaining poles to complete the program. In addition, as we reach the end of the program, the remaining poles are the harder ones to assess which resulted in higher contractor costs for more difficult work and also includes the use of more helicopters to reach and assess difficult to access and remote poles.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Transmission Pole Loading Repairs *$:No, %:No, Units: Yes*	SCE assessments identify potential repairs which are reviewed during the planning process. SCE made improvements in the assessments phase to more accurately identify the need for repairs which resulted in fewer identified repairs "falling out" during the planning phase. Historically the fallout rate for repairs was around 45%-60% of all repairs. This means that 45%-60% of all repairs would fall out of scope. The 2021 fallout rate was closer to 20% to 25% which led to a higher number of repairs than anticipated.
Transmission Routine Vegetation Management *$:Yes, %:Yes, Units: No*	Legislature implemented SB 247 and set a higher pay rate for tree trimmers in California. Because the 2021 GRC was filed in 2019, prior to SB 247's enactment, SCE submitted its 2021 forecast based on its best understanding at the time and could not have foreseen or factored into its vegetation management forecasts the full monetary impact of SB 247 – the extent of which was not yet known. SCE's update testimony, which would have increased the 2021 forecast, was denied on procedural grounds. Thus, the authorized amount for 2021 and the post-test years did not include the substantial impact of SB 247 on the cost of tree trimming. SB 247 rates impacted both HFRA and non-HFRA work, as tree trimmers were deployed across grids irrespective of classification. In 2021, vegetation management experienced a nearly six-month safety stand down of its largest contractor. This resulted in SCE paying roving rates to several smaller contractors, on top of weekend and overtime hours, in order to meet compliance deadlines. Additionally, new environmental review processes led to sub-optimal scheduling, which also increased contractor rates.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For the Transmission capital activities that are SAR-eligible, Table VIII-14 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table VIII-14
Transmission Capital Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Circuit Breaker Replacement: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 – pp.120-146	2.4 kV - 500 kV Substation Circuit Breakers Replaced	The Distribution Circuit Breaker Replacement Program replaces breakers approaching the end of their service lives. These circuit breakers are becoming increasingly unreliable, contain parts known to be problematic or unavailable and may require custom parts to be made for obsolete equipment.
Grid Reliability Projects: *SCE-02 Vol : 4 Pt. 2* RAMP Control/Mitigation: N/A	WPSCE02V4P1ChIIIBkC, pp 234-269	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Grid Reliability Projects are planned on the portion of SCE's system under CAISO's operational control. They are developed as part of CAISO's Transmission Planning Process (TPP) and are required to support reliability and compliance with NERC, WECC, and CAISO system performance standards and criteria.
Monitoring Bulk Power System: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 – pp.16 - 50	The forecast is based on LYR to perform the inspection and the labor to support the activity and therefore providing one work unit is not feasible.	Transmission and Distribution Grid Operations activities including Management and Operation of the Grid Control Center. Includes the cost of labor and other expenses incurred by SCE's centralized control centers for real time electric operations encompassing transmission and distribution systems. Activities include: execution of California Independent System Operator (CAISO) instructions regarding the operations of the SCE electrical system under CAISO operational control; develop and maintain switching procedures under CAISO purview; coordinate planned outages consistent with CAISO approval; and maintaining situation awareness. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense. Also includes Informational Technology as Grid Network Solutions is responsible for the overall health and performance of SCE's communications network and Supervisory Control and Data Acquisition (SCADA) systems used to monitor and control the company's electric grid and conduct daily business operations.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
NERC Compliance Programs: *SCE-04 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE04V4 pp. 41 - 47	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	NERC Compliance Programs are the costs incurred to bring facilities into compliance with physical security standards of NERC-CIP-14.
Protection of Grid Infrastructure Assets: *SCE-04 Vol : 4:* RAMP Control/Mitigation: *Grid Infrastructure Protection - Enhanced*	WPSCE04V4 pp. 79	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	This program is an ongoing effort to improve the physical protection of SCE employees and assets at electric facilities to deter and protect against theft, security breaches, and other security incidents.
Protection of Major Business Functions: *SCE-04 Vol : 4:* RAMP Control/Mitigation: *Non-Electric Facilities/Protection of Major Business Functions*	WPSCE04V4 pp. 78	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	This program is an ongoing effort to improve the physical protection of SCE assets and employees at non-electric facilities, such as offices and warehouses and mitigate the impact on operations resulting from theft, security breaches, and other security incidents.
Relays, Protection and Control Replacements: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02Vol. 03, pp. 190-213	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	The Substation Relays, Protection, and Control Replacement Program identifies and proactively replaces substation protective relays, control, automation, monitoring and event recording equipment to address equipment obsolescence, meet compliance requirements, and improve functionality.
Substation Capital Breakdown Maintenance: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02Vol. 03, pp. 116-117	The cost incurred to replace failed substation equipment in substation breakdown maintenance can be expected to fluctuate from year-to-year due to uncontrolled factors, such as weather. Following guidance from D.89-12-057, the CPUC stated that for those activities which have significant fluctuations in recorded expenses from year-to-year, an average of recorded expenses is appropriate.	This maintenance activity captures the labor, equipment, and other material costs to remove and replace failed substation equipment.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Substation Claim: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02Vol. 03, pp. 118-119	Because claim expenditures are outside of SCE's control and vary significantly from year-to-year, SCE uses a five-year average to forecast these expenditures and are not unit based.	Substation Claim supports repair damage to the substation caused by another party. SCE seeks to recover the costs to repair the damage through making a claim against the party responsible for the damage.
Substation Transformer Bank Replacement: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 – pg. 150-153	# of Substation Transformers Replaced	This activity planned includes the preemptive replacement of transformers approaching the end of their service lives.
Telecommunication Deteriorated Pole Replacement: *SCE-02 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 153	The forecast is based on LYR to perform the inspection and the labor to support the activity and therefore providing one work unit is not feasible.	This activity includes the replacement of telecommunication poles under the Deteriorate Pole Program, in compliance with GO 95.
Telecommunication Inspection and Maintenance: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V2 pp. 67-68	SCE use LYR to forecast this work and is therefore not unit based.	Includes the costs of labor, materials and expenses incurred in performing the following activities: telecommunication line patrols, proactive maintenance, breakdown maintenance, storm response, claims resolution and relocation activities. The following costs are also included transportation expenses, meals, traveling, lodging, and incidental expenses.
Telecommunication Pole Loading Program Replacement: *SCE-02 Vol : 5* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 155	The forecast is based on LYR to perform the inspection and the labor to support the activity and therefore providing one work unit is not feasible.	This activity includes the replacement of telecommunication poles under the Pole Loading Program.
Transmission Capital Maintenance: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V2 pp. 55-66	This includes multiple sub-programs that vary in unit types. Therefore providing one unit type is not feasible.	Transmission Capital Maintenance includes the costs to remove, replace, and retire assets on a planned or reactive basis. Planned transmission capital maintenance is driven by regular equipment maintenance cycles; maintenance work identified and prioritized through overhead and underground inspection programs; and maintenance identified

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			through observations by field personnel and other activities.
Transmission Claim: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V2 pp. 69-70	Because claim expenditures are outside of SCE's control and vary significantly from year-to-year, SCE uses a five-year average to forecast these expenditures and are not unit based.	Transmission Claim captures the expenditures associated with casualty damage to Transmission facilities, such as cars hitting and damaging poles. Claim damage events are random and are beyond SCE's control. Claims work is performed to repair or replace damaged facilities, restore service, and return the system to normal operating conditions. The costs recorded to this activity are almost entirely in response to pole and tower damage, or wire down events caused by third-parties.
Transmission Deteriorated Pole Replacement: *SCE-02 Vol : 5* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 152; 211	# of Transmission Pole Replacements	The costs incurred for intrusive pole inspections of transmission poles. Intrusive inspections require inspectors with proper training and experience to drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable with external observation alone. Additionally, the inspector does a visual inspection of the exterior of the pole to check for damage.
Transmission Emergency Equipment: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V2 pp. 114-115	SCE forecasts emergency equipment costs based on management judgment of the estimated incremental costs to maintain inventory at current levels, which includes the rotation of inventory, such as cable, with finite shelf-life. This is not unit based.	In this program, SCE identifies, purchases, and maintains emergency spare parts for the transmission grid. Some of this equipment has long procurement lead times, so SCE maintains an inventory on hand in order to avoid delays in responding to emergencies and outages. Examples of equipment maintained in inventory include poles, steel bundles for towers, underground cable, and overhead conductor.
Transmission Line Rating Remediation (TLRR): *SCE-02 Vol : 2* RAMP Control/Mitigation: N/A	WPSCE02V2 pp.104-106	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Includes the cost of labor, materials used and expenses incurred to remediate line clearance discrepancies. Includes related costs such as transportation expenses, meals, traveling, lodging, and incidental expenses.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Transmission Pole Loading Program Replacement: *SCE-02 Vol : 5* RAMP Control/Mitigation: N/A	WPSCE02V5, pp. 154	# of Transmission Pole Replacements	Costs incurred for the assessment of Transmission poles for compliance with safety factors.
Transmission Substation Plan (TSP): *SCE-02 Vol : 4 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE02V4PT2ChIIBkbkB pp. 27-227	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	The Transmission Substation Plan (TSP) consists of the Subtransmission Lines Plan, the A-Bank Plan and the Sub transmission VAR Plan. The Sub transmission Lines Plan provides adequate 66 kV or 115 kV line capacity in each of SCE's sub transmission networks to serve forecast peak loads at SCE's B-Substations. The A-bank Plan focuses on SCE's transmission substation capacity to ensure safe and reliable service to customers. The Sub transmission VAR Plan focuses on SCE's system reactive power need to ensure safe and reliable service to customers.
Transmission Tools and Work Equipment: *SCE-02 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE02V2 pp.116-117	Because these expenditures can vary significantly from year-to-year, SCE uses historical average to forecast these expenditures and are not unit based	Transmission Tools and Work Equipment includes costs for acquiring and retiring portable tools and work equipment that cost a minimum of $1,000. SCE purchases new tools and equipment as older tools become obsolete or there are advancements in tool technologies.
Transmission/Substation Storm Response Capital: *SCE-04 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE04V2 pp. 46 - 48	Because these expenditures are outside of SCE's control and vary significantly from year-to-year, SCE uses a five-year average to forecast these expenditures and are not unit based.	Repair and replacement performed as part of a storm response on Transmission and Substation facilities.

2. GRC Activities Variance Calculations

Table VIII-15 below provides the authorized, recorded, variance and percentage change values for each Transmission expenditure category activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table VIII-15
Transmission Capital Expenditure Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Circuit Breaker Replacement	N/A	$49,218	$43,372	$5,846	13%	187	205	-18	-9%	No	No	No
Grid Reliability Projects	N/A	$203,429	$264,607	($61,178)	-23%					**Yes**	**Yes**	No
Monitoring Bulk Power System	N/A	$84,345	$74,364	$9,981	13%					No	No	No
NERC Compliance Programs	N/A	$934	$7,563	($6,629)	-88%					No	No	No
Protection of Grid Infrastructure Assets	Grid Infrastructure Protection - Enhanced	$15,686	$28,380	($12,693)	-45%					No	**Yes**	No
Protection of Major Business Functions	Non-Electric Facilities/Protection of Major Business Functions	$16,623	$13,745	$2,878	21%					No	No	No
Relays, Protection and Control Replacements	N/A	$74,823	$75,172	($349)	0%					No	No	No
Substation Capital Breakdown Maintenance	N/A	$27,475	$13,156	$14,319	109%					No	**Yes**	No
Substation Claim	N/A	$791	$396	$395	100%					No	No	No
Substation Transformer Bank Replacement	N/A	$53,675	$87,713	($34,038)	-39%	30	47	-17	-36%	**Yes**	**Yes**	**Yes**
Telecommunication Deteriorated Pole Replacement	N/A	$261	$230	$31	13%					No	No	No
Telecommunication Inspection and Maintenance	N/A	$4,350	$3,365	$985	29%					No	No	No
Telecommunication Pole Loading Program Replacement	N/A	$20	$1,124	($1,104)	-98%					No	No	No
Transmission Capital Maintenance	N/A	$49,697	$87,353	($37,656)	-43%					**Yes**	**Yes**	No
Transmission Claim	N/A	$6,446	$3,835	$2,611	68%					No	No	No
Transmission Deteriorated Pole Replacement	N/A	$90,033	$98,274	($8,242)	-8%	3,145	3,570	-425	-12%	No	No	No
Transmission Emergency Equipment	N/A	$0	$166	($166)	-100%					No	No	No
Transmission Line Rating Remediation (TLRR)	N/A	$93,182	$136,614	($43,432)	-32%					**Yes**	**Yes**	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Transmission Pole Loading Program Replacement	N/A	$26,864	$43,910	($17,046)	-39%	783	1,598	-815	-51%	No	**Yes**	**Yes**
Transmission Substation Plan (TSP)	N/A	$112,885	$89,283	$23,602	26%					**Yes**	**Yes**	No
Transmission Tools and Work Equipment	N/A	$788	$1,426	($638)	-45%					No	No	No
Transmission/Substation Storm Response Capital	N/A	$7,724	$6,193	$1,531	25%					No	No	No

3. Variance Explanations

Table VIII-16 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VIII-16
Transmission Capital Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Grid Reliability Projects *$:Yes, %:Yes, Units: No*	SCE notes that the majority of projects in Grid Reliability are FERC jurisdictional. The main driver for the lower spend than authorized in Grid Reliability Projects, was in the Riverside Transmission Reliability underrun due to 2020 and 2021 schedule delays. This resulted in Real Property acquisitions and Transmission Line Underground material being pushed out to 2022.
Protection of Grid Infrastructure Assets *$:No, %:Yes, Units: No*	The underrun from authorized is attributed to the Tier Program project deferrals. The Tier Program is a large sub-activity under the 'Protection of Grid Infrastructure' GRC activity. The Tier Program accounted for a large portion of the Protection of Grid Infrastructure activity. The program involves the installation of security measures at substations tiered based on criticality and the potential impact of a security breach to the grid and customers. The program was deferred to 2021 and 2022 due to work re-prioritization in 2019 and 2020 related to NERC CIP 14 project compliance and wildfire work, approval cycle, and delays associated with pandemic safety challenges and worldwide supply chain impacts.
Substation Capital Breakdown Maintenance *$:No, %:Yes, Units: No*	Authorized based on five-year average of recorded costs. 2021 overrun due to reactive maintenance driven by the oil circuit breaker analysis program, and higher-than-average circuit & transformer replacements at various locations. The full-year oil circuit breaker analysis program began in 2020, therefore, there was a ramp-up of the program resulting in more assessments and reactive maintenance expenses in 2021.
Substation Transformer Bank Replacement *$:Yes, %:Yes, Units: Yes*	In 2021, SCE experienced an underspend and execution compared to authorized for several reasons. First, SCE experienced outage constraints resulting in project deferrals. Second, SCE experienced material delivery delays resulting from supply chain issues that also resulted in project deferrals. Third, SCE experienced general construction constraints and delays.
Transmission Capital Maintenance *$:Yes, %:Yes, Units: No*	SCE spent less than authorized on the sub-activity Tower Corrosion in Transmission Capital Maintenance in 2021 due to resource constraints and delays in the start for the required assessments & remediation work related to the Tower Corrosion

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	program as well as lower on-going maintenance spend on small civil and transmission grid maintenance activities.
Transmission Line Rating Remediation (TLRR) *$:Yes, %:Yes, Units: No*	SCE experienced several project delays and deferrals for TLRR projects that require licensing. SCE spent less than the forecast for the Ivanpah-Control 115 kV subtransmission project as a result of longer than expected regulatory review from Bureau of Land Management and extensive cultural resources work that was not originally anticipated. SCE also experienced delays in the Eldorado-Lugo-Pisgah 220 kV transmission project as we assessed potential alternative solutions to this project. Additional detail on canceled, deferred and emergent projects can be found in Attachment B.
Transmission Pole Loading Program Replacement *$:No, %:Yes, Units: Yes*	The main driver for lower pole replacements is because of lower number of poles failing the pole loading assessment compared to the forecast failure rate.
Transmission Substation Plan (TSP) *$:Yes, %:Yes, Units: No*	SCE experienced project delays, deferrals, cancellations and emergent needs associated with TSP. One of the key drivers for the higher spend in TSP was due to project scope changes for the Valley-Ivyglen 115 kV, which is a predominantly FERC jurisdictional project. Although a reasonable effort was made to forecast the future costs, the following scope was necessarily added: install a temporary transformer inside Substation to provide uninterrupted power during a Subtransmission line outage needed for the project, additional rock drilling required due to large rocks encountered during excavation, and a modified method for installing the underground subtransmission line due to conflicts encountered during potholing. Additional detail on canceled, deferred and emergent projects can be found in Attachment B.

IX.

GENERATION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For the Generation expense activities that are SAR-eligible, Table IX-17 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table IX-17
Generation Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Catalina - Diesel: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkB pp. 210 - 216	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	Catalina Generation's O&M expenses are for ongoing operations and maintenance activities necessary for the operation of the generators and connected electrical systems. These activities include miscellaneous expenses such as minor spare parts, general and administrative support staff, automotive repair, tools, and compliance reporting. Labor costs include SCE employees who work at the Pebbly Beach Generating Station and at other locations. Non-labor costs include repair parts, chemicals, supplies, contracts and various miscellaneous expenses needed to operate and maintain Catalina's generation units.
Hydro: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkA pp. 5 - 11	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	The expenses include costs for operating and maintaining SCE's Hydro generating units and associated reservoirs, dams, waterways, and miscellaneous Hydro facilities. Work activities are presented in three main categories: (1) Water for Power and Rents, (2) Hydro Operations, and (3) Hydro Maintenance. These expenses are necessary for SCE's Hydro generation to provide reliable service at low cost, maintain safe operations for employees and the public, and comply with applicable laws and regulations.
Mountainview: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkB pp. 167 - 180	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	The Mountainview Operations GRC activity comprises all labor and non-labor expenses that record as operations-related expenses. These activities include operation supervision and engineering, general expenses, miscellaneous other power generation expenses, and rentals. The Mountainview Maintenance work activity includes all labor, non-labor, and other expenses (e.g., the GE Contractual Service Agreement costs) associated with maintaining and repairing the power island and all general plant maintenance-related expenses.
Palo Verde: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkB pp. 256 - 296	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	This activity includes expenses related to materials for the Palo Verde nuclear generation station which are not specifically provided for or are not readily assignable to other nuclear generation operation accounts.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Peakers: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkB pp. 194 - 200	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	Includes costs for SCE employees who routinely work at the Peaker locations and support provided to the plant by employees who work at other locations. Non-labor includes costs to repair parts, chemicals, supplies, contracts, and numerous other items needed to operate and maintain the Peaker plants. This also includes costs for interconnection fees that SCE pays to be connected to the bulk power grid.
Solar: *SCE-05 Vol : 1*: RAMP Control/Mitigation: N/A	WPSCE05V1BkB pp. 235 - 252	Unable to identify a single unit due to multiple activities for supporting this Generation activity.	Maintenance: Labor and non-labor expenses incurred in the maintenance of rooftop solar photovoltaic program projects. Operations: Labor and non- labor expenses incurred in the operation of rooftop solar photovoltaic program projects.

2. GRC Activities Variance Calculations

Table IX-18 below provides the authorized and recorded costs, and variance and percentage change values for each Generation expense activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table IX-18
Generation Expense Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Catalina - Diesel	N/A	$6,133	$5,667	$466	8%				N/A	No	No	No
Hydro	N/A	$45,313	$43,601	$1,712	4%				N/A	No	No	No
Mountainview	N/A	$20,514	$29,402	($8,887)	-30%				N/A	No	**Yes**	No
Palo Verde	N/A	$73,401	$72,249	$1,152	2%				N/A	No	No	No
Peakers	N/A	$8,728	$7,957	$771	10%				N/A	No	No	No
Solar	N/A	$1,381	$1,389	($8)	-1%				N/A	No	No	No

3. Variance Explanations

Table IX-19 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table IX-19
Transmission Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Mountainview *$:No, %:Yes, Units: No*	Mountainview recorded O&M of $20.5M in 2021 is lower than the 2021 GRC authorized amount of $29.4M by $8.9M or 30%. The underrun was partly due to the cancelling of the GE contractual service agreement. After reevaluating the terms and conditions of the GE Contract in light of current operating conditions, and following several rounds of discussions with GE, SCE found it was prudent to discontinue the contract from both an operational and overall cost standpoint. This will not impact SCE's ability to safely and reliably operate the Mountainview generating station. The underrun was also driven by lower than previously forecasted run hours, resulting in deferral of the major inspection planned for 2021/2022, as well as by the deferral of maintenance based on risk prioritization.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For the Generation capital activities that are SAR-eligible, Table IX-20 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table IX-20
Generation Capital Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Catalina - Diesel: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE05V1BkB, pp. 217-225	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Labor and non-labor expenses necessary to operate and maintain Catalina's generation and ancillary equipment. Also includes home office support expenses. Projects include Catalina Repower and a 2.4 kV switchyard upgrade.
Hydro - Dams and Waterways: *SCE-05 Vol : 1:* RAMP Control/Mitigation: *Spillway Remediation and Improvement, Seismic Retrofit, Seepage Mitigation, Low Level Outlet Improvements, Instrumentation / Communication Enhancements, Dam Surface Protection*	WPSCE-05V1, Book A, pp. 66-85	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Dams and Waterways projects include the rebuilding of reservoirs, flowlines, or flumes, installing flow measurement equipment, replacing valves, and installing debris removal equipment or fish screens.
Hydro - Decommissioning: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book A, pp. 109-194 and Book B, pp. 2-162	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Due to contractual obligations and proposed U.S. Forest Service requirements, SCE anticipates it will be required to do significant construction work on the San Gorgonio facilities before turning the project over to the local water agencies.
Hydro - Electrical Equipment: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book A, pp. 86-98	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Control systems, circuit protection, and transformers wear out over time and require replacement at the Hydro facilities. Larger projects in this category typically involve complete replacement of excitation equipment, high voltage plant circuit breakers, transformers, or automation work. Excitation equipment provides the power to a generator's field windings, which is necessary to produce output power. Plant circuit breakers are large devices that protect and disconnect Hydro facilities from the transmission network. Step-up transformers convert

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			the Hydro plant voltage to that of the transmission network or grid. Automation equipment is used to remotely or efficiently control processes at powerhouses and ancillary facilities.
Hydro - Prime Movers: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book A, pp. 31-65	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	SCE Hydro operates seventy-six generating units at thirty-five powerhouses. Water turbines convert the flow of high pressure water into rotary motion or mechanical energy, which the generators convert into electrical power. The high pressure water and rotary motion cause wear and tear on the turbine units. The heat created by a generator when producing electrical power also causes wear and tear on the generator bearings and windings. If timely repairs are not performed when warranted, unit failure is inevitable. Therefore, turbines and generators receive annual maintenance and inspections.
Hydro - Relicensing: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book A, pp. 16-30	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Hydro - Relicensing executes the requirements of FERC relicensing and new license implementation projects, including Minimum Instream Flow Upgrades and Campground Infrastructure Refurbishments/Replacements.
Hydro - Structures and Grounds: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book A, pp. 98-108	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Hydro - Structures and Grounds involves needed work related to various structures including the powerhouses, roofs, cranes, heating ventilation and air conditioning, and to infrastructure including roads, bridges, paving, fencing and gates, fire and water systems, and wastewater projects. The major projects in this category are replacing high-pressure piping, completing road and bridge improvements, and installing dam safety video surveillance equipment.
Mountainview: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book B, pp. 181-192	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Includes SCE's planned capital expenditures for Mountainview that support reliable service, compliance with applicable laws and regulations, and safe operations for employees and the public.
Palo Verde: *SCE-05 Vol : 1:*	WPSCE-05V1, Book B, pp. 263-264	This activity is comprised of multiple projects and types of projects that vary	The activity, Palo Verde includes expenses related to materials used and expenses incurred for Palo Verde

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: N/A		in size and scope, and therefore providing a single work unit is not feasible.	which are not specifically provided for or are not readily assignable to other nuclear generation operation accounts.
Peakers: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book B, pp. 201-208	This activity is comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	SCE's planned capital expenditures for the Peaker plants that support reliable service, compliance with applicable laws and regulations, and safe operations for employees and the public.
Protection of Generation Assets: *SCE-04 Vol : 4:* RAMP Control/Mitigation: *Protection of Generation Capabilities*	WPSCE04V4 pp. 80	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	This activity includes the costs to implement security measures such as access control, alarms, surveillance, and perimeter protections at Generation assets, such as dams and peaker facilities.
Solar: *SCE-05 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE-05V1, Book B, pp. 253-255	These workpapers are comprised of multiple projects and types of projects that vary in size and scope, and therefore providing a single work unit is not feasible	Maintenance: Labor and non-labor expenses incurred in the maintenance of rooftop solar photovoltaic program (SPVP) projects. Operations: Labor and non-labor expenses incurred in the operation of rooftop solar photovoltaic program (SPVP) projects.

2. GRC Activities Variance Calculations

Table IX-21 below provides the authorized, recorded, variance and percentage change values for each Generation expenditure category activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table IX-21
Generation Capital Expenditure Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Catalina - Diesel	N/A	($444)	$2,048	($2,492)	-122%					No	No	No
Hydro - Dams and Waterways	*Dam Surface Protection*	*$1,207*	*$0*	*$1,207*	*100%*							
Hydro - Dams and Waterways	*Instrumentation / Communication Enhancements*	*$237*	*$250*	*($13)*	*-5%*							
Hydro - Dams and Waterways	*Low Level Outlet Improvements*	*$3,596*	*$0*	*$3,596*	*100%*							
Hydro - Dams and Waterways	*Non-RAMP*	*$8,059*	*$5,937*	*$2,122*	*36%*							
Hydro - Dams and Waterways	*Seepage Mitigation*	*$0*	*$3,900*	*($3,900)*	*-100%*							
Hydro - Dams and Waterways	*Seismic Retrofit*	*$0*	*$0*	*$0*	*100%*							
Hydro - Dams and Waterways	*Spillway Remediation and Improvement*	*$1,345*	*$2,500*	*($1,155)*	*-46%*							
Hydro - Dams and Waterways	Total	$14,443	$12,587	$1,856	15%					No	No	No
Hydro - Decommissioning	N/A	$586	$418	$168	40%					No	No	No
Hydro - Electrical Equipment	N/A	$9,776	$3,533	$6,243	177%					No	No	No
Hydro - Prime Movers	N/A	$4,198	$10,004	($5,806)	-58%					No	No	No
Hydro - Relicensing	N/A	$6,731	$15,310	($8,578)	-56%					No	No	No
Hydro - Structures and Grounds	N/A	$6,647	$3,203	$3,444	108%					No	No	No
Mountainview	N/A	$4,760	$6,595	($1,835)	-28%					No	No	No
Palo Verde	N/A	$35,851	$37,212	($1,361)	-4%					No	No	No
Peakers	N/A	$9,937	$0	$9,937	100%					No	No	No
Protection of Generation Assets	Protection of Generation Capabilities	$1,061	$3,288	($2,227)	-68%					No	No	No
Solar	N/A	$16	$102	($87)	-85%					No	No	No

3. Variance Explanations

SCE did not have any generation capital GRC activities that required a variance explanation.

X.

OTHER CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For the Other expense activities that are SAR-eligible, Table X-22 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table X-22
Other Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
All Hazards Assessment, Mitigation and Analytics: *SCE-04 Vol : 1:* RAMP Control/Mitigation: *Seismic Building Safety Program, Climate Adaptation & Severe Weather*	WPSCE04V1 pp.8 - 20	Unable to identify a single unit due to multiple activities supporting this activity	All Hazards, Assessment, Mitigation & Analytics - includes cost to assess and mitigate hazards such as seismic, climate change, severe weather and other hazards.
Business Planning: *SCE-06 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE06V2BkB pp. 18 - 23	Unable to identify a single unit due to multiple activities supporting this activity	Business Planning encompasses functions to build and operationalize integrated, risk-informed planning for the enterprise, and includes strategic planning, business planning and financial planning.
Customer Contact Center: *SCE-03 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE03VO4A pp. 1 - 9	Unable to identify a single unit due to multiple activities supporting this activity.	This activity consists of costs associated with the Customer Contact Center to provide customers with telephone access to a SCE representative covering a full array of routine services and the costs for telephone billings and related expenses. The CCC also responds, 24 hours a day, seven days a week, to emergency calls regarding outages, damaged equipment, and disconnection of service.
Cyber Software License and Maintenance: *SCE-04 Vol : 3:* RAMP Control/Mitigation: *SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection*	WPSCE04V3 pp. 143 - 150	Unable to identify a single unit due to multiple activities supporting this activity.	Expenses incurred for licensing and ongoing maintenance of Cyber Security software.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Cybersecurity Delivery and IT Compliance: *SCE-04 Vol : 3*: RAMP Control/Mitigation: *SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection*	WPSCE04V3 pp. 21 - 27	Unable to identify a single unit due to multiple activities supporting this activity.	Expenses associated with delivering cybersecurity services and monitoring compliance with key cybersecurity related regulations.
Develop and Manage Policy and Initiatives: *SCE-06 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE06V6 pp. 1 - 6	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Develop and Manage Policy and Initiatives activity consists of work performed within the Regulatory Affairs organization. The work includes activities that support SCE's management of the regulatory work required to support and implement energy, environmental, and wildfire mitigation policies, as well as other policies instituted by state, federal, and local agencies.
Distribution Storm Response O&M: *SCE-04 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE04V2 pp. 23 - 29	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Distribution Storm - Includes the costs to patrol for and repair storm related damages and toxic waste disposal for distribution lines and facilities. Storm damage can be the result of severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs included in this account are: switching, locating and isolating trouble on the system, removal of debris from lines or equipment, and securing damaged sites until repairs have been completed. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Education, Safety and Operations: *SCE-06 Vol : 6:* RAMP Control/Mitigation: N/A	WPSCE06V6 pp. 7 - 12	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Education, Safety and Operations consists of work performed within the Local Public Affairs (LPA) organization. LPA is responsible for managing and directing external engagement with government officials, staff, businesses, and local community stakeholders representing 185 cities, 15 counties, and 13 Native American tribes in the SCE service territory. The activities covered include outreach and education related to electric safety, emergency response communications (including wildfire mitigation programs), capital infrastructure projects, operations impacting local communities, reliability issues, and education on state-mandated

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			policy initiatives such as energy efficiency, renewable energy sources, distributed generation, transportation electrification, community resiliency, and other programs.
Emergency Preparedness and Response: *SCE-04 Vol : 2:* RAMP Control/Mitigation: *Fire Management, Emergency Management*	WPSCE04V2 pp. 11 - 22	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Costs incurred to maintain expertise and provide direct support to the company and Service territory for emergency management preparedness, response and recovery operations.
Employee and Contractor Safety: *SCE-06 Vol : 4:* RAMP Control/Mitigation: Industrial Ergonomics, Contractor Safety Program	WPSCE06V4 pp. 54 - 60	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes all costs associated with salaries, expenses, and consultant services of personnel engaged of Employee and Contractor Safety activities.
Enhanced Situational Awareness: SCE-04 Vol : 5: RAMP Control/Mitigation: *Enhanced Situational Awareness*	WPSCE04V5Pt2 pp. 59 - 70	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Expenses incurred to support the Situational Awareness Center.
Environmental Management and Development: *SCE-06 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE06V4 pp. 3 - 9	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes all costs associated with salaries and expenses in Environmental Services for the management and oversight of environmental programs. This activity involves administrative and general activities regarding environmental matters and issues that affect company operations.
Environmental Programs: *SCE-06 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE06V4 pp. 10 - 16	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes all costs associated with salaries and expenses for distribution, transmission, generation, and hazardous waste environmental programs, including the expenses associated with the maintenance and monitoring of the San Dieguito Wetlands and Wheeler North Reef Mitigation Projects.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Ethics and Compliance: *SCE-06 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE06V4 pp. 47 - 53	The variety of work activities in this category makes it infeasible to identify a single unit of measurement	Includes all costs associated with salaries and expenses to maintain the effectiveness of SCE's Ethics & Compliance (E&C) program. E&C incorporates and reinforces the Company's core values of Safety, Integrity, Excellence, Respect, Continuous Improvement and Teamwork. The goal of the Program is to facilitate and sustain a culture where acting ethically and obeying the law is the expected and everyday course of action for employees and the Company's business partners.
External Communications: *SCE-03 Vol : 2:* RAMP Control/Mitigation: *Public Outreach*	WPSCE03V2 pp. 21 - 26	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	This activity consists of external communications to help customers and the public stay safe around electrical infrastructure and to understand company and regulatory actions that affect them directly.
Facility and Land Operations: *SCE-06 Vol : 5:* RAMP Control/Mitigation: *Fire Life Safety Portfolio Assessment, Electrical Inspections, Office Ergonomics*	WPSCE06V5BKA.pdf pp. 234 - 239	The variety of projects in this category makes it infeasible to identify a single unit of measurement.	Facility and Land Operations Business Planning Activities (BPA's) include: Facility Asset Management, Business Planning, Corporate Real Estate (CRE) Project Management, Camp Edison, Forestry Management, and Acquire/Dispose of Land Rights. Facility Asset Management activities are focused on providing a safe and productive environment for employees, visitors, and customers at SCE facilities. Business Planning activities entail strategic planning and transactional activities including leasing for the SCE facility portfolio. CRE Project Management is responsible for overseeing large capital projects in the SCE facility portfolio. Camp Edison includes operating and maintaining the camp ground facility and infrastructure. Forestry management operations include activities such as of vegetation management, timber harvesting (thinning), wildfire prevention, reforestation and rehabilitation, protection of natural resources. Acquire/Dispose of Land Rights manages and coordinates requests for third party use of SCE land and land rights, including those rights associated with the relocation and removal of SCE facilities.
Fire Science and Advanced Modeling: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE04V5Pt2 pp. 78 - 92	The variety of projects in this category makes it infeasible to identify a single unit of measurement.	Fire Science and Advanced Modeling - includes cost for gathering and integration of science and technology to support wildfire mitigation across the SCE service territory. The sub-activities are: Advanced Modeling Computer Hardware, Fuel Sampling Program, Remote Sensing Satellite, etc.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Grid Mod Cybersecurity: *SCE-04 Vol : 3:* RAMP Control/Mitigation: *Grid Modernization Cybersecurity*	WPSCE04V3 pp. 116 - 122	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Expenses incurred in providing Cybersecurity capabilities for the Grid Mod program.
Organizational Support: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE04V05APt01 pp. 351 - 359	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	This activity includes the labor and contract costs associated with change management support for EOI, PSPS, and other wildfire management activities.
Planning, Continuity and Governance: *SCE-04 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE04V1 pp. 1 - 7	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Costs incurred to develop and maintain emergency and contingency plans, maintain continuity of operations, and governance over compliance programs related to emergency management, response and recovery.
PSPS Customer Support: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *PSPS Protocol and Support Functions*	WPSCE04V05A pp. 2 - 18	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Technology investments to improve the PSPS programs and protocols.
PSPS Execution: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *PSPS Protocol and Support Functions*	WPSCE04V05A pp. 29 - 54	PSPS Execution is comprised of several subactivities that are not unit based and will be unable to identify a single unit due to multiple activities in this workpaper.	PSPS Execution includes costs incurred in maintaining the capability of monitoring conditions for the activation of a planned outage on circuits with an elevated risk of wildfire, along with certain costs incurred in activation and deactivation of these planned outages.
Public Safety: *SCE-06 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE06V4 pp. 61 - 67	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes all costs associated with salaries, expenses, and consultant services of personnel engaged of Public Safety activities.
Safety Activities - Transmission & Distribution: *SCE-06 Vol : 4:*	WPSCE06V4 pp. 75 - 81	The variety of work activities in this category makes it infeasible to	The cost of labor, materials used, and expenses incurred to develop and deliver safety programs to distribution and transmission personnel. Also includes the seat-time (labor costs) for employees to attend safety events and trainings and non-labor costs related to

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: *Safety Controls*		identify a single unit of measurement.	event attendance such as transportation expenses, meals, travel, lodging, and incidental expenses, as well as division overhead.
Safety Culture Transformation: *SCE-06 Vol : 4:* RAMP Control/Mitigation: *Safety Culture Transformation*	WPSCE06V4 pp. 68 - 74	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Includes all costs associated with salaries, expenses, and consultant services of personnel engaged of Safety Culture Transformation activities. Costs relating with seat-time for employees to attend Safety Culture training sessions were excluded from this activity.
Security Technology Operations and Maintenance: *SCE-04 Vol : 4:* RAMP Control/Mitigation: *Asset Protection*	WPSCE04V4 pp. 25 - 30	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Security Technology, Operations and Maintenance includes two sub-activities: (1) Project Management Office and (2) Break-fix and Preventive Maintenance. The Project Management Office (PMO) implements standards for management of physical security projects and tracks and prioritizes physical security projects from initiation through completion. The PMO employs best practices established by the Project Management Institute and other project management resources. Break-fix and preventive maintenance activities include monitoring and repairing all Physical Access Control Systems (PACS) for both NERC and Non-NERC sites. Beyond PACS, there are four major types of security systems and equipment in use at SCE: access control, intrusion detection, perimeter protection, and video surveillance systems. Components of these systems include turnstiles, electronic identify badge readers, surveillance cameras, request to exit devices, electronic locks, smart keys, intrusion detection equipment (door contacts), gunshot detection, alarm panels, video recording systems, manual key boxes, and radar technology.
Software Maintenance and Replacement: *SCE-06 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE06V01Pt01A pp. 34 - 40	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Software Maintenance and Replacement O&M work activity includes SCE labor and non-labor costs required to maintain SCE's operating software assets through on-premise license, cloud, subscription, and maintenance agreements. Operating Software includes operating systems, business intelligence systems, database management systems, cross-system integration tools, IT monitoring tools and end-user productivity and collaboration software which enable business applications to take advantage of the underlying hardware features and functions. This work activity also includes SCE labor and non-labor for

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			application refresh activities, which consist of the management, upgrade, maintenance, optimization, monitoring, and testing of IT applications and interfaces through their lifecycle.
Technology Delivery: *SCE-06 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE06V01Pt01A pp. 9 - 21	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	This activity includes SCE labor and non-labor to plan and implement capital software projects. It also includes costs for project management, post go-live stabilization, and change management expenses. Lastly, the activity includes O&M software project costs that are expensed (typically less than $250,000).
Technology Infrastructure Maintenance and Replacement: *SCE-06 Vol : 1 Pt. 2:* RAMP Control/Mitigation: N/A	WPSCE06V01Pt01A pp. 34 - 40	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Technology Infrastructure Maintenance and Replacement activity provides support of business applications and services for SCE's: (1) data center infrastructure, (2) end user computing maintenance, and (3) technology adoption. Support for SCE's data centers involves procuring, installing, and maintenance of all enterprise data center hardware infrastructure. End user computing maintenance covers the performance management of SCE's Service Desk that resolves approximately 204,000 service tickets per year as well as management of SCE's smart phone plans, tablet cellular data, air cards, printers, plotters, laptops and desktops, and AV for teleconference rooms across the Company. technology adoption handles retirement of computer, storage, network, and operating software assets and the replacement of these assets with hardware and operating software that may be more operationally efficient with improved price performance to leverage new technologies such as the cloud.
Telecommunication Storm Response O&M: *SCE-04 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE04V2 pp. 37 - 43	Storm events are driven by weather and other environmental factors outside of SCE's control and that can vary significantly from year to year. Accordingly, the capital forecast for Storm Response is based on a five-year average of	Includes the costs to patrol for and repair storm related damages and toxic waste disposal for Telecommunication lines and facilities. Storm damage can be the result of severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs included in this account are: switching, locating and isolating trouble on the system, removal of debris from lines or equipment, and securing damaged sites until repairs have been completed. Includes related costs such as: transportation expenses; meals, traveling, lodging,

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
		recorded expenditures and is not unit based.	and incidental expenses; division overhead; and supply and tool expense.
Training and Development: *SCE-06 Vol : 3 Pt. 1:* RAMP Control/Mitigation: *Asset Protection, Insider Threat Program Enhancement - Information Analysis – Base, Safety Culture Transformation*	WPSCE06V3Pt1BkB, pp. 127-132	The variety of non-labor activities in this category makes it infeasible to identify a single unit of measurement.	This activity is composed of training and development programs for employees such as job skills, compliance, leadership, and safety training. Costs within these activities include labor to develop, deliver, and attend (seat-time) the training as well as expenses for materials, transportation, meals, travel, lodging, incidentals and division overheads.
Training Delivery and Development - Transmission and Distribution: *SCE-06 Vol : 3 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE06V3Pt1BkB pp. 127 - 135	The variety of non-labor activities in this category makes it infeasible to identify a single unit of measurement. (	The cost of labor, materials used, and expenses incurred to develop and deliver training to transmission personnel.
Training Seat-Time - Transmission and Distribution: *SCE-06 Vol : 3: Pt. 1* RAMP Control/Mitigation: N/A	WPSCE06V3Pt1BkB pp. 136 - 144	The variety of non-labor activities in this category makes it infeasible to identify a single unit of measurement.	This activity is composed of the seat-time (labor costs) for employees to attend training and informational meetings for distribution employees. Non-labor costs include related costs such as transportation expenses, meals, travel, lodging, and incidental expenses, as well as division overhead.
Training, Drills and Exercises: *SCE-04 Vol : 2:* RAMP Control/Mitigation: *Emergency Management, Facility Emergency Management Program*	WPSCE04V2 pp. 1 - 10	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Costs incurred for the training of employee, conducting drills and exercises, for the Company's response capabilities for various hazards, such as earthquakes, wildfires, and cyber attacks.
Transmission Pole Loading Work Order Related Expense: *SCE-02 Vol : 2:*	WPSCE02V02A	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Expenses incurred for work that must be done when capital additions or replacements are being performed. These activities do not qualify for capitalization according to standard accounting guidelines.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: N/A			
Transmission/Substation Storm Response O&M: *SCE-04 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE04V2 pp. 30 - 26	Storm events are driven by weather and other environmental factors outside of SCE's control and that can vary significantly from year to year. Accordingly, the capital forecast for Storm Response is based on a historical average and is not unit based.	Includes the costs to patrol for and repair storm related damages and toxic waste disposal for Transmission lines and substation facilities. Storm damage can be the result of severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs included in this account are: switching, locating and isolating trouble on the system, removal of debris from lines or equipment, and securing damaged sites until repairs have been completed. Includes related costs such as: transportation expenses; meals, traveling, lodging, and incidental expenses; division overhead; and supply and tool expense.
Work Force Protection/Insider Threat: *SCE-04 Vol : 4:* RAMP Control/Mitigation: *Asset Protection, Insider Threat Program Enhancement - Information Analysis - Base*	WPSCE04V4 pp. 31 - 36	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Workforce Protection and Insider Threat program includes: (1) security officer services, both at office buildings and in the field, including emergency backup of security officers and on-demand services, (2) centralized alarm monitoring and call/dispatch via the Edison Security Operations Center, (3) badging office, (4) background investigations, (5) Insider Threat program, (6) governance and compliance of security programs, and (7) administrative and general functions.

2. GRC Activities Variance Calculations

Table X-23 below provides the authorized and recorded costs, and variance and percentage change values for each Other expense activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table X-23
Other Expense Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
All Hazards Assessment, Mitigation and Analytics	*Climate Adaptation & Severe Weather*	*$766*	*$882*	*($116)*	*(blank)*				*N/A*	*N/A*	*N/A*	No
All Hazards Assessment, Mitigation and Analytics	*Non-RAMP*	*$4,067*	*$562*	*$3,504*	*(blank)*				*N/A*	*N/A*	*N/A*	No
All Hazards Assessment, Mitigation and Analytics	*Seismic Building Safety Program*	*$1,634*	*$2,749*	*($1,115)*	*(blank)*				*N/A*	*N/A*	*N/A*	No
All Hazards Assessment, Mitigation and Analytics	Total	$6,467	$4,194	$2,273	54%				N/A	No	No	No
Business Planning	N/A	$32,802	$38,208	($5,406)	-14%				N/A	No	No	No
Customer Contact Center	N/A	$51,802	$48,360	$3,442	7%				N/A	No	No	No
Cyber Software License and Maintenance	*Data Protection*	*$117*	*$180*	*($63)*	*-35%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	*Grid Modernization Cybersecurity*	*$1,363*	*$2,100*	*($737)*	*-35%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	*Interior Protection*	*$707*	*$1,089*	*($382)*	*-35%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	*Non-RAMP*	*$528*	*$0*	*$528*	*100%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	*Perimeter Defense*	*$1,620*	*$2,496*	*($876)*	*-35%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	*SCADA Cybersecurity*	*$90*	*$139*	*($49)*	*-35%*				*N/A*	*N/A*	*N/A*	No
Cyber Software License and Maintenance	Total	$4,425	$6,004	($1,579)	-26%				N/A	No	No	No
Cybersecurity Delivery and IT Compliance	*Data Protection*	*$1,908*	*$3,716*	*($1,809)*	*-49%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	*Grid Modernization Cybersecurity*	*$2,396*	*$4,497*	*($2,101)*	*-47%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	*Interior Protection*	*$1,955*	*$3,839*	*($1,884)*	*-49%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	*Non-RAMP*	*$7,003*	*$2,859*	*$4,144*	*145%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	*Perimeter Defense*	*$3,511*	*$4,332*	*($820)*	*-19%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	*SCADA Cybersecurity*	*$1,751*	*$3,370*	*($1,619)*	*-48%*				*N/A*	*N/A*	*N/A*	*No*
Cybersecurity Delivery and IT Compliance	Total	$18,523	$22,613	($4,090)	-18%				N/A	No	No	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Develop and Manage Policy and Initiatives	N/A	$14,469	$16,730	($2,261)	-14%				N/A	No	No	No
Distribution Storm Response O&M	N/A	$12,580	$14,424	($1,844)	-13%				N/A	No	No	No
Education, Safety and Operations	N/A	$5,898	$7,736	($1,838)	-24%				N/A	No	No	No
Emergency Preparedness and Response	*Emergency Management*	*$2,367*	*$13,594*	*($11,227)*	*-83%*				*N/A*	*N/A*	*N/A*	*No*
Emergency Preparedness and Response	*Fire Management*	*$728*	*$4,061*	*($3,332)*	*-82%*				*N/A*	*N/A*	*N/A*	*No*
Emergency Preparedness and Response	Total	$3,095	$2,862	$234	8%				N/A	No	No	No
Employee and Contractor Safety	*Contractor Safety Program*	*$40*	*$200*	*($160)*	*-80%*				*N/A*	*N/A*	*N/A*	*No*
Employee and Contractor Safety	*Industrial Ergonomics*	*$0*	*$15*	*($15)*	*-97%*				*N/A*	*N/A*	*N/A*	*No*
Employee and Contractor Safety	*Non-RAMP*	*$688*	*$3,845*	*($3,158)*	*-82%*				*N/A*	*N/A*	*N/A*	*No*
Employee and Contractor Safety	Total	$15,022	$4,611	$10,411	226%				N/A	**Yes**	**Yes**	No
Enhanced Situational Awareness	N/A	$5,411	$3,786	$1,625	43%				N/A	No	No	No
Environmental Management and Development	N/A	$13,041	$10,569	$2,471	23%				N/A	No	No	No
Environmental Programs	N/A	$14,082	$18,358	($4,276)	-23%				N/A	No	No	No
Ethics and Compliance	N/A	$12,829	$15,283	($2,454)	-16%				N/A	No	No	No
External Communications	*Non-RAMP*	*$5,513*	*$5,155*	*$357*	*7%*				*N/A*	*N/A*	*N/A*	*No*
External Communications	*Public Outreach*	*$6,051*	*$6,821*	*($770)*	*-11%*				*N/A*	*N/A*	*N/A*	*No*
External Communications	Total	$11,563	$11,976	($413)	-3%				N/A	No	No	No
Facility and Land Operations	*Electrical Inspections*	*$240*	*$1,628*	*($1,388)*	*-85%*				*N/A*	*N/A*	*N/A*	*No*
Facility and Land Operations	*Fire Life Safety Portfolio Assessment*	*$7*	*$179*	*($172)*	*-96%*				*N/A*	*N/A*	*N/A*	*No*
Facility and Land Operations	*Non-RAMP*	*$54,991*	*$59,815*	*($4,824)*	*-8%*				*N/A*	*N/A*	*N/A*	*No*
Facility and Land Operations	*Office Ergonomics - Core Program*	*$0*	*$50*	*($50)*	*-100%*				*N/A*	*N/A*	*N/A*	*No*
Facility and Land Operations	Total	$55,237	$61,672	($6,434)	-10%				N/A	No	No	No
Fire Science and Advanced Modeling	N/A	$5,770	$4,135	$1,635	40%				N/A	No	No	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Grid Mod Cybersecurity	Grid Modernization Cybersecurity	$627	$652	($25)	-4%				N/A	No	No	No
Organizational Support	N/A	$10,653	$3,484	$7,169	206%				N/A	No	**Yes**	No
Planning, Continuity and Governance	N/A	$838	$1,436	($599)	-42%				N/A	No	No	No
PSPS Customer Support	N/A	$33,981	$13,833	$20,148	146%				N/A	**Yes**	**Yes**	No
PSPS Execution	N/A	$41,677	$14,938	$26,739	179%				N/A	**Yes**	**Yes**	No
Public Safety	N/A	$531	$655	($124)	-19%				N/A	No	No	No
Safety Activities - Transmission & Distribution	*Non-RAMP*	*$7,700*	*$15,680*	*($7,979)*	*-51%*				*N/A*	*N/A*	*N/A*	*No*
Safety Activities - Transmission & Distribution	*Safety Controls*	*$0*	*$2,266*	*($2,266)*	*-100%*				*N/A*	*N/A*	*N/A*	*No*
Safety Activities - Transmission & Distribution	Total	$7,700	$17,946	($10,245)	-57%				N/A	**Yes**	**Yes**	No
Safety Culture Transformation	Safety Culture Transformation	$1,800	$2,413	($612)	-25%				N/A	No	No	No
Security Technology Operations and Maintenance	Asset Protection	$4,213	$24,772	($20,559)	-83%				N/A	**Yes**	**Yes**	No
Software Maintenance and Replacement	N/A	$84,098	$102,261	($18,163)	-18%				N/A	**Yes**	No	No
Technology Delivery	N/A	$6,403	$11,920	($5,517)	-46%				N/A	No	**Yes**	No
Technology Infrastructure Maintenance and Replacement	N/A	$20,140	$23,055	($2,915)	-13%				N/A	No	No	No
Telecommunication Storm Response O&M	N/A	$122	$23	$99	439%				N/A	No	No	No
Training and Development	*Asset Protection*	*$5*	*$21*	*($16)*	*-76%*				*N/A*	*(blank)*	*(blank)*	*No*
Training and Development	*Insider Threat Program Enhancement - Information Analysis - Base*	*$7*	*$183*	*($176)*	*-96%*				*N/A*	*(blank)*	*(blank)*	*No*
Training and Development	*Non-RAMP*	*$14,274*	*$16,268*	*($1,994)*	*-12%*				*N/A*	*(blank)*	*(blank)*	*No*
Training and Development	*Safety Culture Transformation*	*$1,223*	*$3,956*	*($2,733)*	*-69%*				*N/A*	*(blank)*	*(blank)*	*No*
Training and Development	Total	$15,509	$20,428	($4,919)	-24%				N/A	No	No	No
Training Delivery and Development - Transmission and Distribution	N/A	$14,409	$18,899	($4,490)	-24%				N/A	No	No	No

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Training Seat-Time - Transmission and Distribution	N/A	$18,954	$28,301	($9,346)	-33%				N/A	No	**Yes**	No
Training, Drills and Exercises	*Emergency Management*	*$1,199*	*$25,188*	*($23,989)*	*-95%*				*N/A*	*N/A*	*N/A*	*No*
Training, Drills and Exercises	*Facility Emergency Management Program*	*$645*	*$3,113*	*($2,468)*	*-79%*				*N/A*	*N/A*	*N/A*	*No*
Training, Drills and Exercises	Total	$1,844	$2,359	($516)	-22%				N/A	No	No	No
Transmission Pole Loading Work Order Related Expense	N/A	$19	$278	($259)	-93%				N/A	N/A	N/A	No
Transmission/Substation Storm Response O&M	N/A	$1,119	$2,092	($974)	-47%				N/A	N/A	N/A	No
Work Force Protection/Insider Threat	*Asset Protection*	*$17,540*	*$1,903*	*$15,637*	*822%*				*N/A*	*N/A*	*N/A*	*No*
Work Force Protection/Insider Threat	*Insider Threat Program Enhancement - Information Analysis - Base*	*$10*	*$16*	*($6)*	*-40%*				*N/A*	*N/A*	*N/A*	*No*
Work Force Protection/Insider Threat	*Non-RAMP*	*$63*	*($1,696)*	*$1,760*	*-104%*				*N/A*	*N/A*	*N/A*	*No*
Work Force Protection/Insider Threat	Total	$17,613	$223	$17,391	7806%				N/A	**Yes**	**Yes**	No

3. Variance Explanations

Table X-24 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table X-24
Other Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Employee and Contractor Safety *$:Yes, %:Yes, Units: N/A*	Above authorized spend was driven by essential COVID costs not included in GRC authorized, including Employee Testing, COVID related consumables (masks, hand sanitizers, etc.) usage and salvage of expired items, Response team case managers costs for COVID effected employees contact tracing, Ergo office equipment for remote employees and public health advisors (External doctors as consultants to advise on all COVID safety precautions).
Organizational Support *$:No, %:Yes, Units: N/A*	SCE overspent authorized in Organization Support. The Wildfire Safety organization (formerly Grid Resiliency & Public Safety PMO) continues the centralized management and oversight of SCE's wildfire mitigation efforts that began in 2018. The volume of wildfire mitigation-related work associated with coordinating, planning, project managing, and reporting across the enterprise and to external entities continues to persist and requires rapid execution to meet short timeframes. Examples of professional support needs include developing processes, systems, and strategies to ensure our reporting capabilities are thorough and built to manage frequently changing requests to consume high volumes of data in varied formats. This support also helps to ensure the successful adoption of emergent technologies used by the workforce to manage their daily output. Lastly, they provide industry expertise to guide changes to business processes for programs such as targeted undergrounding, PSPS, and inspection strategies. Activities that continued to receive support in 2021 included WMP performance and regulatory work, the aerial inspections program and process enhancements, centralized Lidar program assessment, and OCM support (primarily for inspection programs and PSPS).
PSPS Customer Support *$:Yes, %:Yes, Units: N/A*	PSPS Customer Support was over 2021 GRC authorized primarily due to the Critical Care Backup Battery (CCBB) program which was not included in the 2021 GRC request. In July of 2020, SCE launched the Critical Care Backup Battery (CCBB) program to provide a battery-powered portable backup solution to operate critical medical equipment during power outages due to PSPS events or other emergencies. The program is meant to address the needs of SCE's income-qualified Medical Baseline

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	(MBL) customers residing in HFRA by fully funding the cost of a battery-powered portable backup solution to operate medical equipment during PSPS events. In 2021, SCE expanded the CCBB program to include customers who are 1) enrolled in MBL; 2) enrolled in either the CARE or FERA program; and 3) that reside in the HFRA. Additionally, SCE increased program awareness through marketing and outreach by utilizing direct mail, outbound phone calls, door knocking, and through increased engagement with community-based organizations (CBOs) to help inform and educate their community members.
PSPS Execution *$:Yes, %:Yes, Units: N/A*	SCE spent more than authorized for PSPS Execution due to approximately $18 million in aerials suppression costs. These costs were not forecasted or included in SCE's 2021 GRC but are crucial to our wildfire mitigation efforts. As part of a partnership with local county firefighting agencies, SCE funds up to five aerial firefighting helicopters, support personnel and equipment to bolster firefighting capabilities. These resources are capable of being deployed by these agencies virtually anywhere in SCE's service area, individually or all together. While aerial suppression resources will not be able to stop a fire at the onset, they have proven extremely effective at reducing the area and assets burned and enabling faster response times. In addition, aerial suppression resources help lower emergency response support costs and help minimize the impact of redirecting work crews from previously scheduled maintenance and construction work to emergency response.
Safety Activities - Transmission & Distribution *$:Yes, %:Yes, Units: N/A*	The underrun compared to authorized includes COVID-19 impacts to safety-related events (meals, mileage, lodging, etc.) and the need to cancel certain in-person events. SCE also did not spend on Functional Movement Screening (FMS) work due to COVID related policies and concerns. SCE will continue to investigate the potential appropriate time to reinstate this program.
Security Technology Operations and Maintenance *$:Yes, %:Yes, Units: N/A*	2021 GRC authorized for this activity is not aligned with the recorded due to mapping error for the respective final cost centers in the 2021 GRC Application. The authorized dollars mapped to this GRC activity should be in the Work force Protection GRC activity bucket and vice versa. Once corrected for the mapping error Security technology GRC activity authorized dollars should be $223K which when compared to

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	the recorded of $4.2M is about $3.9M above authorized which does not meet threshold 1 or 2 for the criteria for variance explanations.
Software Maintenance and Replacement *$:Yes, %:No, Units: N/A*	IT's O&M recorded for Software Maintenance and Replacement of $84.1M is lower than the 2021 GRC authorized amount of $102.3M by $18.2M or 18%. This activity consists of four work activities: (1) Perpetual License, (2) Software as a Service (SaaS), (3) Cloud, and (4) Application Refresh. * Software (Perpetual licenses, SaaS and Cloud): Recorded is under authorized due primarily to capitalization of software (Microsoft suite and Snowflake), lower negotiated prices and moving to the utilization of lower cost vendors, and due to the normalization of Software over periods 2021-2023 with 2021 reflecting lower than the average for 2021-2023. * Application Refresh: The Application Refresh sub-activity consists of work associated with maintaining existing applications, interfaces and decommissioning and includes: SCE labor & labor related expenses, consulting & professional services costs for third party support of on-going maintenance for OU applications that are incurred after projects have been implemented (e.g., Power Plant, SEMP, etc.,) and Service Management Organization O&M projects. The drivers of the lower than authorized spend are: - Lower spend for O&M project costs driven primarily by normalization of O&M project spend across 3 years resulting in underruns in earlier years and overruns in outer years and deferral and reprioritization of projects to 2022 and beyond. - Consulting & professional services costs are lower than authorized due to normalization of consulting & professional services spend across 3 years resulting in underruns in earlier years and overruns in outer years and due to delayed/deferred costs for 3rd party support costs not provided by MSP (e.g., Doble, Click, Primavera). - Lastly, higher SCE labor/expenses costs resulted from resources transfers from Customer Service Re-platform program back to SMOO and establishment of a newly formed Engineering Services group.
Technology Delivery *$:No, %:Yes, Units: N/A*	IT's O&M recorded for Technology Delivery of $6.4M in 2021 is less than the 2021 GRC authorized amount of $11.9M by $5.5M or 46%. Technology Delivery's underrun was driven by lower 2021 recorded for O&M projects and lower Capital Related

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	Expense, offset by increased labor and related expenses of. * O&M Projects: Recorded is less than authorized due to bundling of O&M work into capital projects and resource capacity constraints. * Capital Related Expense: Recorded is less than authorized due to targeting efficiencies, economies of scale and lower cost in-house resources on project deliverables like Organizational Change Management (OCM), Communications, etc. Additionally, some program/project work activities passed CAVE (Capital vs. Expense) determination, were approved and funded by Capital. * Labor & Related Expenses: Recorded is higher due primarily to O&M components related to the need to expand the capacity to execute on delivery of projects to meet each portfolio's demand, in addition, focused on Grid Resiliency and Grid Mod execution and an overall shift in charging practices in non-capital planning efforts to increase quality.
Training Seat-Time - Transmission and Distribution *$:No, %:Yes, Units: N/A*	The variance in Training Seat-Time was related to the impact of COVID-19. Various trainings were suspended and or delayed as a result of COVID-19 outbreaks.
Work Force Protection/Insider Threat *$:Yes, %:Yes, Units: N/A*	2021 GRC authorized for this activity is not aligned with the recorded due to mapping error for the respective final cost centers in the 2021 GRC filing. The Final cost center mapped for authorized dollars in this GRC activity should be mapped in the Security Technology Operations and Maintenance activity bucket and vice versa. Once corrected for the mapping error WorkForce protection authorized dollars should be $24.7M which when compared to the recorded of $17.5M is about $7.2M below authorized which does meet threshold 2 for the criteria for variance explanations. The variance is primarily due to technology advancements and re-prioritization of security officer services across SCE's service territory to optimize protection services at the most critical and vulnerable facilities. As Corporate Security continues to evaluate criticality and the vulnerabilities of SCE facilities, we assess the level of security needed. Corporate Security may deploy additional security officer services in the future if necessary, based on assessments.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For the Other capital activities that are SAR-eligible, Table X-25 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that activity.

Table X-25
Other Capital Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Air Operations: *SCE-06 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE06V5BKC pp. 10 - 17	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Aircraft Operations includes capital supporting aircraft components, overhauls, tools and helicopter lease buy-outs. Aircraft plays a critical role in SCE's system reliability by gathering critical information about electric infrastructure situated in locations that are remote and present significant challenges for access by traditional means. Their use also mitigates safety risks to workers and damages to vehicles and equipment that would otherwise be employed to inspect infrastructure at such locations.
All Hazards Assessment, Mitigation and Analytics: SCE-04 Vol : 1: RAMP Control/Mitigation: *Seismic Building Safety Program*	WPSCE04V1 pp. 21 - 40	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	All Hazards, Assessment, Mitigation & Analytics includes costs to assess and mitigate hazards such as seismic events, climate change, severe weather and other hazards.
Asset Reliability Risk Analytics: *SCE-04 Vol : 5*: RAMP Control/Mitigation: N/A	N/A - SCE did not request any expenditures in 2021	N/A - SCE did not request any expenditures in 2021	Asset Reliability Risk Analytics includes costs for predicting wildfire risk of an asset in order to prioritize work repairs and replacements to minimize wildfire ignitions.
Climate Adaptation and Severe Weather: *SCE-04 Vol : 1:* RAMP Control/Mitigation: N/A	WPSCE04V1 pp. 41 - 42	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	SCE's Climate Adaptation and Severe Weather Program involves a cross functional team coordinated by the Business Resiliency department to facilitate and develop a consistent approach across the company to analyze climate hazards, identify and implement adaptive measures. Program activities also include analyzing and assessing climate change impacts and related climate science and data to develop a foundational understanding of those impacts and how to address those impacts.
Communications: *SCE-02 Vol : 4 Pt. 1:*	WPSCE02V4P1ChIIBkA pp. 145 -160	This activity comprises multiple projects or types of	SCE's new Communications System is a mission-critical component of the Grid Modernization Program. It provides the essential capability to communicate cyber-securely and in real-time between grid devices

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: N/A		projects that vary in size and scope, and therefore providing a single work unit is not feasible.	(including DERs), distribution substations, and SCE's operations control centers. This communications capability is a direct enabler for various grid management functions, including real-time situational awareness, analyzing and resolving grid reliability issues, and integrating and controlling DERs. SCE's new communications system will also enable secure integration with DER aggregators and other 3rd parties, which will support the use of DERs to provide reliability services to the distribution system. The Communications Program includes four components: (1) FAN: The new wireless radio network that will replace SCE's aging NetComm system. (2) Distribution System Efficiency Enhancement Program (DSEEP): Support of SCE's NetComm system to ensure it supports SCE's communications needs until the new FAN is fully deployed, (3) CSP: The computing platform that enables secure communication between the operations control centers, substation equipment, and distribution circuit devices and (4) WAN: The fiber optic cable that provides the crucial communications link between the FAN, CSP, substations and SCE's operations control centers.
Communications Equipment: *SCE-05 Vol : 2:* RAMP Control/Mitigation: N/A	WPSCE05V2, pp. 7-8	Communication Units	Communication Equipment includes emergency satellite phone systems at all SCE-owned and contracted generation station locations in its portfolio. Integration of these emergency phone systems allows SCE to contact personnel at critical generation resources facilitating a quick response to emergencies. Specialized communication data links are installed at every generation resource to meet contractual obligations and CAISO telemetry requirements.
CRE Project Management: *SCE-06 Vol : 5*: RAMP Control/Mitigation: *Office Ergonomics (CORE Program)*	WPSCE06V5BKA, pp. 235 - 241	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	CRE Project Management includes large capital projects in the SCE facility portfolio including infrastructure upgrades, facility repurpose, and substation reliability upgrades.
Cybersecurity Delivery and IT Compliance: *SCE-04 Vol : 3:*	WPSCE04V3 pp. 86 - 96	This activity comprises multiple projects or types of	This activity includes expenditures associated with delivering cybersecurity services that consists of multiple layers of protection and proactive vulnerability testing to prevent unauthorized access and

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection		projects that vary in size and scope, and therefore providing a single work unit is not feasible.	control of SCE systems, as well as monitoring compliance with key cybersecurity related regulations. This activity also includes expenditures related to SCE's ongoing cybersecurity five capital programs: (1) Perimeter Defense (2) Interior Defense (3) Data Protection (4) SCADA Cybersecurity (5) NERC CIP Compliance.
Enhanced Situational Awareness: *SCE-04 Vol : 5:* RAMP Control/Mitigation: *Enhanced Situational Awareness*	WPSCE04V5Pt2 pp. 71 - 77	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	This activity includes costs associated with the Situational Awareness Center, primarily to improve SCE's ability to monitor weather and forest situations by deploying new weather stations and high definition cameras.
Environmental Programs: *SCE-06 Vol : 4:* RAMP Control/Mitigation: N/A	WPSCE06V4 pp. 17 - 22	The variety of work activities in this category makes it infeasible to identify a single unit of measurement	This activity involves securing and demolishing wells no longer in use in accordance with applicable environmental, safety, regulatory, and engineering standards. SCE developed the Well Decommission Program in 2013 to address the environmental, health and safety requirements for the safety of the public and protection of the environment. It also includes programmatic permits.
Facility Asset Management: *SCE-06 Vol : 5*: RAMP Control/Mitigation: *Electrical Inspections, Fire Life Safety Portfolio Assessment*	WPSCE06V5BkB, pp. 179 - 214	The variety of projects in this category makes it infeasible to identify a single unit of measurement.	The Facility Capital Management Program includes expenditures for periodic updates to building systems that are either past their useful life (e.g., HVAC, roof), or modifications due to regulatory or compliance requirements (e.g. fire systems).
Fire Science and Advanced Modeling: *SCE-04 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE04V5Pt2 pp. 93 -101	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	Fire Science and Advanced Modeling includes costs for gathering and the integration of science and technology to support wildfire mitigation across the SCE service territory. The sub-activities are: Advanced Modeling Computer Hardware, Fuel Sampling Program, Remote Sensing Satellite, etc.
Fleet Asset Management: *SCE-06 Vol : 5*:	WPSCE06V5BKC pp. 20 -22	This activity comprises multiple different work	Fleet Asset Management (FAM) includes the planning and strategy of vehicle replacements, dispositions and additions, and the design and delivery of SCE fleet vehicle assets, fleet telematics administration, and

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
RAMP Control/Mitigation: N/A		activities and providing one work unit is not feasible.	vehicle rentals. FAM covers both long- and short-term planning for the fleet and evaluates the impact of financial, design and regulatory requirements to support SCE's fleet needs accordingly. This includes annual vehicle replacements and additions planned through real-time evaluation of organizational requirements. These efforts also manage emerging vehicle resource needs and disposal of vehicles when they have reached the end of useful life or are rendered obsolete by regulation. The FAM team also includes several technical and engineering functions. This unit creates, maintains, and updates vehicle specifications, incorporates work method requirements, prescribes safety standards, fleet electrification options, and fuel efficiency and emissions goals, and addresses regulatory compliance requirements in vehicle designs. The team also analyzes product failures and ways to mitigate such failures, and works with vehicle manufacturers to deliver useful and dependable products and solutions to SCE.
Fleet Operations and Maintenance: *SCE-06 Vol : 5:* RAMP Control/Mitigation: N/A	WPSCE06V5BKC pp. 23 - 24	This activity comprises multiple different work activities and providing one work unit is not feasible.	Fleet Operations and Maintenance (FOM) performs maintenance, repairs, and fueling tasks to uphold the safety and dependability of SCE's vehicles and equipment and comply with applicable regulations. FOM manages SCE's 41 vehicle maintenance facilities supporting approximately 6,100 vehicles and equipment. FOM also includes the Crane Operations unit, which plays an integral role in constructing and maintaining SCE's infrastructure. Crane Operations provides 24-hour support for SCE crews throughout our 50,000 square mile service territory. This is accomplished with five SCE-owned cranes and a network of external crane vendors to serve the territory. FOM operates under a "fit to need" model, which optimizes the types and capabilities of cranes owned by SCE for work assignment to maximize SCE crane utilization and minimize use of typically higher cost external vendors.
Grid Management System: *SCE-02 Vol : 4 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE02V4P1ChIIBkA pp. 161 - 168	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	SCE's Grid Management System (GMS) is an advanced software platform that will integrate multiple systems designed to manage our increasingly dynamic grid. It will replace the legacy DMS, which was deployed in 2010, has exceeded its useful life, and is no longer supported by the vendor. The GMS will also replace the existing OMS to provide an integrated grid management functionality. The Advanced Distribution Management System (ADMS), as one of the GMS systems, will provide combined DMS/OMS functionality.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
Grid Mod Cybersecurity: *SCE-04 Vol : 3*: RAMP Control/Mitigation: *Grid Modernization Cybersecurity*	WPSCE04V3 pp. 123 - 126	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Cybersecurity programs related to the implementation of the Grid Modernization Program. This includes addressing the comprehensive security and data protection needs of all new infrastructure and application assets being added through the program including the following: Field Area Network (FAN), Common Substation Platform (CSP), Wide Area Network (WAN), Grid Management System (GMS), DRP External Portal (DRPEP), and Grid Interconnection Processing Tool (GIPT). This work addresses the critical need for modern and robust cybersecurity measures and controls by detecting, isolating, fixing or removing, and restoring electric distribution grid systems and devices as quickly and efficiently as possible. The program seeks to accomplish this through a combination of infrastructure, applications, and threat intelligence initiatives.
Laboratory Operations: *SCE-02 Vol : 4 Pt. 1*: RAMP Control/Mitigation: N/A	WPSCE02V4P1ChIII-IVBkB pp. 8 - 29	This activity comprises multiple different work activities and different laboratories and providing one work unit is not feasible.	The Grid Technology Laboratories allow SCE to safely evaluate, test, and pilot new and emerging technologies that support SCE in complying with public policies such as modernizing the grid, providing clean energy, enabling customer choice, and integrating distributed resources. The facilities also provide a means to test newer versions of existing technologies to support increased operating capabilities when we are replacing equipment that has reached the end of its lifecycle. SCE maintains and operates test facilities at three locations in southern California: the Westminster Test Facility in Westminster, the Pomona Test Facility in Pomona, and the Equipment Demonstration and Evaluation Facility (EDEF) located in Westminster.
Oil Containment Diversion System: *SCE-02 Vol : 3*: RAMP Control/Mitigation: N/A	WPSCE02V3 – pp. 246 - 247	Forecast is driven by weather and other environmental factors outside of SCE's control and that can vary significantly from year to year. Accordingly, the capital forecast is based on a five-year average of	The goal of this program is to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil. Maintaining/repairing these containment/security structures is the responsibility of the site manager.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
		recorded expenditures and is not unit based.	
PSPS Customer Support: Vol : : RAMP Control/Mitigation: *PSPS Protocol and Support Functions*	SCE did not request any capital associated with this activity in the TY 2021 GRC.	N/A	Technology investments to improve the PSPS programs and protocols.
Software Maintenance and Replacement: *SCE-06 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE06V01Pt01A pp. 43 - 47, 68 - 74	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Software Maintenance and Replacement work activity maintains SCE's operating software assets through on-premise license, cloud, subscription, and maintenance agreements. Operating Software includes operating systems, business intelligence systems, database management systems, cross-system integration tools, IT monitoring tools and end-user productivity and collaboration software which enable business applications to take advantage of the underlying hardware features and functions. This work activity also includes application refresh efforts which consist of the management, upgrade, maintenance, optimization, monitoring, and testing of IT applications and interfaces through their lifecycle.
Substation Switchrack Rebuild: *SCE-02 Vol : 3:* RAMP Control/Mitigation: N/A	WPSCE02V3 pp. 171 - 173	# of Substation Switchrack Rebuilds	This capital activity relates to rebuilding existing substation racks based on conditions found in the field, as well as through various analyses including structural and seismic analysis. A substation switchrack is the skeletal/structural system used to support substation assets such as circuit breakers, disconnects, and conductors.
Technology Infrastructure Maintenance and Replacement: *SCE-06 Vol : 1 Pt. 1:* RAMP Control/Mitigation: N/A	WPSCE06V01Pt01A pp. 82 - 88, 92 - 105, 125 - 127	The variety of work activities in this category makes it infeasible to identify a single unit of measurement.	The Technology Infrastructure Maintenance and Replacement activity includes expenditure for: (1) data center infrastructure, (2) end user computing maintenance, and (3) technology adoption. Support for SCE's data centers involves procuring, installing, and maintenance of all enterprise data center hardware infrastructure. End user computing maintenance covers the performance management of SCE's Service Desk that resolves approximately 204,000 service tickets per year as well as management of SCE's smart phone plans, tablet cellular data, air cards, printers, plotters, laptops and desktops, and AV for teleconference rooms across the Company. Technology adoption relates to retirement of computer, storage, network, and operating software assets and the replacement of these assets with hardware and operating

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC Workpaper Reference	Unit Description / Rationale for No Work Units	GRC 2021 Activity Description
			software that may be more operationally efficient with improved price performance to leverage new technologies such as the cloud.
Technology Solutions: *SCE-06 Vol : 1 Pt. 2:* RAMP Control/Mitigation: *Non-Electric Facilities/Protection of Major Business Functions, Protection of Generation Capabilities*	WPSCE06V01Pt02A pp. 10 - 228	This activity comprises multiple projects or types of projects that vary in size and scope, and therefore providing a single work unit is not feasible.	Costs incurred for capitalized software solutions in support of OU work efforts at SCE.

2. GRC Activities Variance Calculations

Table X-26 below provides the authorized, recorded, variance and percentage change values for each Other expenditure category activity in terms of dollars and units. The table also indicates whether a variance explanation was triggered based on the established thresholds for each GRC activity.

Table X-26
Other Capital Expenditure Category Activity Variance Calculations

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Air Operations	N/A	$870	$798	$72	9%					No	No	No
All Hazards Assessment, Mitigation and Analytics	*Non-RAMP*	*$26,052*	*$29,267*	*($3,216)*	*-11%*							
All Hazards Assessment, Mitigation and Analytics	*Seismic Building Safety Program*	*$3,761*	*$5,369*	*($1,608)*	*-30%*							
All Hazards Assessment, Mitigation and Analytics	Total	$29,813	$34,636	($4,823)	-14%					No	No	No
Asset Reliability Risk Analytics	N/A	$1,161	$0	$1,161	100%					No	No	No
Climate Adaptation and Severe Weather	N/A	$72	$1,393	($1,320)	-95%					No	No	No
Communications	N/A	$15,086	$74,107	($59,021)	-80%					**Yes**	**Yes**	No
Communications Equipment	N/A	$676	$1,398	($722)	-52%	19	32	-13	-41%	No	No	**Yes**
CRE Project Management	*Non-RAMP*	*$46,537*	*$71,595*	*($25,058)*	*-35%*							
CRE Project Management	*Office Ergonomics (CORE Program)*	*$1,975*	*$2,512*	*($537)*	*-21%*							
CRE Project Management	Total	$48,512	$84,075	($35,562)	-42%					**Yes**	**Yes**	No
Cybersecurity Delivery and IT Compliance	*Data Protection*	*$7,153*	*$8,776*	*($1,623)*	*-18%*							
Cybersecurity Delivery and IT Compliance	*Interior Protection*	*$13,065*	*$8,302*	*$4,764*	*57%*							
Cybersecurity Delivery and IT Compliance	*Non-RAMP*	*$71*	*$5,610*	*($5,538)*	*-99%*							
Cybersecurity Delivery and IT Compliance	*Perimeter Defense*	*$31,083*	*$38,479*	*($7,396)*	*-19%*							
Cybersecurity Delivery and IT Compliance	*SCADA Cybersecurity*	*$2,290*	*$2,613*	*($323)*	*-12%*							
Cybersecurity Delivery and IT Compliance	Total	$53,663	$63,779	($10,116)	-16%					No	No	No
Enhanced Situational Awareness	Situational Awareness	$5,607	$0	$5,607	100%					No	No	No
Environmental Programs	N/A	$429	$1,721	($1,292)	-75%					No	No	No
Facility Asset Management	*Electrical Inspections*	*$1,942*	*$1,000*	*$942*	*94%*							
Facility Asset Management	*Fire Life Safety Portfolio Assessment*	*$688*	*$1,000*	*($312)*	*-31%*							
Facility Asset Management	*Non-RAMP*	*$65,635*	*$56,042*	*$9,593*	*17%*							

GRC Activity	RAMP Control / Mitigation Name	Recorded Costs ($000) - A	Authorized Costs ($000) - B	Variance ($000) (A - B)	% Variance - (A - B)/B	Recorded Units - C	Authorized Units - D	Variance (Units) - (C - D)	% Variance (Units) (C - D)/D	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Facility Asset Management	Total	$68,265	$58,042	$10,223	18%					No	No	No
Fire Science and Advanced Modeling	(blank)	$2,340	$1,129	$1,211	107%					No	No	No
Fleet Asset Management	N/A	$1,444	$2,190	($746)	-34%					No	No	No
Fleet Operations and Maintenance	N/A	$510	$512	($2)	0%					No	No	No
Grid Management System	N/A	$67,704	$43,633	$24,070	55%					**Yes**	**Yes**	No
Grid Mod Cybersecurity	Grid Modernization Cybersecurity	$35,256	$46,330	($11,074)	-24%					No	**Yes**	No
Laboratory Operations	N/A	$1,937	$2,227	($289)	-13%					No	No	No
Oil Containment Diversion System	N/A	$1,162	$403	$758	188%					No	No	No
PSPS Customer Support	PSPS Protocol and Support Functions	$11,217	$0	$11,217	100%					No	**Yes**	No
Software Maintenance and Replacement	N/A	$88,583	$62,012	$26,571	43%					**Yes**	**Yes**	No
Substation Switchrack Rebuild	N/A	$37,216	$80,517	($43,301)	-54%					**Yes**	**Yes**	No
Technology Infrastructure Maintenance and Replacement	N/A	$62,535	$78,139	($15,604)	-20%					No	No	No
Technology Solutions	*Non-Electric Facilities/Protection of Major Business Functions*	*$0*	*$2,543*	*($2,543)*	*-100%*							
Technology Solutions	*Non-RAMP*	*$113,627*	*$100,350*	*$13,277*	*13%*							
Technology Solutions	*Protection of Generation Capabilities*	*$0*	*$1,024*	*($1,024)*	*-100%*							
Technology Solutions	Total	$113,627	$100,350	$13,277	13%					No	No	No

3. Variance Explanations

Table X-27 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table X-27
Other Capital Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Communications *$:Yes, %:Yes, Units: No*	2021 Capital recorded for Communications of $15.1M is $59M or 80% lower than 2021 GRC authorized amount of $74.1M. The authorized amount of $74.1M for Communications was for Field Area Network (FAN), Fiber, Common Substation Platform (CSP) and Distributed System Efficiency Enhancement Program (DSEEP). Similar to the above-authorized spend in 2020, the underrun in 2021 for Communications is due to SCE's decision in mid-2020 to select Private LTE (PLTE) technology as the solution for the new FAN instead of the Mesh Radio Network (MRN) technology. At the time of the filing for the 2021 GRC, SCE's evaluation of PLTE as a solution for the FAN was still ongoing and continued until July 2020. As such, SCE proceeded with using the data based on the Mesh Radio Network (MRN) plan that was available at the time of the 2021 GRC filing (August 2019). This MRN plan assumed costs for equipment and field deployment in 2021 which did not materialize due to SCE's decision in 2020 to pursue a PLTE solution instead. Consequently, the FAN scope for 2021 was focused on the new PLTE solution design and RFP development efforts and did not include any equipment purchase or field deployment. This resulted in significantly lower capital costs in 2021 for FAN.
Communications Equipment *$:No, %:No, Units: Yes*	In the GRC EPM forecasted the onboarding of 32 resources per year and a budget of $965K. In 2021, the team onboarded 19 resources with an actual spend of approximately $700K. New resources in the portfolio included solar resources, stand-alone energy storage, and energy storage co-located with solar. The co-located resources require additional retrofits and testing making them more complex and costly to bring on-board. While it's difficult to forecast the exact number of resources that will enter the portfolio, the reduction can be attributed project delays related to supply chain issues, construction, interconnection, and testing.
CRE Project Management $: Yes, %:Yes, Units: No	The underspend is mainly driven by the following:

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	- Underrun in T&D Training Facility project due to delay in construction driven by City dedication requirements. SCE planned to build the Training Center in the City of Rancho Cucamonga. When SCE filed its development plans with the City of Rancho Cucamonga, they made approval contingent on a large dedication requirement for new public roads surrounding the project site. SCE could not satisfy the city's requirements as the training facilities required the entire parcel. SCE had to pivot the project to another site which is an owned parcel in the City of Corona that became available for use and for which development plans have now begun. - Underrun in Alhambra Master Plan project due to delay in construction driven by city permits requirements. City comments required structural revisions due to seismic code. This in turn required a revised design and calculations of the PEMB (Pre-engineered Metal Building). Due to the pandemic labor shortage, SCE's PEMB vendor was short-staffed and required additional time to re-engineer the building. This delayed the project schedule, plan check, bid, and construction. - Overrun in SCE vehicles Fleet Charger Program driven by acceleration of the program to meet SCE strategic objectives to electrify vehicles fleet. - Net Overrun in all other projects mainly driven by Devers substation reliability upgrades, employees charging program, emergency operations center expansion, and various other infrastructure upgrade projects. Business cases for the projects were developed and approved to support ongoing SCE operations requirements.
Grid Management System *$:Yes, %:Yes, Units: No*	2021 Capital recorded of $67.7M is $24.1M or 55% higher than the 2021 GRC authorized amount of $43.6M. The variance is attributed to several factors: * Accelerated spend on hardware purchases. The global Covid-19 pandemic has resulted in widespread global supply chain delays and disruptions. This has also impacted computer and network equipment including computer servers, network routers, and network firewalls. Any delays in completing the various computing environments will cause delays to the overall GMS project schedule, so SCE decided to accelerate the purchase of hardware into 2021 to mitigate supply chain risks. * Accelerated spend on vendor software licenses, software maintenance and vendor labor that were budgeted for 2022 however incurred in 2021 due to early delivery from a GMS database vendor.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	*Increased Labor spend for execution of GMS Release 0.5 and Release 1 due to vendor product delays in delivering a subset of critical GMS functions. GMS is deploying a substantial new technology platform which has also resulted in labor spend greater than originally estimated in the areas of Cybersecurity, Data Readiness, Network Modeling, and Operational Readiness. *Investments necessary to meet Grid Cybersecurity standards for Secured Internet Connectivity to Grid System (e.g., pre-production vulnerability assessment, project risk assessment, architecture standards review and implementation, etc.), GMS Integration with SCE Enterprise systems, Password Management, and to set up dedicated onsite Cybersecurity penetration testing system environment to support all GMS Releases. *Design phase of project identified new technology components that are essential for GMS. Procurement, testing and deployment of these new components has led to increased costs than originally estimated. *Emerging work such as PSPS remediation post GRC approval has also led to increased costs. This emerging work is essential and an integral part of core GMS functions.
Grid Mod Cybersecurity *$:No, %:Yes, Units: No*	2021 Capital recorded of $35.3M is ($11.1M) or ($24%) lower than the 2021 GRC authorized amount of $46.3M. This variance is attributed to 1) Delays in specific grid mod programs (FAN, CSP) caused specific work in Cybersecurity to be delayed and shifted to outer years and 2) Delays in procurements.
PSPS Customer Support *$:No, %:Yes, Units: No*	SCE made enhancements and improvements in the Customer Notifications space that was not requested in the TY 2021 GRC. The scope of this works included the PSPS Incident Commander Dashboard, Operational Data and GIS improvement, and Customer Notifications Enhancements. In addition, SCE developed a back-up site as an alternative in case the primary SCE.com site was not available. A significant contributor to the capital was the 2021 PSPS Action Plan, which identified the need for a Centralized Data Platform as the foundation for PSPS data collection.
Software Maintenance and Replacement *$:Yes, %:Yes, Units: No*	2021 Capital recorded of $88.6M is $26.6M or 43% higher than the 2021 GRC authorized of $62M. This was primarily due to SCE's business decision in 2021 to

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	restructure Microsoft Enterprise License agreements. In addition, SCE experienced unplanned expenses for Oracle Java licensing, VMware and UiPath.
Substation Switchrack Rebuild *$:Yes, %:Yes, Units: No*	SCE experienced delays in several switchrack rebuild projects in 2021 resulting from unforeseen project scope changes, material shortages and/or delays due to supply chain issues, vendors experiencing labor shortages resulting in delays of materials, and customer requests to defer installation dates.

XI.

SAFETY, RELIABILITY & MAINTENANCE SPENDING RECORDED IN NON-GRC BALANCING OR MEMORANDUM ACCOUNTS

A. Background

Consistent with the April 10, 2020 guidance from Energy Division, SCE has excluded the balancing and memorandum account costs from the comparison of 2021 authorized and recorded safety, reliability and maintenance capital and O&M costs presented in Chapters VII to X. As further requested by Energy Division, SCE is identifying the balancing or memorandum accounts where the spending for those programs is recorded, the recorded year balances, and the disposition of any request for cost recovery. Table XI-28 below lists the beginning and ending balances in each applicable balancing and memorandum account and the associated cost-recovery mechanism.

Table XI-28
Balancing and Memorandum Account Balance - ($000s)

Balancing / Memorandum Account	*2021 Beginning Balance*	*2021 Ending Balance*	*Mechanism for Disposition*
Mobilehome Park Master Meter Balancing Account (MMMBA)	$0	$0 ($11.803 million prior to transfer)	December 31 transfer to BRRBA-D for recovery in 1/1 rate change
2021 CEMA Events – Fire, Winter and Wind Storms	$0	$0	Standalone Application

B. MMMBA: Mobilehome Park Master Meter Balancing Account

On March 13, 2014, the Commission issued D.14-03-021. This decision adopted a three-year "living pilot" program to incentivize voluntary conversions of master-metered service to direct service at mobile home parks (MHP) and authorized the creation of a balancing account for recording MHP program costs. On July 9, 2014, SCE submitted Advice 3072-E to establish

the Mobilehome Park Master Meter Balancing Account (MMMBA) where the incremental costs associated with the conversion of the master-metered service would be recorded. Incremental costs include the incremental revenue requirement associated with "to the meter" costs capitalized and placed in service upon system cutover to direct utility service and incremental O&M start-up costs such as customer outreach, administrative expenses, and other ongoing costs to implement the three-year pilot program. The MMMBA also records the incremental revenue requirement for the regulatory asset associated with "beyond the meter" costs incurred. The regulatory asset is amortized over a ten-year period, earning a rate of return at SCE's currently authorized rate of return. SCE submits an advice letter in the fourth quarter of each year concerning the operation of the MMMBA. SCE transfers the year-end MMMBA balance to the distribution sub-account of the Base Revenue Requirement Balancing Account (BRRBA) to be collected from customers in distribution rates.

SCE submitted Advice 4641-E on November 12, 2021 addressing the operation of the MMMBA in 2021. Table XI-29 below provides the 2021 recorded O&M and capital expenditures associated with the MHP conversion pilot program. Table XI-29 also summarizes the expenses and capital expenditures for 2021 for the MHP conversion pilot program.

Table XI-29
2021 O&M Expense and Capital Expenditures for Mobile Home Parks ($000s)

Activity	O&M Expense	Capital Expenditure	Ratemaking Account
Mobile Home Park	$0.09M	$15.617M	MMMBA

C. CEMA: CEMA Events – Fires and Heat Waves

SCE's Catastrophic Event Memorandum Account (CEMA) tracks the costs of restoring service and repairing apparatus and facilities after a defined catastrophic event or the costs of complying with government orders issued in connection with a catastrophic event. The costs recorded in the CEMA are shown below in Table XI-30. In Resolution E-3238 dated July 24, 1991, the Commission authorized SCE to establish a CEMA to record costs associated with: (1)

restoring utility service to its customers; (2) repairing, replacing, or restoring damaged utility facilities; and (3) complying with governmental agency orders from declared disasters. SCE plans to file a CEMA cost recovery application in the future that seeks recovery of costs recorded in the 2021 storm CEMA for 2021 CEMA fire, winter and wind storms.

Table XI-30
2021 O&M Expense and Capital Expenditures for CEMA Events – Fires and Heat Waves(Total Company $000s)

Activity	O&M Expense	Capital Expenditure
2021 CEMA Storm Events – Fires and Heat Waves	$0.175M	$0

Appendix A

Risk Mitigation Mapping

RAMP to GRC Activity Mapping

SCE 2021 GRC Activity	SCE 2021 Exhibit	SCE 2021 Volume	SCE 2018 RAMP Risk	SCE 2018 RAMP ID	SCE 2018 RAMP Control / Mitigation Name
External Communications	3	2	Contact with Energized Equipment	C2	Public Outreach
Cable Life Extension (CLE) Program	2	1	Underground Equipment Failure	C2	Cable Replacement Programs (CIC)
Cable-in-Conduit (CIC) Replacement Program	2	1	Underground Equipment Failure	C2	Cable Replacement Programs (CIC)
Overhead Conductor Program (OCP)	2	1	Contact with Energized Equipment / Wildfire	C1 / C1a	Overhead Conductor Program (OCP)
Underground Structure Replacements	2	1	Underground Equipment Failure	M1	Cover Pressure Relief and Restraint (CPRR) Program
Underground Switch Replacements	2	1	Underground Equipment Failure	C3	UG Oil Switch Replacement Program
Worst Circuit Rehabilitation (WCR)	2	1	Underground Equipment Failure	C1	Cable Replacement Programs (WCR)
Expanded Wildfire Vegetation Management	2	6	Wildfire	M5	Expanded Vegetation Management
Recognition	6	3	Employee, Contractor & Public Safety	C1	Safety Controls
Talent Solutions	6	3	Physical Security	C4	Asset Protection
Training and Development	6	3	Employee, Contractor & Public Safety	M1a	Safety Culture Transformation (Core Program)
Training and Development	6	3	Physical Security	C4	Asset Protection
Training and Development	6	3	Physical Security	M1a	Insider Threat Program Enhancement & Information Analysis - Base
Technology Solutions	6	1. Pt. 2	Physical Security	C2	Protection of Generation Capabilities
Technology Solutions	6	1. Pt. 2	Physical Security	C3b	Non-Electric Facilities/Protection of Major Business Functions - Enhanced
Facility & Land Operations	6	5	Building Safety	M1	Fire Life Safety Portfolio Assessment
Facility & Land Operations	6	5	Building Safety	M2	Electrical Inspections
Facility & Land Operations	6	5	Employee, Contractor & Public Safety	M3a	Office Ergonomics (Core Program)
Workers' Compensation	6	2	Employee, Contractor & Public Safety	C1	Safety Controls
Safety Activities - T&D	6	4	Employee, Contractor & Public Safety	C1	Safety Controls
Employee and Contractor Safety	6	4	Employee, Contractor & Public Safety	C2	Contractor Safety Program
Safety Culture Transformation	6	4	Employee, Contractor & Public Safety	M1a	Safety Culture Transformation (Core Program)
Employee and Contractor Safety	6	4	Employee, Contractor & Public Safety	M2	Industrial Ergonomics
Hydro	5	1	Hydro Asset Safety	C1	Seismic Retrofit
Hydro	5	1	Hydro Asset Safety	C2	Dam Surface Protection
Hydro	5	1	Hydro Asset Safety	C3	Spillway Remediation and Improvement
Hydro	5	1	Hydro Asset Safety	C4	Low Level Outlet Improvements
Hydro	5	1	Hydro Asset Safety	C5	Seepage Mitigation
Hydro	5	1	Hydro Asset Safety	C6	Instrumentation / Communication Enhancements
All Hazards Assessment, Mitigation & Analytics	4	1	Building Safety	C1	Seismic Building Safety Program
All Hazards Assessment, Mitigation & Analytics	4	1	Climate Change	M1	Climate Adaptation & Severe Weather
Cybersecurity Delivery and IT Compliance	4	3	Cyber Attack	C1a	Perimeter Defense
Cybersecurity Delivery and IT Compliance	4	3	Cyber Attack	C2a	Interior Protection
Cybersecurity Delivery and IT Compliance	4	3	Cyber Attack	C3a	Data Protection
Cybersecurity Delivery and IT Compliance	4	3	Cyber Attack	C4a	SCADA Cybersecurity
Cybersecurity Delivery and IT Compliance	4	3	Cyber Attack	C5a	Grid Modernization Cybersecurity
Cyber Software License & Maint	4	3	Cyber Attack	C1a	Perimeter Defense
Cyber Software License & Maint	4	3	Cyber Attack	C2a	Interior Protection
Cyber Software License & Maint	4	3	Cyber Attack	C3a	Data Protection
Cyber Software License & Maint	4	3	Cyber Attack	C4a	SCADA Cybersecurity
Cyber Software License & Maint	4	3	Cyber Attack	C5a	Grid Modernization Cybersecurity
Grid Mod Cybersecurity	4	3	Cyber Attack	C5a	Grid Modernization Cybersecurity
Emergency Preparedness & Response	4	2	Climate Change	C1	Emergency Mgmt.
Emergency Preparedness & Response	4	2	Climate Change	C2	Fire Mgmt.
Training, Drills and Exercises	4	2	Building Safety	C2	Facility Emergency Management Program
Training, Drills and Exercises	4	2	Climate Change	C1	Emergency Mgmt.
Protection of Generation Assets	4	4	Physical Security	C2	Protection of Generation Capabilities
Protection of Grid Infrastructure Assets	4	4	Physical Security	C1b	Grid Infrastructure Protection - Enhanced
Protection of Major Business Functions	4	4	Physical Security	C3b	Non-Electric Facilities/Protection of Major Business Functions - Enhanced
Security Technology Operations and Maintenance	4	4	Physical Security	C4	Asset Protection
Workforce Protection and Insider Threat	4	3	Physical Security	C4	Asset Protection
Workforce Protection and Insider Threat	4	4	Physical Security	M1a	Insider Threat Program Enhancement & Information Analysis - Base

SCE 2021 GRC Activity	SCE 2021 Exhibit	SCE 2021 Volume	SCE 2018 RAMP Risk	SCE 2018 RAMP ID	SCE 2018 RAMP Control / Mitigation Name
Fusing Mitigation	4	5	Wildfire	M8	Fusing Mitigation
HFRA Sectionalizing Devices	4	5	Wildfire	M2	Remote-Controlled Automatic Reclosers and Fast Curve Settings
Infrared Inspections	4	5	Contact with Energized / Wildfire Equipment	M4	Infrared Inspections
PSPS Protocol Support Functions	4	5	Wildfire	M3	PSPS Protocol and Support Functions
Situational Awareness	4	5	Wildfire / Climate Change	M7 / M2a	Enhanced Situational Awareness
Wildfire Covered Conductor Program	4	5	Contact with Energized Equipment / Wildfire	M5 / M1	Wildfire Covered Conductor Program
Wildfire Covered Conductor Program	4	5	Wildfire	C2	FR3 Overhead Distribution Transformer
Wildfire Covered Conductor Program	4	5	Wildfire	M9	Fire Resistant Poles (M1 Scope)

Appendix B

New, Canceled and Deferred Projects

List of Projects That Were Canceled or Deferred Within Each SAR GRC Activity

Funding Source	GRC Activity	Project Name	2021 GRC Operating Date	Status	Current Estimated Operating Date
Capital	Technology Solutions	Compliance Requests (i.e. SAP Releases)	Dec-99	Deferred	2024
Capital	Technology Solutions	(SD) Advance Analytics	Dec-22	Deferred	2024
Capital	Technology Solutions	Digital: Virtual Agent	Dec-22	Deferred	TBD
Capital	Technology Solutions	Residential Bill Redesign	Dec-99	Deferred	TBD
Capital	Technology Solutions	Contract Interpret/T & P Simplification	Dec-21	Cancelled	Cancelled
Capital	Technology Solutions	Field Reporting Environmental Database	Dec-21	Deferred	TBD
Capital	Technology Solutions	Virtual Hybrid Data Center	Dec-23	Cancelled	Cancelled
Capital	Technology Solutions	Integrated Position & Risk Management	Dec-22	Deferred	2023-2024
Capital	Technology Solutions	Western Operations Dam Safety Upgrades	Dec-22	Deferred	2023-2025
Capital	Technology Solutions	Work Management and Reliability-Centered Maintenance	Dec-21	Cancelled	Cancelled
Capital	Technology Solutions	Enhance Ctrl Room-Gen Network Redundancy	Dec-23	Deferred	2023-2024
Capital	Technology Solutions	ESMT FATS Replacement	Dec-21	Deferred	2024
Capital	Technology Solutions	Substation 3D Design	Dec-21	Deferred	2023 / 2026
Capital	Technology Solutions	Field Tools Lightweight Solution	Dec-22	Deferred	TBD
Capital	Hydro - Prime Movers	Big Creek 3 Unit 3 field pole refurbishment project Now: Big Creek 3 Unit 3 Field Pole Refurbishment and Stator Inspection		Deferred	TBD
Capital	Hydro - Relicensing	Relicensing: Big Creek ALP		Deferred	TBD
Capital	Hydro - Relicensing	Relicensing: Kern River 1		Deferred	TBD
Capital	Distribution Substation Plan Substations	Sullivan 66/12 kV Substation	Jan-19	Deferred	Aug-19
Capital	Distribution Substation Plan Substations	Presidential 66/16 kV - System Alternative A	Dec-19	Deferred	Mar-20
Capital	Distribution Substation Plan Substations	Edwards 115/33 kV Substation	Jun-20	Deferred	Mar-22
Capital	Distribution Substation Plan Substations	Lee Vining 115/55 kV Hydro Substation	Sep-20	Deferred	Dec-11
Capital	Distribution Substation Plan Substations	Lancaster 66/12 kV Substation	Dec-20	Deferred	Jun-22
Capital	Distribution Substation Plan Substations	Del Sur 66/12 kV Substation	Dec-20	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Signal Hill 66/12 kV Substation	Dec-20	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Garnet 115/33 kV Substation	Nov-21	Deferred	Nov-23
Capital	Distribution Substation Plan Substations	Lennox 66/16 kV Substation	Jun-19	Deferred	Dec-19
Capital	Distribution Substation Plan Substations	Beverly 66/16 kV Substation	Jun-19	Deferred	Jun-20
Capital	Distribution Substation Plan Substations	Walnut 66/12 kV Substation	Dec-19	Deferred	Mar-20
Capital	Distribution Substation Plan Substations	*Soquel 66/12 kV Substation*	*Jun-20*	Deferred	Jun-21
Capital	Distribution Substation Plan Substations	Del Amo 66/12 kV Substation	Jun-20	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Newbury 66/16 kV Substation	Jun-20	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Eisenhower 115/12 kV Substation	Jun-20	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Newhall 66/16 kV Substation	Jun-20	Deferred	May-22
Capital	Distribution Substation Plan Substations	Eisenhower 115/33 kV Substation	Jun-20	Deferred	May-22
Capital	Distribution Substation Plan Substations	Baker 115/12 kV Substation	Jun-20	Deferred	Dec-21
Capital	Distribution Substation Plan Substations	San Dimas 66/12 kV Substation	Dec-20	Cancelled	Dec-20
Capital	Distribution Substation Plan Substations	Victor 115/33 kV Substation	Jun-21	Cancelled	Jun-31
Capital	Distribution Substation Plan Substations	Lockheed 66/16 kV Substation	Jun-22	Deferred	Jun-27
Capital	Distribution Substation Plan Substations	Aqueduct 115/12 kV Substation	Jun-22	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Saugus 66/16 kV Substation	Jun-23	Deferred	Jun-27
Capital	Distribution Substation Plan Substations	Alesandro 115/12 kV Substation	Jun-23	Cancelled	Cancelled
Capital	Distribution Substation Plan Substations	Newmark 66/12 Substation	Dec-24	Deferred	Dec-29
Capital	Transmission Substation Plan	Valley-Ivyglen 115 kV	May 2020	Deferred	Jun-22
Capital	Transmission Substation Plan	Rector-Riverway No. 2 66 kV	Jun 2022	Deferred	TBD
Capital	Transmission Substation Plan	Porterville-Woodville 66 kV	Sep 2019	Deferred	Dec-20
Capital	Transmission Substation Plan	El Nido-Felton-La Cienega 66 kV Subtransmission Line	Dec 2019	Deferred	Apr-21
Capital	Transmission Substation Plan	New Valley South Subtransmission Line	July 2020	Deferred	Dec-20
Capital	Transmission Substation Plan	El Nido-Lennox 66 kV Subtransmission Line	Dec 2020	Deferred	Jun-22
Capital	Transmission Substation Plan	Poplar 66/12 kV Substation	Jun 2019	Deferred	Dec-19
Capital	Transmission Substation Plan	Rio Hondo-Dalton-Liquid 66 kV Subtransmission Line	Jun 2021	Deferred	Jun-24
Capital	Transmission Substation Plan	Edwards 115/33 kV Substation	Jun 2021	Deferred	Jun-24
Capital	Transmission Substation Plan	Arrowhead 115/33 kV Substation	Dec 2021	Deferred	Dec-23
Capital	Transmission Substation Plan	Chino 220/66 kV	Dec 2019	Deferred	Sep-20
Capital	Transmission Substation Plan	Johanna 220/66 kV	May 2020	Deferred	Oct-21
Capital	Transmission Substation Plan	Del Amo 220/66 kV	Dec 2019	Deferred	Jun-22
Capital	Transmission Substation Plan	Cucamonga 66/12 kV Substation	Jun 2020	Deferred	May-21
Capital	Transmission Substation Plan	Alberhill 500/155 kV	Jun 2025	Deferred	Apr-27
Capital	Transmission Substation Plan	La Cienega-Beverly-Culver 66 kV	Jun-20	Deferred	Jun-22
Capital	Transmission Substation Plan	Saugus-Elizabeth Lake-MWD Foothill 66 kV Subtransmission Line	Jun-22	Deferred	Jun-22
Capital	Transmission Substation Plan	Saugus-Colossus-Lockheed-Pitchgen 66 kV Subtransmission Line	Jun-23	Deferred	Jun-22
Capital	Transmission Substation Plan	Irvine 66/12 kV Substation	Jun-22	Deferred	Jun-22
Capital	Transmission Substation Plan	Saugus-Newhall #1 & Saugus-Newhall #2 66 kV Subtransmission Line	Jun-22	Deferred	Dec-22
Capital	Grid Reliability Projects	Riverside Transmission Reliability Project	Dec-23	Deferred	Oct-26
Capital	Grid Reliability Projects	Eldorado-Lugo-Mohave Series Capacitor Project	Dec-21	Deferred	Apr-23
Capital	Grid Reliability Projects	Cerritos Channel Transmission Line Relocation Project	Jul-22	Deferred	Dec-25
Capital	Grid Reliability Projects	Moorpark-Pardee 220 kV No. 4 Circuit	Dec-20	Deferred	TBD
Capital	Transmission Line Rating Remediation	CONTROL - HAIWEE	-	Deferred	May-25
Capital	Transmission Line Rating Remediation	CONTROL - SILVER PEAK	-	Deferred	Jul-27
Capital	Transmission Line Rating Remediation	ELDORADO - LUGO - PISGAH	-	Deferred	Aug-27
Capital	Transmission Line Rating Remediation	GORMAN - KERN RIVER	-	Deferred	Dec-26
Capital	Transmission Line Rating Remediation	IVANPAH - COOLWATER - KRAMER - INYOKERN	-	Deferred	Apr-29

List of Projects That Were Not Presented in the 2021 GRC But Were Taken Up

Funding Source	GRC Activity	Program	Project Name	2021 Recorded - (Nominal $000)
Capital	Peakers	Generation Replacement Projects	CO Catalyst Replacement Project	$ 341
Capital	Peakers	Generation Replacement Projects	CO Catalyst Replacement Project	$ 351
Capital	Peakers	Generation Upgrade Projects	Catalytic Reduction Upgrade Project	$ 532
Capital	Fire Science and Advanced Modeling	Wildfire	WF Asset Risk Modeling	$ 1,161
Capital	Enhanced Overhead Inspections and Remediations	Wildfire	Veg Management - WMPMA	$ 11,005
Capital	Enhanced Overhead Inspections and Remediations	Wildfire	WF EOI PMO	$ 27,903
Capital	PSPS Customer Support	Wildfire	WF IMT Cust Notifications	$ 11,217
Capital	PSPS Execution	Wildfire	WF Line Patrols	$ 24
Capital	PSPS Execution	Wildfire	WF PSPS Web Improvement	$ 3,285
Capital	Technology Solutions	Technology Solutions	Pole Mounted Routers (PMR)	$ 3,341
Capital	Technology Solutions	Technology Solutions	Spare Tire	$ 278
Capital	Technology Solutions	Technology Solutions	Scheduling Re-Platform	$ 11
Capital	Technology Solutions	Technology Solutions	Demand Intake Reporting & POST - UMT	$ 888
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	MacArthur 66/12 (D) - Install (1) New Fletcher 12kV DSP	$ 219
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Fruitland 66/4.16 (D) - Upgrade (2) 200A regulators to (2) 400A 3 single phase regulators at the Moore 4kV and Boyle 4kV positions (Replace (2) 200A Regulator with (2) 400A 3 single phase regulators)	$ 191
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Kimball 66/12 (D) - Add 1 -12.0 kV circuit(s) for a total of 12.	$ 279
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Sun City 115/12 (D) - Increase transformer capacity from 56.0 to 84.0 MVA. Add 1-12.0 kV circuit(s) for a total of 9.	$ 276
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Santiago 66/33 (D) - Contador 33kV - New DSP 33kV Ckt	$ 248
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Parallel banks at Randsburg Substation to raise substation PLL and add new 33kV feeder	$ 219
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Mira Loma 66/12 (D) - Install New 12kV Line Position for Denali 12kV circuit for a total of 9 circuits	$ 112
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Linden 12/4.16 (D): Replace 4kV Switchrack Disconnect Switch	$ 71
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Mira Loma Corona Jefferson 66 kV Line Reconductor Project: Reconductor about 2.7 miles of the Jefferson leg using ACCC Dove conductor.	$ 919
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Palmdale 66/12 (D): Increase substation capacity by replacing (2) 22.4 MVA transformer units from Bank 1 to two (2) 28 MVA units.	$ 1,651
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Colonia 66/16(D)- Add 1-16kV circuit(s) for a total of 10	$ 1,541
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Hesperia 115/12 (D) - DSP - Install (1) 12 kV circuit for a total of 8	$ 175
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Calden 66/16 - Upgrade existing banks at Calden 66/16 Substation.	$ 170
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Imperial 66/12 (D) - Replace Conductors on Bank #1 and Bank#2 to eliminate choker within Imperial 66/12 Substation	$ 40
Capital	Distribution Substation Plan Substations	Distribution Substation Plan Substations	Imperial 66/12 and 66/4 Sub - Install 2 PCTs and 4 blisters to alleviate duct bank overloads	$ 213
Capital	Transmission Substation Plan	Transmission Substation Plan	La Fresa 'A' 220/66 - Increase transformer capacity from 250.0 to 530.0 MVA.	$ 215
Capital	Transmission Substation Plan	Transmission Substation Plan	Saugus Sub (Phase II): Upgrade substation to SA2.	$ 43
Capital	Transmission Substation Plan	Transmission Substation Plan	Chino 220/66 kV: Split the existing Chino 220/66 kV System into two 220/66 kV Systems. Install SA-2	$ 1,007
Capital	Transmission Substation Plan	Transmission Substation Plan	Cucamonga Substation - Replace DPU Relay	$ 259
Capital	Transmission Substation Plan	Transmission Substation Plan	Corona 66/33 (D) - Replace (1) 66kV CB (CB #506) in association with the Mira Loma-Corona-Jefferson 66kV Line Project	$ 1,122
Capital	Transmission Substation Plan	Transmission Substation Plan	Johanna 220/66 (S) Substation - Install new 280 MVA transformer to mitigate A-bank N-1 condition	$ 794
Capital	Transmission Substation Plan	Transmission Substation Plan	Archibald 66/12 kV (D) - Replace (1) 66 kV Circuit Breaker (CB #13)	$ 525
Capital	Transmission Substation Plan	Transmission Substation Plan	Del Amo 'A' & 'C' 220/66 (S) Substation - Reconductor 66 kV North and South buses using 3-2156 KCMIL	$ 1,779
Capital	Transmission Substation Plan	Transmission Substation Plan	Install FRC on Borel-Isabella 66 kV line	$ 418
Capital	Transmission Substation Plan	Transmission Substation Plan	Cal City Substation 115kV Upgrade Project	$ 2,446

Attachment B

Energy Division Review of the 2020 Southern California Edison Company Risk Spending Accountability Report

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

September 7, 2021

Claire E. Torchia
Southern California Edison Company
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
SENT VIA EMAIL

SUBJECT:
The 2020 Southern California Edison Company Risk Spending Accountability Report Review

Dear Ms. Torchia:

The Southern California Edison Company (SCE) submitted their 2020 Interim Risk Spending Accountability Report (RSAR) to The California Public Utilities Commission (CPUC) on March 31, 2021. Energy Division completed a review of this report and provides SCE with recommendations for its 2021 report. The attachments provide background and details of staff's analysis on spending accountability and spending variances.

CONCLUSIONS

SCE is required to submit its first RSAR on March 31, 2022[1] for 2021. As a result, this submittal is an interim RSAR but is reviewed to determine compliance with the guidance in CPUC's Safety Model Assessment Proceeding (S-MAP) Decision (D.) 19-04-020. Within the RSAR, the Utility presented imputed adopted, actual spending, and units for its reportable general rate case (GRC) programs related to safety, reliability and maintenance.

Program Selection

SCE correctly applied the selection criteria for its GRC programs found in the S-MAP Decision. The Utility provided work unit information for programs in which the forecasted cost was derived from unit costs. SCE applied the selection criteria for its GRC programs according to D.19-04-020 and included the information required for programs selected for an explanation. SCE provided reference and regulatory account information affecting authorized spending.

Variance

SCE's 2020 RSAR showed a total underspend of $311 million for RSAR-related capital and O&M programs, as shown in Table A-2. The $311 million net underspend is comprised of a $950 million (-21 percent) underspend and a $639 million (14 percent) overspend on individual programs.

[1] D.19-04-020 p. 46

Capital programs contributed to the largest portion of the underspend with $298 million (-8 percent) and O&M expenses had an underspend of $13 million (-1 percent).

Reviewing the RSAR-related programs by the major business lines[2], capital distribution programs had the largest total underspend $425 million, but when balanced with other programs the net difference was only $150 million or negative 8 percent. The net variance at the business line level understates significant underspending on individual programs such as capital for the Transmission Substation Plan (-61 percent, $142 million) and the overhead conductor program (-71 percent, $73 million). The five largest underspent programs are transmission or distribution capital programs with a total underspend of $366 million.

Of the 163 programs evaluated, 61 exceeded the variance threshold[3]. Of the 61 programs exceeding the variance threshold, 22 had a negative variance (under spending). The majority of underspent programs cited delayed or deferred work due to COVID-19 and a reprioritization of safety and reliability work triggered by new emergencies and mandates such as wildfire mitigation. The 2020 capital and operation expenses for wildfire related activities, recorded in four different memorandum and balancing accounts totaled $1.31 billion[4]. The magnitude of those recorded expenses illustrates a redirection of resources from that considered in the 2018 base rate case.

Comments

D.19-04-020 provides for a method for parties to comment on the report. Public Advocates Office of the California Public Utilities Commission (Cal Advocates) submitted comments. No other party provided comments.

Cal Advocates recommended the Energy Division investigate SCE's non-completion of authorized work identified as "critical and necessary" and examine the difference between the reported underspend in RSAR and the SCE advice letter (AL) 4442-E with the subject of "Information Only Advice Letter Results for the Safety and Reliability Investment Incentive Mechanism in Compliance with Decision 19-05-020." On July 8, 2021, SCE responded to Cal Advocates inquiry and explained that SCE's Safety and Reliability Investment Incentive Mechanism (SRIIM) costs are tracked differently than RSAR costs. SRIIM reported costs include ISO related activities and corporate overhead, while RSAR costs include direct expenditures with no overhead. Review of the SRIIM programs and calculations of the associated overhead is required to compare the published RSAR values and the SRIIM reported numbers. ED is currently reviewing the SRIIM refund proposed in AL-4442-E.

Cal Advocates' also highlight the need to track programs across multiple years so variances do not accumulate. Changes to the RSAR process are being discussed in the Rulemaking to Further Develop a Risk-Based Decision-Making Framework for Electric and Gas Utilities (SMAP 2) R.20-07-013. The Track 3 technical working group in that proceeding will be discussing changes to the RSAR included tracking deferred or expediated programs across multiple years in Technical Working Group 2 on September 17, 2021.

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[2] Major business lines are Distribution, Generation, Transmission, and Other.

[3] Variance threshold that triggers and explanation varies between type of expense and units: Expense Variance > $10 million or >$5 million and 20 percent; Capital Variance > $20 million or >$10 million and 20 percent; or Unit Variance between adopted units and actual units > 20 percent.

[4] See Table A-4 in Attachment A.

RECOMMENDATIONS

SCE provided explanations and descriptions for the programs or projects in the report in the report but should improve on their efforts to include authorized work units and lists of activities when work units are not available. More detailed explanations and descriptions would facilitate a better understanding of the reported variances.

Staff recommend that variance explanations:

1. identify all mandates;
2. enumerate assumptions used to develop forecasts;
3. provide enough information to allow verification of programs with no incurred costs;
4. favor more specific variance explanations (e.g., social distancing versus COVID-19);
5. detail costs shifted between programs and note the source (regulations or other projects);
6. compare shifted costs to original allocated budget;
7. provide detailed explanations for why each project does not have units; and
8. provide details in explanations sufficient to verify completeness of work within the program.

SCE should refer to the reporting framework in D.19-04-020, Ordering Paragraph 10 in preparing and submitting future RSARs. SCE should also follow recommendations and decisions related to the RSAR that comes from R.20-07-013 (S-MAP 2). RSAR stakeholders are encouraged to participate in track 3 of the S-MAP 2 proceeding which was specifically created to provide more clarity to the RSAR.

SCE should file and serve their 2021 RSAR in the most recent the proceeding in which costs are imputed, A.19-08-013, and the 2018 Risk Assessment and Mitigation Phase (RAMP), I.18-11-006, with copies provided to the CPUC's Safety Policy Division, Safety and Enforcement Division, and the Public Advocates Office. SCE should also provide the 2021 RSAR to the ED Tariff Unit by emailing the report to edtariffunit@cpuc.ca.gov[5]. If you have any questions or comments, please contact Jordan Smith at (916) 894-5717 or jordan.smith@cpuc.ca.gov.

Sincerely,

Edward Randolph
Deputy Executive Director for Energy and Climate Policy/Director, Energy Division

Enclosure: ATTACHMENT A - Staff Risk Spending Accountability Review
ATTACHMENT B – SCE RSAR Programs Ranked by Spending Variance

cc: Daniel Komula, Southern California Edison
Kristen Yee, Southern California Edison
Dorothy Duda, Branch Manager Market Structure, Costs and Natural Gas Branch
Franz Cheng, Supervisor Electric Costs Section
Service Lists for I.18-11-006 and A.19-08-013

[5] see D.19-04-020 page 47

ATTACHMENT A:
Staff Risk Spending Accountability Review

The California Public Utilities Commission's (CPUC) Energy Division (ED) reviewed the Interim 2020 Risk Spending Accountability Report (RSAR) of Southern California Edison (SCE) filed on April 1, 2021. ED conducted a review to provide the CPUC and parties to the GRC with information that may be useful in the GRC and other proceedings and "alert the Commission and other parties about a utility's risk mitigation activities and spending."[6]

BACKGROUND

In December 2014, the CPUC issued D.14-12-025, which directed the investor-owned utilities under its jurisdiction to prepare annual reports comparing authorized and actual spending on risk mitigation projects and explain any discrepancies. Upon submission, ED Staff would review the reports and identify any spending patterns of concern with respect to the provision of safe and reliable gas and electric service.

In April 2019, the CPUC issued D.19-04-020, Phase Two Decision Adopting Risk Spending Accountability Report Requirements and Safety Performance Metrics for Investor-Owned Utilities and Adopting a Safety Model Approach for Small and Multi-Jurisdictional Utilities (Phase Two Decision) and provided the utilities with specific direction in complying with the reporting requirements of the new risk-based decision-making framework.

In a letter dated January 3, 2019, ED directed SCE to file and serve annual "interim" RSARs for 2016 through 2020 in the applicable RAMP or GRC proceeding. SCE has previously provided the 2016-2017 RSAR and the 2018 RSAR on March 14, 2019, and July 23, 2019, respectively. SCE's 2019 RSAR and 2020 RSAR follow the reporting framework set forth in D.19-04-020.

REPORTING REQUIREMENTS

D.19-04-020 directed utilities to provide descriptions and an explanation of any variance based upon set criteria.[7] This included identifying all risk mitigation and maintenance[8] programs, providing a "comparison of authorized versus actual spending above an appropriate Commission-determined dollar cut-off and a utility narrative explanation of any significant differences between the two." Finally, the utilities are required to "group programs along general business lines" or categories.[9]

REPORT NOTICE AND PARTY COMMENTS

SCE submitted the RSAR report to the service list for three proceedings: their Test Year (TY) 2018 General Rate Case (GRC) Application (A.)16-09-001, their current TY 2021 GRC A.19-08-013, and

[6] D.19-04-020 p. 47.
[7] D.19-04-020 p. 43, Variance Criteria.
[8] In compliance with redirected spending requirements P.U. Code §591 D.19-04-020 (p. 37).
[9] D.19-04-020 pp 34-37; O.P. 10 and Attachment 2 for the full requirements. See also D.14-12-025 p. 44.

I.18-11-006. The SCE RSAR is available on the Energy Division RSAR webpage.[10] The review schedule for RSARs was served on A.19-08-013 and R.20-07-013 on April 8, 2021.

The schedule requested comments by July 29, 2021. The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) served comments on SCE 2020 RSAR report by the stated timeline. No other parties served comments.

STAFF ANALYSIS

SCE imputed authorized costs based on the GRC Settlement Agreement and Post Test Year Mechanism[11] for reportable programs.[12] SCE identified each GRC spending program related to safety reliability and maintenance. SCE identified 90 capital and 70 operation and maintenance (O&M) expense programs meeting the criteria of "RSAR-related" programs. Overall, the RSAR-related programs account for 54 percent and 84 percent of the 2020 GRC authorized O&M expense and capital, respectively.

Table A-1. 2020 Total GRC Amounts compared to Risk Spending Accountability Report Eligible Programs.

	O&M Expense ($000)	Capital ($000)
Total 2020 GRC Authorized	1,982,449	4,233,108
Total RSAR Expense in GRC Authorized[a]	1,060,858	3,545,519
Percent of RSAR-related programs of Total GRC Authorized	54%	84%
Total RSAR Recorded	1,047,705	3,247,505
Variance	(13,153)	(298,014)
Percent Variance of RSAR Authorized	-1.2%	-8.4%

a. Based on 2018 GRC authorized amounts with escalation

SCE updated the programs structure for SCE's 2021 GRC application and has updated the original authorized amounts across this new structure, sometime resulting in an imperfect match. SCE has also provided a roadmap of the current structure to the 2018 GRC.[13]

[10] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/risk-spending-accountability-reports/sce-2020-utility-report-rsar.pdf
[11] See the RSAR Appendix A for imputation methodology.
[12] D.19-04-020, p. 35 and 37; Program Definitions; section 5.1.1.
[13] See SCE 2020 RSAR, Appendix B.

SCE complied with D.19-04-020, Ordering Paragraph 10, which requires utilities to describe how each project relates to safety, reliability or maintenance.[14]

Lines of Business

Table A-2 presents RSAR-related programs along major lines of business and divided into O&M expense and capital programs. Variance of recorded cost to authorized cost at the at the capital program level is negative 8 percent (negative is under spent from authorized cost), but generation alone is negative 37 percent and the catch-all "other" is a positive 23 percent, essentially averaging out the overall variance. Capital distribution programs have the largest total dollar underspend of $425 million, averaged out with an overspend of $275 million on other programs within capital distribution. The pattern is similar for O&M expenses where the average variance is 1 percent, but within individual lines of business the variances exceed 20 percent. Overall, the recorded cost on RSAR-related programs shows an underspend of $311 million.

Table A-2. 2020 Authorized and Recorded Costs

	Sum of Recorded Costs ($000)	Sum of Authorized Costs ($000)	Sum of Positive Variances ($000)	Sum of Negative Variances ($000)	Sum of Variances ($000)	Percent Variance
Capital						
Distribution	1,668,870	1,818,799	275,550	(425,476)	(149,926)	-8%
Generation	69,480	109,802	5,644	(45,965)	(40,321)	-37%
Transmission	884,351	1,108,330	61,910	(285,887)	(223,977)	-20%
Other[a]	624,804	508,591	179,016	(62,802)	116,214	23%
Sub-Total	3,247,505	3,545,522	522,120	(820,130)	(298,010)	-8%
O&M Expense						
Distribution	352,123	322,717	47,687	(18,284)	29,403	9%
Generation	154,410	171,586	46	(17,222)	(17,176)	-10%
Transmission	109,711	106,272	20,034	(16,594)	3,440	3%
Other[a]	431,463	460,284	48,829	(77,647)	(28,818)	-6%
Sub-Total	1,047,707	1,060,859	116,596	(129,747)	(13,151)	-1%
TOTAL	**4,295,212**	**4,606,381**	**638,716**	**(949,877)**	**(311,161)**	**-7%**

a. Other programs include customer contact, software licenses and maintenance, cyber security, and education and outreach. For a complete list of programs see Attachment B.

Table A-3 shows the total number of programs and variances by major business line. On average 37 percent of the programs exceeded the variance threshold. The largest number of programs and the largest percentage of variances are with capital distribution with 37 programs and 26 variances.

[14] D.19-04-020, pp. 36-37.

Table A-3. Number of Programs and Variances in RSAR

	Total Activities	Cost Variances [a]	Unit Variances [b]	Total Variances	Percent Variance
Capital					
Distribution	37	13	18	26	70%
Generation	12	1	1	1	8%
Transmission	22	5	7	10	45%
Other	19	3	6	8	42%
Sub-Total	90	22	32	45	50%
O&M Expense					
Distribution	21	2	2	4	19%
Generation	6	1	0	1	17%
Transmission	16	1	2	4	25%
Other	30	4	6	7	23%
Sub-Total	73	8	10	16	22%
TOTAL	**163**	**30**	**42**	**61**	**37%**

a. Criteria for Cost Variance between allocated and spent that triggers an explanation:
Expense Variance > $10 million or >$5 million and 20 percent
Capital Variance > $20 million or >$10 million and 20 percent

b. Unit Variance between adopted units and actual units that triggers an explanation > 20 percent

Balancing Accounts

ED staff found the Report met requirements for cost recovery of actual expenditures for balancing or memorandum account related expenditures.[15] Table A-4 shows the 2020 actuals for the balancing or memorandum accounts totaled nearly $2.0 billion with $0.8 billion in O&M expenses and $1.1 billion in capital. The balancing and memorandum accounts accounted for 30 percent of the total 2020 RSAR related spending. Wildfire related activities are recorded in four separated memorandum accounts and account for 67 percent of the total RSAR-related memorandum and balance account spending or $1.3 billion, which is greater than the $1.1 billion of GRC authorized O&M expenses for 2020. SCE may only recover costs above the authorized amount through future applications. The Fire Hazard Prevention Memorandum Account (FHPMA), the Wildfire Mitigation Plan Memorandum Account (WMPMA), and Fire Risk Mitigation Memorandum Account (FRMMA) are reviewed in the GRC. The Grid Safety and Resiliency Program Balancing Account (GSRPBA) is recovered through an advice letter[16].

[15] D.19-04-020 p. 37 and OP 10, p. 66.
[16] GSRBA was transferred to the Base Revenue Requirement Balancing Account via advice letter 4197-E in December 2020.

Table A-4. 2020 Memorandum and Balancing Accounts Compared to Total RSAR-Related Spending

	O&M Expense ($000)	Capital ($000)	O&M Expenses + Capital ($000)
Catastrophic Event Memorandum Account (CEMA)			
CEMA Heat Wave and Wildfire	202,709	340,611	543,320
CEMA COVID	44,480		44,480
CEMA Drought	34,422		34,422
CEMA Sub-Total	**281,611**	**340,611**	**622,222**
Wildfire Activities			
GSRPMA[a]	75,540	589,830	665,370
FRMMA[b]	12,705	6,034	18,739
WMPMA[c]	204,952	172,040	376,992
FHPMA[d]	252,317	-	
Wildfire Activities Sub-Total	**545,514**	**767,904**	**1,313,418**
MMMBA - Mobilehome Park Master Metering Account	67	24,584	24,651
TOTAL RSAR Memorandum and Balancing Accounts	**827,192**	**1,133,099**	**1,960,291**
Percent of Total RSAR Expenses	44%	24%	30%
GRC Authorized RSAR Expense [e]-	1,060,858	3,545,519	
TOTAL RSAR Related Expense	**1,888,050**	**4,678,618**	**6,566,668**

a. Grid Safety and Resiliency Program Memorandum/Balancing Account
b. Fire Risk Mitigation Memorandum Account (FRMMA), collectively referred to as Fire Mitigation Mas
c. Wildfire Mitigation Plan Memorandum Account
d. Fire Hazard Prevention Memorandum Account
e. see Table A-1 for GRC Authorized RSAR expense

Canceled, Deferred, or Expanded Programs

Canceled or Deferred Programs

SCE complied with requirements[17] to provide information on canceled, deferred, or expanded programs via their variance explanations, but did not explicitly define each variance by those categories. Of the 61 program variances, 28 variances reference being deferred due to COVID-19 related delays.

Three programs appeared to be canceled or deferred because they had an imputed authorized amount but zero actual spending (a negative100 percent variance), but these programs were not defined as the authorized amount was below the threshold. SCE should add introductory paragraphs explaining how the report meets O.P. 11(a) and each section of the report should have additional columns describing the status of the program including "canceled" or "deferred". Explanations

[17] D.19-02-040 O.P. 11(a).

should refer to some of the more common canceled or deferred issues including deferred work requirements found in the GRC decision or state or federal regulations. COVID-19 related emergency orders, or other orders contributing to delays, should be cited. Likewise, SCE should explain why cases with authorized revenue but no actual spending are not considered canceled or deferred.

Expanded Programs

In contrast with canceled or deferred projects, which result in underspending (negative variance), utilities are also required to report expanded programming, which often results in overspending (positive variance). Moreover, if no costs are imputed for the project, it will have a variance of 100 percent. This type of programming, often called "emergent" activity, is not always well-defined. When the emergent work is the result of a low forecast or new state or federal mandates, the justification should explain the scope expansion or cite the specific mandate citing.

Pandemic Impacts

Staff found that COVID-19 related explanations generally conformed to canceled or deferred programming requirements as well as state and federal guidance.[18] Variance explanations included higher costs due to equipment rentals or permitting, and generally linked COVID-19 precautions to construction delays or permits. These projects often resulted in higher unit costs even though the program was under spent.

Staff found 28 of the 33 underspent programs had variance explanations relating to the COVID-19 pandemic. While ED staff found pandemic-related explanations were sufficient to meet RSAR canceled or deferred programming requirements, details on how the pandemic impacted the program would provide a better understanding of the cost variance. In addition, the report should address whether the program will require additional funding to address the delays.

Program Work Units

SCE provided units for all programs where the units were defined in the 2018 GRC. SCE also claims that some programs consisting of multiple unique projects cannot be accurately divided into unit costs. ED staff suggest that even though the variability of unique projects within a program may be significant, unitizing the cost would provide useful bench marking. D.19-040-002 requires the IOU must include general explanation for the lack of inclusion of units.[19] As intervenors in the S-MAP proceeding have indicated, context is necessary to understand spending. SCE should also provide an explanation of how much work was accomplished and whether the amount of work done was sufficient to accomplish the company's safety, reliability or maintenance goals.

[18] Federal COVID guidance may be found at https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html and State guidance may be found at https://www.dir.ca.gov/dosh/coronavirus/

[19] D.19-04-020 p. 39.

Attachment B
SCE RSAR Programs Ranked by Spending Variance

Category	Expense Type	GRC Activity	Recorded Costs ($000) A	Authorized Costs ($000) B	Difference ($000) (A-B)	% Change (A-B)/B	Recorded Units C	Authorized Units D	Difference (Units) (C-D)	% Change (Units) (C-D)/D
Transmission	Capital	Transmission Substation Plan (TSP)	$89,875	$232,300	($142,425)	-61%	-	-	-	0%
Distribution	Capital	Overhead Conductor Program (OCP)	$30,067	$103,026	($72,960)	-71%	97	705	(608)	-86%
Transmission	Capital	Transmission Line Rating Remediation (TLRR)	$108,847	$170,835	($61,988)	-36%	-	-	-	0%
Distribution	Capital	Worst Circuit Rehabilitation (WCR)	$85,597	$133,593	($47,996)	-36%	172	350	(178)	-51%
Distribution	Capital	Automation	$39,135	$80,292	($41,156)	-51%	-	-	-	0%
Other	Capital	CRE Project Management	$63,714	$99,200	($35,486)	-36%	-	-	-	0%
Distribution	Capital	Distribution Substation Plan Substations	$67,776	$100,627	($32,850)	-33%	-	-	-	0%
Distribution	Capital	4 kV Cutovers	$62,573	$94,337	($31,765)	-34%	1,041	3,759	(2,718)	-72%
Transmission	Capital	Grid Reliability Projects	$248,090	$278,710	($30,620)	-11%	-	-	-	0%
Other	O&M	Technology Delivery	$9,035	$38,322	($29,287)	-76%	-	-	-	0%
Distribution	Capital	Underground Structure Replacements	$49,458	$76,987	($27,529)	-36%	79	285	(206)	-72%
Transmission	Capital	Substation Transformer Bank Replacement	$46,416	$71,983	($25,567)	-36%	14	31	(17)	-55%
Distribution	Capital	Cable Life Extension (CLE) Program	$77	$25,395	($25,318)	-100%	-	300	(300)	-100%
Generation	Capital	Hydro - Prime Movers	$2,375	$25,489	($23,114)	-91%	-	-	-	0%
Distribution	Capital	Cable-in-Conduit (CIC) Replacement Program	$22,954	$44,080	($21,126)	-48%	63	150	(87)	-58%
Distribution	Capital	Distribution Circuit Upgrades	$43,565	$64,064	($20,498)	-32%	-	-	-	0%
Distribution	Capital	Distribution Pole Loading Program Pole Replacement	$97,192	$117,545	($20,353)	-17%	3,310	7,342	(4,032)	-55%
Distribution	Capital	Streetlight Maintenance and LED Conversions	$36,233	$52,993	($16,760)	-32%	48,421	102,200	(53,779)	-53%
Other	Capital	Technology Solutions	$97,986	$114,680	($16,694)	-15%	-	-	-	0%
Distribution	Capital	Distribution Substation Plan (DSP) Circuits	$47,538	$63,974	($16,436)	-26%	-	-	-	0%
Transmission	Capital	Protection of Grid Infrastructure Assets	$13,554	$29,113	($15,559)	-53%	-	-	-	0%
Distribution	Capital	4 kV Cutovers - Load Growth Driven	$25,376	$38,809	($13,433)	-35%	531	755	(224)	-30%
Generation	O&M	Palo Verde	$73,719	$86,907	($13,188)	-15%	-	-	-	0%
Other	O&M	Training Seat-Time - Transmission and Distribution	$14,617	$27,750	($13,134)	-47%	-	-	-	0%
Distribution	Capital	Capacitor Bank Replacement Program	$5,261	$14,838	($9,577)	-65%	151	350	(199)	-57%
Other	O&M	Customer Contact Center	$40,836	$49,730	($8,894)	-18%	-	-	-	0%
Transmission	O&M	Transmission Line Rating Remediation (TLRR)	$44	$8,233	($8,190)	-99%	-	-	-	0%
Other	O&M	Work Force Protection/Insider Threat	$17,478	$25,428	($7,950)	-31%	-	-	-	0%
Distribution	O&M	Distribution Pole Loading Assessments	$14,667	$21,998	($7,331)	-33%	119,045	207,000	(87,955)	-42%
Generation	Capital	Hydro - Relicensing	$5,191	$12,297	($7,106)	-58%	-	-	-	0%
Distribution	Capital	Underground Switch Replacements	$6,465	$13,444	($6,979)	-52%	106	200	(94)	-47%
Distribution	Capital	Substation Equipment Replacement Program	$24,781	$30,709	($5,928)	-19%	175	92	83	90%
Generation	Capital	Hydro - Dams and Waterways	$10,024	$15,847	($5,823)	-37%	-	-	-	0%
Generation	Capital	Palo Verde	$36,376	$41,812	($5,435)	-13%	-	-	-	0%
Other	O&M	Safety Activities - Transmission & Distribution	$8,626	$13,820	($5,194)	-38%	-	-	-	0%
Other	O&M	Facility and Land Operations	$56,918	$61,681	($4,763)	-8%	-	-	-	0%
Distribution	O&M	Monitoring and Operating Substations	$45,514	$50,254	($4,741)	-9%	-	-	-	0%

Category	Expense Type	GRC Activity	Recorded Costs ($000) A	Authorized Costs ($000) B	Difference ($000) (A-B)	% Change (A-B)/B	Recorded Units C	Authorized Units D	Difference (Units) (C-D)	% Change (Units) (C-D)/D
Distribution	Capital	Distribution Transformers	$96,432	$101,057	($4,625)	-5%	26,989	30,862	(3,873)	-13%
Other	Capital	Cybersecurity Delivery and IT Compliance	$39,502	$43,971	($4,469)	-10%	-	-	-	0%
Other	Capital	Air Operations	$2,454	$6,675	($4,220)	-63%	-	-	-	0%
Transmission	Capital	Relays, Protection and Control Replacements	$54,815	$58,975	($4,159)	-7%	-	-	-	0%
Transmission	O&M	Monitoring Bulk Power System	$51,779	$55,922	($4,143)	-7%	-	-	-	0%
Distribution	Capital	New Capacitors	$4,790	$7,751	($2,961)	-38%	91	183	(92)	-50%
Generation	O&M	Mountainview	$22,873	$25,706	($2,833)	-11%	-	-	-	0%
Other	O&M	Business Planning	$35,298	$38,003	($2,704)	-7%	-	-	-	0%
Generation	Capital	Hydro - Decommissioning	$762	$3,176	($2,414)	-76%	-	-	-	0%
Distribution	Capital	Distribution Volt VAR Control and Capacitor Automation	$2,326	$4,673	($2,347)	-50%	496	480	16	3%
Transmission	O&M	Transmission Line Patrols	$3,544	$5,714	($2,170)	-38%	-	-	-	0%
Transmission	Capital	Transmission/Substation Storm Response Capital	$4,270	$6,406	($2,136)	-33%	-	-	-	0%
Other	O&M	Education, Safety and Operations	$7,313	$9,334	($2,021)	-22%	-	-	-	0%
Distribution	Capital	Distribution Tools and Work Equipment	$3,437	$5,134	($1,697)	-33%	-	-	-	0%
Distribution	Capital	Automatic Reclosers Replacement Program	$957	$2,507	($1,550)	-62%	15	30	(15)	-50%
Distribution	Capital	Distribution Wood Pole Disposal - Pole Loading Program	$0	$1,468	($1,468)	-100%	-	-	-	0%
Distribution	O&M	Streetlight Operations, Inspections, and Maintenance	$6,324	$7,711	($1,387)	-18%	-	-	-	0%
Distribution	O&M	Circuit Breaker Inspections and Maintenance	$4,675	$6,047	($1,373)	-23%	-	-	-	0%
Other	Capital	Communications Equipment	$696	$1,993	($1,297)	-65%	75	72	3	4%
Generation	Capital	Hydro - Electrical Equipment	$4,684	$5,864	($1,180)	-20%	-	-	-	0%
Other	O&M	Planning, Continuity and Governance	$870	$2,027	($1,157)	-57%	-	-	-	0%
Transmission	Capital	Transmission Capital Maintenance	$37,459	$38,584	($1,125)	-3%	-	-	-	0%
Distribution	O&M	Distribution Apparatus Inspection and Maintenance	$4,863	$5,918	($1,055)	-18%	-	-	-	0%
Other	O&M	Transmission/Substation Storm Response O&M	$664	$1,671	($1,008)	-60%	-	-	-	0%
Transmission	Capital	Transmission Tools and Work Equipment	$1,113	$2,068	($954)	-46%	-	-	-	0%
Distribution	O&M	Other Substation Equipment Inspections and Maintenance	$2,018	$2,955	($937)	-32%	-	-	-	0%
Transmission	O&M	Transmission Pole Loading Assessments	$1,373	$2,213	($839)	-38%	6,669	23,000	(16,331)	-71%
Distribution	O&M	Substation - Inspections and Maintenance	$1,325	$2,158	($833)	-39%	-	-	-	0%
Other	O&M	Training, Drills and Exercises	$1,830	$2,600	($770)	-30%	-	-	-	0%
Transmission	Capital	Substation Claim	$245	$985	($740)	-75%	-	-	-	0%
Generation	Capital	Peakers	$2,288	$2,964	($676)	-23%	-	-	-	0%
Generation	O&M	Solar	$1,024	$1,690	($666)	-39%	-	-	-	0%
Transmission	O&M	Equipment Washing	$888	$1,327	($439)	-33%	-	-	-	0%
Transmission	O&M	Transmission Intrusive Pole Inspections	$545	$911	($366)	-40%	13,526	12,000	1,526	13%
Other	Capital	Environmental Programs	$365	$712	($347)	-49%	5	15	(10)	-67%
Distribution	O&M	Substation O&M Breakdown Maintenance	$1,958	$2,302	($344)	-15%	-	-	-	0%

Category	Expense Type	GRC Activity	Recorded Costs ($000) A	Authorized Costs ($000) B	Difference ($000) (A-B)	% Change (A-B)/B	Recorded Units C	Authorized Units D	Difference (Units) (C-D)	% Change (Units) (C-D)/D
Transmission	O&M	Insulator Washing	$1,011	$1,327	($316)	-24%	-	-	-	0%
Generation	O&M	Catalina - Diesel	$4,662	$4,973	($311)	-6%	-	-	-	0%
Other	O&M	Cybersecurity Delivery and IT Compliance	$16,074	$16,369	($295)	-2%	-	-	-	0%
Distribution	O&M	Load Side Support	$842	$1,124	($283)	-25%	-	-	-	0%
Other	O&M	Safety Culture Transformation	$2,066	$2,341	($275)	-12%	-	-	-	0%
Transmission	Capital	Transmission Pole Loading Program Replacement	$23,796	$24,055	($259)	-1%	622	989	(367)	-37%
Transmission	Capital	Telecommunication Inspection and Maintenance	$6,612	$6,855	($243)	-4%	-	-	-	0%
Generation	O&M	Peakers	$7,994	$8,218	($224)	-3%	-	-	-	0%
Generation	Capital	Solar	($5)	$212	($217)	-102%	-	-	-	0%
Other	O&M	Transmission Pole Loading Work Order Related Expense	$13	$208	($195)	-94%	-	-	-	0%
Distribution	Capital	Meter System Maintenance Design	$788	$952	($164)	-17%	-	-	-	0%
Other	Capital	Grid Management System	$41,627	$41,765	($138)	0%	-	-	-	0%
Other	Capital	Oil Containment Diversion System	$452	$572	($119)	-21%	-	-	-	0%
Transmission	Capital	Transmission Emergency Equipment	$0	$112	($112)	-100%	-	-	-	0%
Transmission	O&M	Transformer Inspections and Maintenance	$1,389	$1,500	($111)	-7%	-	-	-	0%
Other	Capital	Fleet Operations and Maintenance	$459	$491	($32)	-7%	-	-	-	0%
Transmission	O&M	Transmission Pole Loading Repairs	$345	$365	($20)	-5%	73	182	(109)	-60%
Distribution	O&M	Wildfire Work Order Related Expense Distribution	$0	$0	$0	-	-	-	-	0%
Transmission	Capital	Telecommunication Pole Loading Program Replacement	$3	$0	$3	-	-	-	-	0%
Other	O&M	Telecommunication Storm Response O&M	$36	$0	$36	-	-	-	-	0%
Other	Capital	Fleet Asset Management	$2,503	$2,464	$39	2%	-	-	-	0%
Other	Capital	Climate Adaptation and Severe Weather	$40	$0	$40	-	-	-	-	0%
Generation	O&M	Hydro	$44,138	$44,092	$46	0%	-	-	-	0%
Distribution	Capital	DER-Driven Grid Reinforcement	$54	$0	$54	-	-	-	-	0%
Distribution	O&M	Relay Inspections and Maintenance	$2,947	$2,879	$68	2%	-	-	-	0%
Transmission	O&M	Transmission Request for Attachment Inspections	$461	$284	$177	62%	-	-	-	0%
Transmission	Capital	Protection of Major Business Functions	$11,563	$11,384	$179	2%	-	-	-	0%
Other	O&M	Security Technology Operations and Maintenance	$4,454	$4,241	$213	5%	-	-	-	0%
Distribution	O&M	Distribution Intrusive Pole Inspections	$5,561	$5,285	$275	5%	133,095	119,500	13,595	11%
Other	O&M	Develop and Manage Policy and Initiatives	$18,656	$18,331	$326	2%	-	-	-	0%
Transmission	Capital	NERC Compliance Programs	$10,744	$10,334	$410	4%	-	-	-	0%
Distribution	Capital	PCB Transformer Removal	$1,994	$1,534	$461	30%	229	250	(21)	-8%
Other	O&M	Grid Mod Cybersecurity	$542	$0	$542	-	-	-	-	0%
Transmission	O&M	Roads and Rights of Way	$4,573	$3,957	$617	16%	-	-	-	0%
Other	Capital	Laboratory Operations	$4,496	$3,775	$721	19%	-	-	-	0%
Distribution	Capital	4 kV Substation Eliminations	$2,988	$2,228	$761	34%	4	9	(5)	-56%
Other	O&M	Public Safety	$756	($16)	$772	-4746%	-	-	-	0%

Category	Expense Type	GRC Activity	Recorded Costs ($000) A	Authorized Costs ($000) B	Difference ($000) (A-B)	% Change (A-B)/B	Recorded Units C	Authorized Units D	Difference (Units) (C-D)	% Change (Units) (C-D)/D
Generation	Capital	Mountainview	$1,133	$339	$794	234%	-	-	-	0%
Other	O&M	Training Delivery and Development - Transmission and Distribution	$14,878	$13,993	$885	6%	-	-	-	0%
Generation	Capital	Catalina - Diesel	$1,437	$474	$963	203%	-	-	-	0%
Other	O&M	Employee and Contractor Safety	$4,368	$3,373	$995	30%	-	-	-	0%
Transmission	O&M	Wildfire Work Order Related Expense Transmission	$1,005	$0	$1,005	-	-	-	-	0%
Distribution	O&M	Patrolling and Locating Trouble	$23,395	$22,362	$1,033	5%	-	-	-	0%
Distribution	O&M	Meter System Maintenance Design	$3,280	$2,242	$1,038	46%	-	-	-	0%
Transmission	O&M	Transmission Underground Structure Inspection	$2,452	$1,391	$1,061	76%	-	-	-	0%
Transmission	Capital	Telecommunication Deteriorated Pole Replacement	$1,300	$0	$1,300	-	-	-	-	0%
Distribution	O&M	Dead, Dying and Diseased Tree Removal	$3,031	$1,433	$1,598	112%	-	-	-	0%
Generation	Capital	Protection of Generation Assets	$1,661	$0	$1,661	-	-	-	-	0%
Other	O&M	All Hazards Assessment, Mitigation and Analytics	$4,025	$2,358	$1,667	71%	-	-	-	0%
Other	O&M	Environmental Management and Development	$11,563	$9,875	$1,689	17%	-	-	-	0%
Other	O&M	Cyber Software License and Maintenance	$5,171	$3,470	$1,702	49%	-	-	-	0%
Transmission	O&M	Telecommunication Inspection and Maintenance	$4,859	$3,034	$1,825	60%	-	-	-	0%
Other	O&M	External Communications	$12,878	$11,051	$1,827	17%	-	-	-	0%
Transmission	Capital	Transmission Claim	$4,887	$3,053	$1,833	60%	-	-	-	0%
Distribution	O&M	Distribution Request for Attachment Inspections	$1,919	$0	$1,919	-	-	-	-	0%
Other	Capital	Substation Switchrack Rebuild	$21,921	$19,927	$1,994	10%	2	3	(1)	-33%
Distribution	Capital	Distribution Wood Pole Disposal	$4,383	$2,288	$2,095	92%	-	-	-	0%
Generation	Capital	Hydro - Structures and Grounds	$3,554	$1,328	$2,226	168%	-	-	-	0%
Distribution	Capital	Substation Tools and Work Equipment	$8,586	$5,906	$2,680	45%	-	-	-	0%
Transmission	O&M	Transmission O&M Maintenance	$12,048	$9,161	$2,887	32%	-	-	-	0%
Transmission	Capital	Circuit Breaker Replacement	$51,010	$47,573	$3,437	7%	172	220	(48)	-22%
Distribution	O&M	Distribution Underground Detail Inspections	$8,394	$4,748	$3,646	77%	175,404	161,693	13,711	8%
Distribution	O&M	Distribution Overhead Detail Inspections	$12,308	$8,003	$4,305	54%	17,418	17,513	(95)	-1%
Other	O&M	Distribution Storm Response O&M	$12,617	$7,972	$4,645	58%	-	-	-	0%
Other	O&M	Emergency Preparedness and Response	$6,699	$1,990	$4,709	237%	-	-	-	0%
Distribution	O&M	Distribution Pole Loading Repairs	$8,898	$3,329	$5,570	167%	3,924	1,634	2,290	140%
Distribution	Capital	Prefabrication	$21,472	$15,293	$6,179	40%	-	-	-	0%
Other	Capital	All Hazards Assessment, Mitigation and Analytics	$42,259	$35,906	$6,352	18%	-	-	-	0%
Other	O&M	Technology Infrastructure Maintenance and Replacement	$22,266	$14,789	$7,477	51%	-	-	-	0%
Distribution	Capital	Distribution Claim	$41,190	$31,358	$9,832	31%	-	-	-	0%
Distribution	Capital	Distribution Plant Betterment	$26,924	$16,754	$10,170	61%	-	-	-	0%
Other	O&M	Software Maintenance and Replacement	$74,913	$64,303	$10,610	16%	-	-	-	0%
Other	O&M	Environmental Programs	$26,003	$15,270	$10,734	70%	-	-	-	0%

Category	Expense Type	GRC Activity	Recorded Costs ($000) A	Authorized Costs ($000) B	Difference ($000) (A-B)	% Change (A-B)/B	Recorded Units C	Authorized Units D	Difference (Units) (C-D)	% Change (Units) (C-D)/D
Distribution	O&M	Distribution Routine Vegetation Management	$78,752	$66,985	$11,767	18%	-	-	-	0%
Transmission	O&M	Transmission Routine Vegetation Management	$23,395	$10,933	$12,462	114%	-	-	-	0%
Transmission	Capital	Monitoring Bulk Power System	$56,166	$43,104	$13,062	30%	-	-	-	0%
Other	Capital	Grid Mod Cybersecurity	$22,892	$8,549	$14,343	168%	-	-	-	0%
Distribution	Capital	Distribution Deteriorated Pole Replacement	$182,108	$167,687	$14,421	9%	7,777	10,791	(3,014)	-28%
Distribution	Capital	Substation Emergency Equipment	$19,754	$4,937	$14,816	300%	-	-	-	0%
Distribution	Capital	Engineering and Planning Software Tools	$29,105	$14,227	$14,878	105%	-	-	-	0%
Transmission	Capital	Substation Capital Breakdown Maintenance	$24,143	$8,984	$15,160	169%	-	-	-	0%
Other	Capital	Technology Infrastructure Maintenance and Replacement	$70,222	$55,043	$15,178	28%	-	-	-	0%
Distribution	O&M	Distribution Preventive and Breakdown O&M Maintenance	$121,452	$104,984	$16,468	16%	-	-	-	0%
Other	Capital	Facility Asset Management	$48,603	$30,905	$17,698	57%	-	-	-	0%
Other	Capital	Software Maintenance and Replacement	$35,873	$11,961	$23,912	200%	-	-	-	0%
Distribution	Capital	Preventive Maintenance	$73,696	$49,413	$24,283	49%	-	-	-	0%
Transmission	Capital	Transmission Deteriorated Pole Replacement	$89,443	$62,917	$26,526	42%	3,027	2,558	469	18%
Distribution	Capital	Distribution Storm Response Capital	$117,622	$38,930	$78,692	202%	-	-	-	0%
Distribution	Capital	Distribution Preventive and Breakdown Capital Maintenance	$386,216	$289,989	$96,228	33%	-	-	-	0%
Other	Capital	Communications	$128,740	$30,002	$98,739	329%	-	-	-	0%