BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Investigation into the November 2018 Submission of Southern California Edison Risk Assessment and Mitigation Phase	I.18-11-006
NOT CONSOLIDATED	
Application of Southern California Edison Company (U338E) for Authority to Increase its Authorized Revenues for Electric Service in 2021, among other things, and to Reflect that Increase in Rates.	A.19-08-013
NOT CONSOLIDATED	
Application of Southern California Edison Company (U338E) for Authority to Increase its Authorized Revenues for Electric Service in 2018, among other things, and to Reflect that increase in Rates.	A.16-09-001

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) INTERIM RISK SPENDING ACCOUNTABILITY REPORT FOR 2020

CLAIRE E. TORCHIA

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6945
E-mail: Claire.Torchia@sce.com

Dated: **April 1, 2021**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Investigation into the November 2018 Submission of Southern California Edison Risk Assessment and Mitigation Phase	I.18-11-006
NOT CONSOLIDATED	
Application of Southern California Edison Company (U338E) for Authority to Increase its Authorized Revenues for Electric Service in 2021, among other things, and to Reflect that Increase in Rates.	A.19-08-013
NOT CONSOLIDATED	
Application of Southern California Edison Company (U338E) for Authority to Increase its Authorized Revenues for Electric Service in 2018, among other things, and to Reflect that increase in Rates.	A.16-09-001

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) INTERIM RISK SPENDING ACCOUNTABILITY REPORT FOR 2020

Southern California Edison Company (SCE) submits its 2020 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 2020 Report covers spend authorized in the Test Year 2018 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). The 2020 RSAR is being filed and served to parties on the service lists for Proceedings A.16-09-001, A.19-08-013, and I.18-11-006, and made available to the CPUC's Safety Policy Division, Safety Enforcement Division, and the Public Advocates Office. SCE is also providing the 2020 RSAR to the ED Tariff Unit by emailing the report to edtariffunit@cpuc.ca.gov. SCE's 2020 RSAR is provided as Attachment A.

Respectfully submitted,

CLAIRE E. TORCHIA

/s/ Claire E. Torchia
By: Claire E. Torchia

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6945
E-mail: Claire.Torchia@sce.com

April 1, 2021

Attachment A

Southern California Edison Company's Interim Risk Spending Accountability Report for 2020

Southern California Edison Company's
Interim Risk Spending Accountability Report for 2020

April 1, 2021

Southern California Edison Company's
Interim Risk Spending Accountability Report for 2020

Table of Contents

Section	Page
I. INTRODUCTION	1
II. BACKGROUND	4
III. OVERVIEW OF AGGREGATE SPENDING VERSUS AUTHORIZED IN SELECT SAFETY, RELIABILITY AND MAINTENANCE PROGRAMS	7
A. O&M	7
B. Capital	11
IV. SCE'S INTERIM REPORT, PLACED IN CONTEXT	16
V. APPLICABLE SAFETY, RELIABILITY, AND MAINTENANCE-RELATED PROGRAMS	18
VI. DERIVATION OF AUTHORIZED DOLLARS	20
VII. DISTRIBUTION CATEGORY	21
A. Expensed Programs	21
1. GRC Activity and Unit Description Table	21
2. GRC Activities Variances	27
3. Variance Explanations	29
B. Capital Expenditure Programs	31
1. GRC Activity and Unit Description Table	31
2. GRC Activities Variances	39
3. Variance Explanations	42
VIII. TRANSMISSION CATEGORY	47
A. Expensed Programs	47
1. GRC Activity and Unit Description Table	47
2. GRC Activities Variances	51
3. Variance Explanations	53

Table of Contents (Continued)

Section	Page
B. Capital Expenditure Programs	54
1. GRC Activity and Unit Description Table	54
2. GRC Activities Variances	59
3. Variance Explanations	61
IX. GENERATION CATEGORY	65
A. Expensed Programs	65
1. GRC Activity and Unit Description Table	65
2. GRC Activities Variances	67
3. Variance Explanations	68
B. Capital Expenditure Programs	70
1. GRC Activity and Unit Description Table	70
2. GRC Activities Variances	72
3. Variance Explanations	73
X. OTHER CATEGORY	75
A. Expensed Programs	75
1. GRC Activity and Unit Description Table	75
2. GRC Activities Variances	84
3. Variance Explanations	86
B. Capital Expenditure Programs	90
1. GRC Activity and Unit Description Table	90
2. GRC Activities Variances	97
3. Variance Explanations	98
XI. SAFETY, RELIABILITY & MAINTENANCE SPENDING RECORDED IN NON-GRC BALANCING OR MEMORANDUM ACCOUNTS	103

Table of Contents (Continued)

Section	Page
A. Background	103
B. Non-Wildfire Activities	104
C. Wildfire Activities	106
APPENDIX A RISK MITIGATION MAPPING	
APPENDIX B GRC ACTIVITY WALKOVER	
APPENDIX C NEW, CANCELED AND DEFERRED PROJECTS	

I.

INTRODUCTION

Southern California Edison Company's (SCE's) Interim Risk Spending Accountability Report (RSAR) for year 2020 is organized into ten chapters and three appendices. The Background chapter summarizes the regulatory background giving rise to the report, including Commission decisions and guidance from the Commission's 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 2020 relative to what was authorized in SCE's Test Year 2018 General Rate Case (2018 GRC) for the applicable safety, reliability and maintenance activities along with an overarching discussion of variance drivers.

In Chapter IV, SCE provides important context where, as here, the variance analysis involves forecast-based ratemaking over a multi-year GRC cycle, and specifically for the 2020 authorized funding. That 2020 funding was authorized pursuant to the Commission's attrition mechanism adopted in SCE's 2018 GRC. As such, the Energy Division's review of the variances between authorized and actual spending should consider that significant variances may occur when comparing an authorized capital addition escalation percentage versus SCE's individual forecasts and specific needs for the year. Chapter IV also discusses SCE's compliance with certain additional requirements from D.19-04-020 in this interim report in line with Energy Division's letter to SCE dated February 14, 2020. In those cases, SCE has addressed or included items that are not yet required.

Chapter V describes 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 activities in the attrition years.

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

for the Distribution, Transmission, Generation and Other categories.[1] 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.[2]

Finally, Chapter XI summarizes SCE spending in 2020 on safety, reliability, and maintenance activities specific to balancing and memorandum accounts differentiated between wildfire and non-wildfire activities.

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 walkover from the 2018 GRC activities to Test Year 2021 GRC activities.
- Appendix C provides a list of projects performed in 2020 that were not presented in the 2018 GRC and cancelled or deferred projects.

During 2020, SCE continued to focus on delivering safe and reliable service to its customers and their communities. SCE prioritized overall authorized spending and prudently

---

[1] 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.

[2] 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.").

varied from what was authorized when circumstances changed, needs emerged, or new and better solutions later appeared.

In 2020, just as in 2019, SCE continued to reallocate resources from traditional grid activities (*e.g.*, infrastructure replacement) to urgent activities focused on mitigating the safety risk associated with catastrophic wildfires. At the time SCE finalized its 2018 GRC application in mid-2016, the magnitude of wildfire risk and consequences was not and could not reasonably have been foreseen. As a result, costs associated with 2020 wildfire activities were not forecast by SCE or authorized by the Commission in SCE's 2018 GRC, and will instead be recovered through various wildfire memorandum accounts.[3]

The effect of this temporary reduction of non-wildfire-mitigation-related work in 2020 also resulted in SCE's adjusted-recorded safety and reliability-related capital additions being less than its authorized level of Safety and Reliability Investment Incentive Mechanism (SRIIM) eligible capital additions by $92.617 million. Consequently, SCE will refund to customers the approximately $21.622 million associated revenue requirement through the operation of the SRIIM automatic ratemaking adjustment mechanism for 2018-2020 underspending.[4] In addition, while SRIIM-eligible capital expenditures are eligible for an equity rate base-level rate of return, the wildfire-related capital expenditures are not.[5] In 2020, the unprecedented COVID-19 pandemic resulted in unforeseen delays in Distribution and Transmission capital projects. Those impacts are detailed in Chapter III.B below.

As discussed below, while total distribution SAR-eligible activities are underspent relative to authorized, SCE incurred approximately $1.3 billion of wildfire safety risk mitigation spending in 2020. For purposes of the authorized-to-recorded comparison in this report, those

---

[3] On March 15, 2021, SCE submitted its 2021 GRC Track 3 filing with the CPUC for reasonableness review of 2020 wildfire mitigation costs and 2018-2020 Grid Safety and Resiliency Program (GSRP) costs that were incremental to the amounts authorized in SCE's 2018 GRC and the authorized GSRP settlement agreement, respectively.

[4] SCE submitted Advice Letter 4442-E proposing the 2018-2020 SRIIM refund on March 18, 2021.

[5] Pursuant to AB 1054, SCE must exclude the first $1.575 billion of post-August 1, 2019 wildfire mitigation plan-related expenditures from its equity rate base.

wildfire costs are excluded as they are subject to memorandum account recovery.[6] Please see Chapter VII for variance explanations on programs where traditional grid activities were delayed in support of wildfire mitigation work, and Chapter XI for additional detail on 2020 wildfire activities and the associated cost-recovery mechanisms.

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 proceedings 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."[7] Energy Division 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, Energy Division expanded the scope of the report beyond the spending on items associated with risk mitigation. T he 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[8] covering

---

[6] Energy Division provided the recommendation to "remove the recorded cost of activities that are tracked in memo and balancing accounts when comparing recorded against authorized amounts." *See* Energy Division Review of the 2018 Interim Risk Spending Accountability Report of the Southern California Edison Company, p. 3.

[7] D.14-12-025, p. 43.

[8] 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."

years 2018 to 2020 ("January 3rd 2019 Letter").[9] In addition to showing authorized versus actual spending for the record year (expressed in terms of dollars and percentages), it asks SCE to include a derivation of authorized amounts,[10] and to discuss (where applicable) related balancing or memorandum accounts.[11]

In 2019, the Commission adopted a new reporting framework in D.19-04-020, Ordering Paragraph 10. This new framework applies to SCE's Test Year 2021 GRC (2021 GRC), A.19-08-013 . The GRC application was filed on August 30, 2019. SCE's first RSAR under these new requirements will be filed on March 31, 2022.[12] 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 of D.19-04-020 also provides example tables for reporting authorized to recorded spending and work units.

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

Energy Division also recommended that SCE review the new format for preparing and submitting future reports and begin developing its RSAR reports in a manner consistent with the

---

9 On February 14, 2020, 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.

10 *See* Section V. below.

11 *See* Section XI. below.

12 Energy Division's Review of SCE's 2019 RSAR did not prescribe a due date for SCE's 2020 RSAR report. As such, SCE adopted the due date of March 31, 2021 consistent with D.19-018-013, OP 8. Due to the Commission's observance of Cesar Chavez Day on March 31, 2021, however, SCE is filing and serving this 2020 Safety Performance Metrics Report on April 1, 2021.

new requirements. Although SCE is not subject to the new requirements until 2022, SCE has largely incorporated the new framework in this report.[13] The tables are organized by functional area (Distribution, Transmission, Generation, and Other),[14] for both O&M and capital. The tables now provide the link from GRC activities to RAMP risk mitigation programs, as well the comparison of authorized to actual units where applicable.

SCE's 2021 GRC was the Company's first GRC to incorporate the integration of RAMP. Accordingly, in this report, SCE continues to utilize its 2021 GRC activity mapping to identify 2020 spending that is associated with a RAMP control or mitigation. Please refer to Appendix A for the RAMP control and mitigation activity mapping to GRC activities.

SCE has diligently sought to incorporate work units into this RSAR and will continue to refine this work effort in future reports. Authorized and recorded work units are provided for activities where there were clearly defined work units in the 2018 GRC. Work units were not created for activities which were not clearly presented in that format in our 2018 GRC.[15] 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 2019 for work completed in 2020) such that taking the annual expenditures and dividing by the total units does not provide an accurate unit cost.

---

[13] The example tables provided in Attachment 2 of D.19-04-020 present individual GRC activities split between RAMP and other GRC spending. For this report, SCE is only identifying which GRC activities include RAMP risk mitigation activities. SCE intends to provide the split between RAMP and other spending within a single GRC activity in its report on 2021 authorized spending.

[14] SCE uses the category of "Other" based on the terminology found in Attachment A of the January 3, 2019 Spending Accountability Report Letter.

[15] 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).

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
2020 O&M GRC Authorized vs. Recorded - *($000s)*

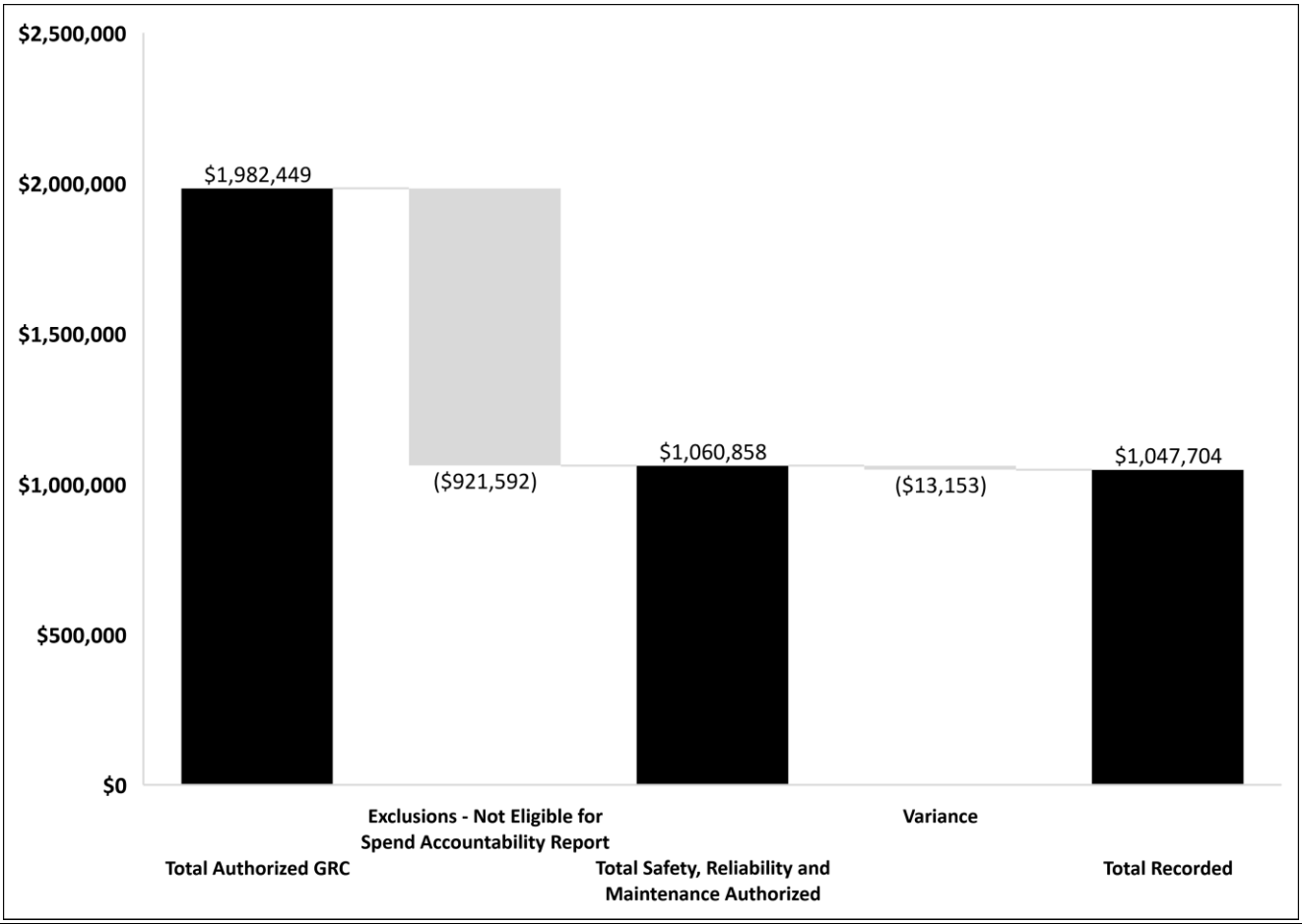
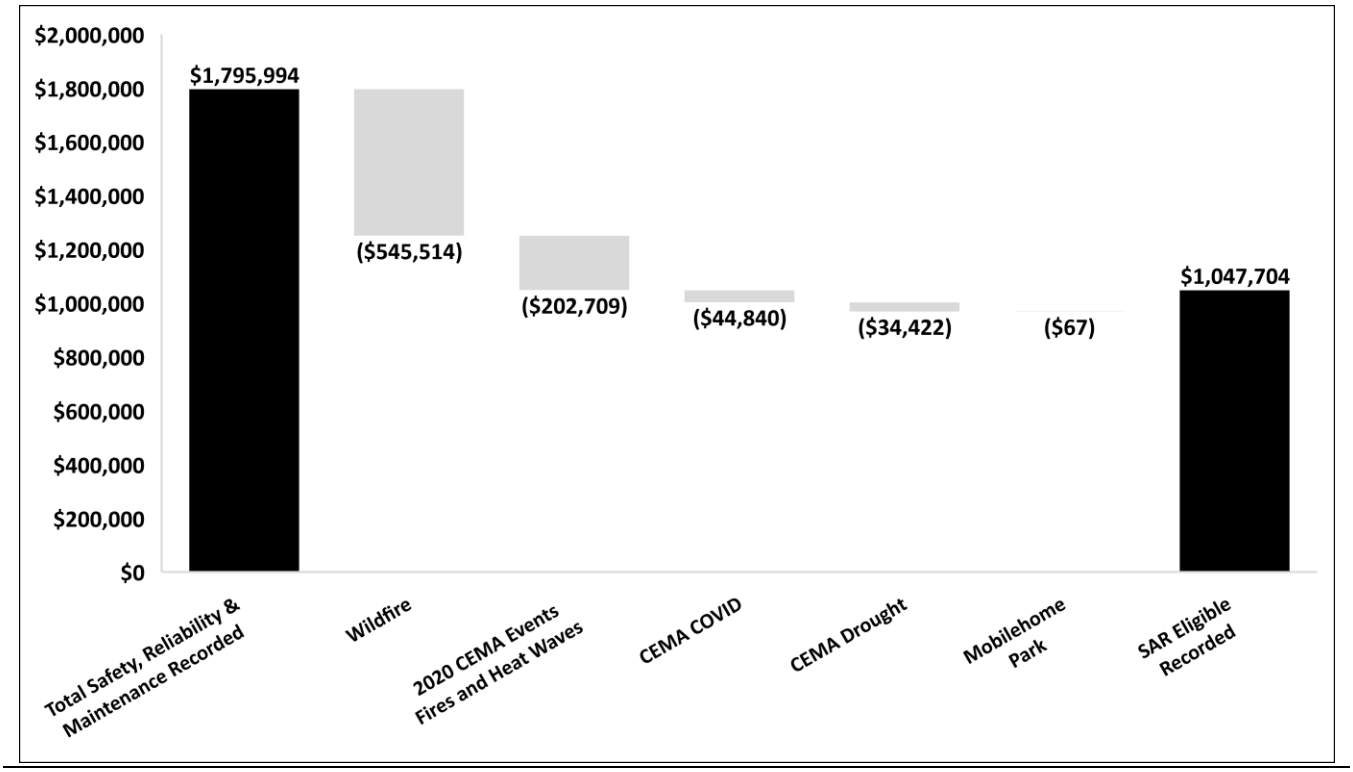


Figure III-2 below provides a roadmap from 2020 total recorded safety, reliability and maintenance expense to 2020 total SAR-eligible recorded expenses authorized in the 2018 GRC Decision. SCE's calculation of the 2020 total SAR-eligible recorded expenses excludes safety,

reliability, and maintenance activities whose recorded costs are recovered through memorandum or balancing accounts outside the 2018 GRC. This approach aligns with Energy Division's April 10, 2020 guidance to SCE. In 2020, SCE recorded approximately $828 million on safety, reliability, and maintenance activities, primarily wildfire-related, to be recovered in memorandum and balancing accounts. Chapter XI details 2020 wildfire and non-wildfire activities (e.g. mobile home park and catastrophic events) and the associated cost-recovery mechanisms (e.g. Catastrophic Events Memorandum Accounts (CEMA).)

Figure III-2
2020 O&M Expense Recorded Walkover
Total Safety, Reliability and Maintenance Recorded to Total SAR-Eligible Recorded
($000s)[16]



For 2020, recorded O&M expenses were approximately $13.1 million less than the 2018 GRC authorized funding for the SAR-eligible activities, as shown in Table III-1 below. This represents a variance of 1.2%.

[16] Wildfire includes the following memorandum and balancing accounts: Grid Safety and Resiliency Program Balancing Account (GSRPBA), Fire Hazard Prevention Memorandum Account (FHPMA), Wildfire Mitigation Plan Memorandum Account (WMPMA) and Fire Risk Mitigation Memorandum Account (FRMMA).

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

Category	2020 Recorded	2020 Authorized	Recorded Less Authorized Variance	% Variance (Rec. - Auth.)/Auth.
Distribution	$352,121	$322,717	$29,404	9.1%
Transmission	$109,711	$106,272	$3,440	3.2%
Generation	$154,409	$171,585	($17,176)	-10.0%
Other	$431,463	$460,283	($28,821)	-6.3%
Grand Total	**$1,047,704**	**$1,060,858**	**($13,153)**	**-1.2%**

Within the Distribution category, SCE overspent the authorized funding by $29 million representing a 9.1% variance in 2020. The overspend was primarily driven by an increased volume of distribution preventive breakdown expenses and routine vegetation management work. The higher level of expenses arose from necessary changes in these activities supporting public safety and addressing expanded wildfire risk (the latter of which was neither reasonably foreseen nor included in SCE's 2018 GRC forecast). The recorded spend over authorized for Distribution Routine Vegetation Management for incremental wildfire work is FERC-jurisdictional. In contrast with CPUC-jurisdictional expenses, those costs are not recorded in SCE's wildfire memorandum and balancing accounts and, accordingly, are reflected as SAR eligible recorded costs.

Within the Transmission category, SCE exceeded the authorized funding by $3.4 million or 3.2% in 2020. This variance was primarily driven by increased Transmission Routine Vegetation Management work. The recorded spend over authorized for Transmission Routine Vegetation Management for incremental wildfire work is FERC-jurisdictional. As those costs are not recorded in SCE's wildfire memorandum and balancing accounts, they are reflected as SAR eligible recorded costs.

Within the Generation category, SCE's recorded expenses were $17.2 million or 10.0% less than the authorized amount. The underspend primarily arose from Palo Verde's operational refinements as SCE implemented greater efficiencies in conjunction with its continuing risk analyses. SCE continues to analyze how our costs compare to the rest of the industry and the

impact of market conditions on future industry operating costs. These efforts support the reduced O&M expenses during 2020 at the generating station.

Within the Other category, SCE recorded costs at a level less than the authorized funding amount by approximately $28 million or 6.3%. SCE recorded less than authorized amounts in certain Information Technology (IT) activities as part of reorganizations. These reorganization efforts resulted in labor being recorded in different IT activities compared to where the activities were originally forecast in SCE's 2018 GRC showing. SCE also recorded lower 2020 expenses in Technology Delivery by deferring several O&M software projects that did not directly impact safety or reliability. SCE also had to reevaluate the method of deploying and managing safety activities for T&D field personnel to address COVID-related restrictions (including a temporary pause of in-person training and events to address employee health and safety concerns). This resulted in a decrease in overall spending compared to authorized. SCE recorded higher expenses than forecast for the Environmental Programs GRC activity associated with the Tehachapi Renewable Transmission Project (TRTP) and the Wheelar North Reef Expansion work. The TRTP variance was driven by post-construction regulatory and permitting requirements.

B. Capital

Figure III-3 below depicts the total GRC authorized and recorded spend for SAR-eligible Capital activities.

Figure III-3
2020 Capital GRC Authorized vs. Recorded- *($000s)*

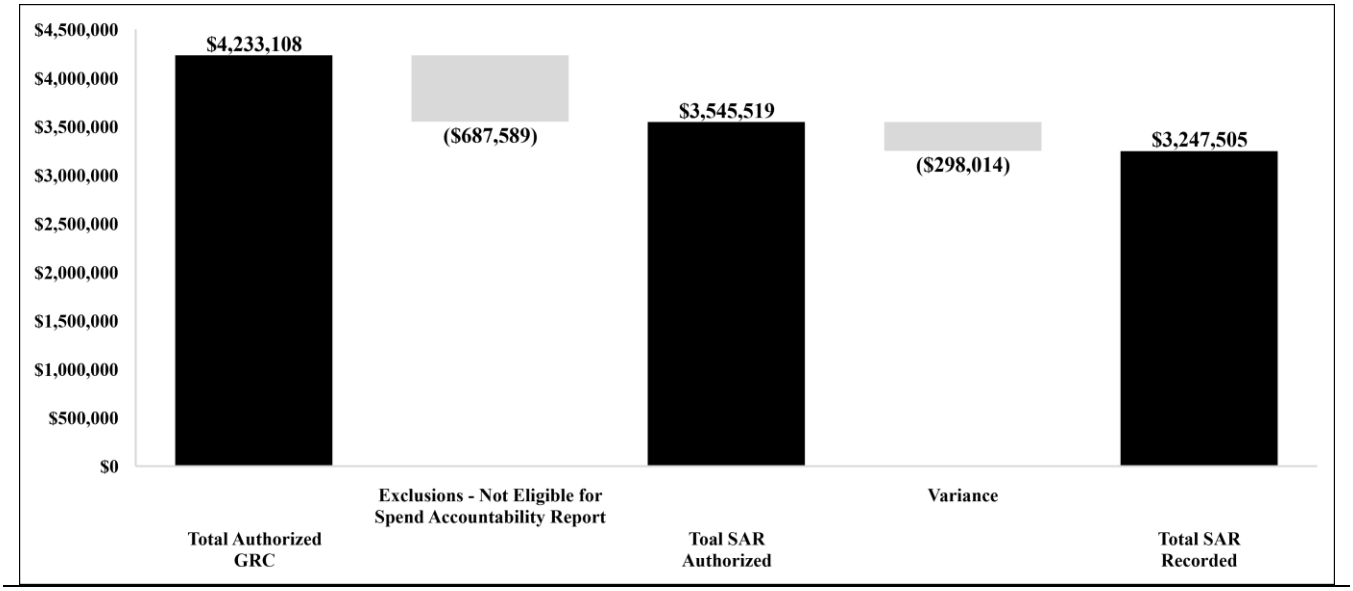


Figure III-4 below provides a roadmap from 2020 total recorded safety, reliability, and maintenance expenditures to 2020 total SAR-eligible recorded expenditures authorized in the 2018 GRC Decision. As with O&M, the 2020 total SAR-eligible recorded capital expenditures exclude those expenditures recovered through memorandum or balancing accounts outside the 2018 GRC. In 2020, SCE recorded costs of approximately $1,133 million on safety, reliability, and maintenance activities, primarily wildfire-related, to be recovered in memorandum and balancing accounts. Chapter XI below details the 2020 wildfire and non-wildfire activities and the associated cost-recovery mechanisms.

Figure III-4
2020 Capital Expense Recorded Walkover
Total Safety, Reliability and Maintenance Recorded to Total SAR-Eligible Recorded
($000s)[17]

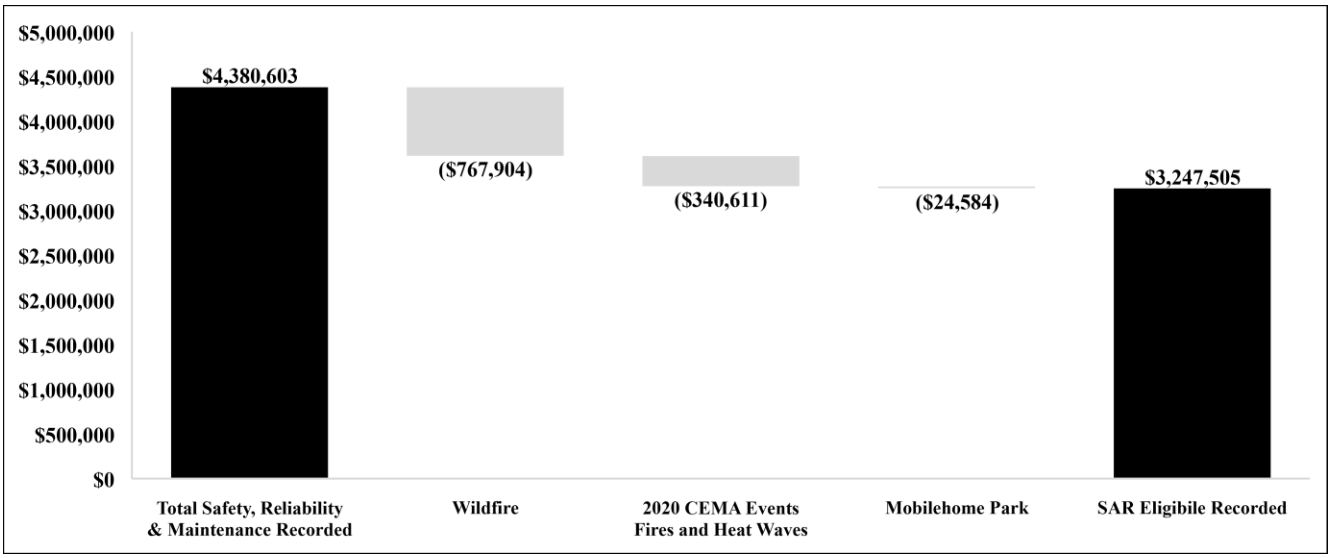


Table III-2 below shows the authorized to recorded comparison of SCE's 2018 GRC capital activities supporting safety, reliability and maintenance and an aggregate underspend of approximately $298 million.

Table III-2
Capital Spending Accountability Report Variances by GRC Category - *($000s)*

Category	2020 Recorded	2020 Authorized	Recorded Less Authorized Variance	% Variance (Rec. - Auth.)/Auth.
Distribution	$1,668,871	$1,818,799	($149,928)	-8.2%
Transmission	$884,351	$1,108,328	($223,977)	-20.2%
Generation	$69,479	$109,802	($40,322)	-36.7%
Other	$624,804	$508,590	$116,213	22.9%
Grand Total	**$3,247,505**	**$3,545,519**	**($298,014)**	**-8.4%**

[17] Wildfire includes the following memorandum and balancing accounts: Grid Safety and Resiliency Program Balancing Account (GSRPBA), Fire Hazard Prevention Memorandum Account (FHPMA), Wildfire Mitigation Plan Memorandum Account (WMPMA) and Fire Risk Mitigation Memorandum Account (FRMMA).

Within the Distribution category, SCE recorded expenditures of approximately $150 million, or 8.2% less than authorized. In 2020, SCE continued to reallocate resources from traditional distribution capital activities (*e.g.*, infrastructure replacement (IR)) to urgent activities focused on mitigating the safety risk associated with catastrophic wildfires. While Table III-2 shows the variance in 2020 recorded expenditures compared to the authorized amount, SCE incurred over $765 million in wildfire related capital expenditures that directly impact safety and reliability and were neither requested nor authorized in the 2018 GRC. Covid-19 restrictions throughout the year delayed Distribution IR and related planning and construction scope that was scheduled during 2020. SCE was subject to stop work orders from multiple cities and local authorities (e.g., Los Angeles County) that prohibited planned outages during daytime hours due to the potential impacts on customers subject to safer-at-home orders. SCE experienced higher spend for storm restoration costs as a result of the significant number of additional storms and fires that are not declared emergencies which would be eligible for recovery through CEMA. SCE also incurred higher than forecast expenditures for preventative and breakdown capital maintenance due to the increased volume of enhanced overhead inspections.

Within the Transmission category, SCE recorded expenditures of approximately $224 million or 20.2% less than the authorized amount. A significant portion of this underspend was associated with FERC jurisdictional projects and programs. SCE experienced an underspend in Transmission Line Rating Remediation (TLRR) in 2020 primarily driven by rescheduling work from 2020 to 2021 associated with the Big Creek and Pardee projects. The Big Creek project was delayed due to the September fires, which created safety dangers and other challenges for the planned work. Several delays, deferrals and project cancellations in Transmission Substation Plan (TSP) GRC activity also contributed to the underspend in 2020. The variance in this activity can also be attributed to the authorized 2020 Post Test Year (PTYR) escalation. The PTYR escalation resulted in approximately $75 million more in authorized funds than SCE's 2020 project-based forecast. Additionally, Transmission work was impacted by COVID-19 restrictions such as the outage restrictions previously described, including modified working

hours and rescheduled work due to mandates by cities and counties. Further, Transmission personnel were required to work in pods restraining SCE's ability to move resources from crew to crew and causing project execution delays.

Within the Generation category, SCE recorded expenditures of approximately $40 million or 36.7% less than the amount authorized. Like Transmission, the variance is due, in part, to authorized amounts exceeding SCE's project-based forecasts due to operation of the attrition mechanism. The authorized 2020 PTYR escalation amount in 2020 for the Hydro – Prime Movers work activity is $13.6 million above SCE's 2020 project-based or itemized forecast presented in SCE's 2018 GRC of $11.4 million. In addition, SCE deferred work on one of Big Creek's Generator Rewind projects following receipt of favorable assessments of its condition.

Within the Other category, SCE exceeded the amount authorized by $116 million or 22.9%. The overrun for the Communications GRC activity spend was attributable to SCE's purchase of licenses to construct a private wireless network using Long-Term Evolution (LTE) technology to replace the existing field communications network. SCE also recorded higher expenditures for Grid Mod Cybersecurity to address the evolving complexity of designing the foundation for modern grid architecture. SCE recorded higher than authorized amounts for Facility Asset Management due to increased spending on non-electric capital maintenance projects, including fire life safety, and obsolescence remodels. SCE also recorded more than authorized in Software Maintenance and Replacement primarily due to performing more refreshes for applications in 2020 where vendor support ended (or would soon end) and were critical to refresh in order to promote business continuity and limit reliability and operational risks. The primary driver for the overspend in Technology Infrastructure Maintenance and Replacement was significant increases in appliance and storage replacement expenditures and associated infrastructure appliances for mission-critical systems. Offsetting some of these increases were lower than forecast expenditures for CRE Project Management due to

modification of the T&D Training Center plans by leveraging existing Rancho Vista property to save costs of purchasing a site and the need to address site use developments.

IV.

SCE'S INTERIM REPORT, PLACED IN CONTEXT

SCE appreciates the opportunity to present the data contained in this report. We look forward to further dialogue with Energy Division and other interested parties regarding the content found in this report. 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 2018 GRC. In a consistent line of decisions, the Commission has confirmed GRC forecasts represent reasonable estimates of what the utility expects to spend in a given area.[18]

SCE's 2018 GRC encompassed test year 2018, and attrition years 2019 and 2020. SCE followed the schedule established by the Commission and presented its forecasts in 2016. The Commission issued its final GRC decision on May 16, 2019.[19] 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. As in its review of SCE's 2019 RSAR, Energy Division's examination of the variability between authorized and actual 2020 should acknowledge the need for flexibility to address changing operating environment.

In addition, this RSAR addresses an attrition year in SCE's 2018 GRC cycle. The authorized spending for 2020 was established by using the authorized capital addition escalation percentage, rather than a detailed examination and decision regarding the individual forecasts

---

[18] *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.").

[19] D.19-05-020.

and specific needs for the year.[20] Hence, for capital projects with specific forecasts of expenditures during that attrition year, variances could result from the escalation percentage even where the actual expenditures align with SCE's itemized forecast.

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.[21] 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 how much to spend in any particular area."[22] 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."[23] 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."[24]

As discussed in our 2019 RSAR, the crisis of California wildfires emerged in the period following SCE's submission of its 2018 GRC forecasts. The need to combat that threat drove significant variations from the spending that the Commission authorized for some activities in the 2018 GRC Decision. As further noted in our 2019 RSAR and data request responses to Energy Division, SCE continues to face labor resource constraints due to the concurrent need for

---

[20] *See* D.19-05-020 "This decision also authorizes post-test year revenue requirement adjustments of $410 million for 2020 (a 7.5% increase)" at p. 2 and ordering paragraph 4 at pp. 436-437 for the authorized Post-Test Year Ratemaking mechanism.

[21] *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.

[22] CPUC Resolution E-4464 (May 10, 2012), at p. 7.

[23] D.11-05-018, at p. 27.

[24] 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.

wildfire resiliency engineering, planning, and deployment activities. Given the criticality of wildfire resiliency efforts, SCE continued reprioritizing of these resources toward those time-critical safety efforts. SCE remains hopeful this resource limitation is temporary and will subside as more wildfire resiliency work is completed.

Additionally, SCE's activities during 2020 were also significantly impacted by conditions created by the COVID-19 pandemic, as detailed below. These conditions and their impacts on SCE's operations and capital projects could not have been reasonably foreseen at the time SCE's 2018 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
- 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

[25] *See* A.16-09-001, p. 37 (sub-section regarding workpaper).

reports, this 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 by the January 3, 2019 Spending Accountability Report Letter and D.19-04-020.

After SCE filed its 2018 GRC application, SCE carefully considered feedback from stakeholders regarding the occasional inconsistency between how SCE organized its GRC showing and how the work is performed. This effort resulted in the development of a new activity structure for SCE's 2021 GRC Application. The new structure is intended to provide greater visibility into how spending impacts the achievement of company goals and enhance prioritization of work and resource allocation on a company-wide basis. To create consistency and alignment with the 2021 GRC,[26] SCE has adopted this new structure where 2020 authorized to recorded variances are discussed in this report.

As noted earlier, SAR eligible activities were based on the risk modeling of GRC activities from SCE's 2018 GRC. In implementing this new structure, SCE has necessarily made certain changes to our GRC presentation. In some cases, this resulted in an imperfect match of authorized to recorded numbers for 2020 GRC activities. SCE has attempted to reconcile these items by matching GRC accounts as closely as possible. Recognizing the need to compare SCE's current structure to the 2018 GRC structure, Appendix B to this report provide a roadmap of RSAR activities in the new structure and the associated location in the 2018 GRC.

---

[26] Under the Commission's Rate Case Plan, SCE's 2021 GRC application was filed by September 1, 2019.

VI.

DERIVATION OF AUTHORIZED DOLLARS

On September 1, 2016, SCE filed its 2018 GRC Application requesting, among other things, an increase in its base revenue requirements for the Test Year 2018 and Post-Test Years 2019 and 2020.[27]

The Commission issued the 2018 GRC Decision (D.19-05-020) on May 16, 2019. The GRC Decision adopted, among other things, a Post-Test Year Ratemaking (PTYR) mechanism that escalates the adopted 2018 CPUC-jurisdictional capital additions in 2020. The 2020 authorized capital expenditures presented in this report use the authorized capital addition escalation percentage as a proxy for adopted attrition-year capital expenditures. For the most part, this report does not include activities whose costs are recovered outside the GRC (*e.g.* Charge Ready, fuel and purchased power, and Energy Efficiency programs.) However, this report does include FERC-jurisdictional capital and O&M which are reviewed in the GRC.

For O&M expenses, Energy Division approved SCE Advice Letter (AL) 4103-E for the 2020 GRC PTYR Revenue Requirement (with an effective date of December 5, 2019) in accordance with the 2018 GRC Decision. The PTYR mechanism adjusts SCE's authorized O&M expense using various escalation factors for labor, non-labor, medical, and other benefit expenses in the attrition years.

---

[27] 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.

VII.

DISTRIBUTION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For the Distribution expense activities that are SAR-eligible, Table VII-3 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-3
Distribution Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Circuit Breaker Inspections and Maintenance: *SCE-02, Vol. 3*: RAMP Control/Mitigation: *N.A*	Includes the cost of labor, materials used, and expenses incurred in performing the inspection and maintenance of circuit breakers at distribution and transmission substations. Unit Description: N/A
Dead, Dying and Diseased Tree Removal: *SCE-02, Vol. 6:* RAMP Control/Mitigation: *N.A.*	Years of drought and wildfires have resulted in tens of millions of dead, dying and diseased trees in California's communities. These dead, dying and diseased trees represent a hazard to electric facilities and increase the risk of wildfire spread. The Commission originally approved the ongoing efforts to remove these trees under a CEMA program. This activity captures costs incurred to proactively remove dead, dying, and diseased trees that could fall on or in contact with SCE's electric facilities. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Distribution Apparatus Inspection and Maintenance: *SCE-02 Vol. 1, Pt. 2*: RAMP Control/Mitigation: *N.A*	This activity includes the costs associated with the inspection and testing of all overhead and underground distribution apparatus such as remote monitoring and control. Unit Description: N/A
Distribution Intrusive Pole Inspections: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	The costs incurred for intrusive pole inspections of distribution poles. Intrusive inspections require inspectors with proper training and experience who drill into the pole's exterior to identify and measure the extent of internal decay which is typically undetectable by external observation alone. Inspectors also perform a visual inspection of the exterior of the pole to check for damage. Unit Description: # of intrusive pole inspections
Distribution Overhead Detail Inspections: *SCE-02 Vol. 1, Pt. 2*: RAMP Control/Mitigation: *N.A*	Overhead Detail Inspections include costs for inspecting SCE's overhead distribution electrical system under GO 165 and SCE's Distribution Inspection and Maintenance Program (DIMP). Activity includes the cost of labor and materials used and related expenses (e.g. transportation, meals, traveling, lodging, division overhead, and supplies and tools) incurred in performing overhead detail inspections. Unit Description: # of Overhead Detail Inspections
Distribution Pole Loading Assessments: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	The costs incurred in performing pole loading assessments on distribution poles, including pole loading calculations. Through assessments, poles that do not meet GO 95 and SCE's loading, temperature and safety factor requirements or, in areas with known local conditions, such as high winds, are identified for repair or replacement. Unit Description: # of Pole Loading Assessments
Distribution Pole Loading Repairs: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of Pole Loading Repairs

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Distribution Preventive and Breakdown O&M Maintenance: *SCE-02 Vol. 1 Pt. 2*: RAMP Control/Mitigation: *N.A*	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 and primarily driven by 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. Unit Description: N/A
Distribution Request for Attachment Inspections: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	Includes cost for pre-inspections and final inspections of distribution renter attachments to poles. Unit Description: N/A
Distribution Routine Vegetation Management: *SCE-02 Vol. 6*: RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Distribution Underground Detail Inspections: *SCE-02 Vol. 1 Pt. 2*: RAMP Control/Mitigation: *N.A*	This activity includes costs for inspecting underground distribution system under GO 165 and SCE's DIMP. Activity includes the cost of labor, materials used and related expenses (e.g. transportation, meals, traveling, lodging, division overhead, and supplies and tools) incurred in performing underground detail inspections. Unit Description: # of Underground Detail Inspections

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Load Side Support: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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. T&D Power Quality Specialists perform investigations at all levels from generation and transmission, to end-use equipment within customer facilities, identify the cause of power quality problems and recommend solutions to customers and/or system owners. Unit Description: N/A
Meter System Maintenance Design: *SCE-02 Vol. 1 Pt. 3*: RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Monitoring and Operating Substations: *SCE-02 Vol. 3*: RAMP Control/Mitigation: *N.A*	Grid Operations - Operating Distribution and Transmission Stations - 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 expenses. Unit Description: N/A
Other Substation Equipment Inspections and Maintenance: *SCE-02 Vol. 3*: RAMP Control/Mitigation: *N.A*	Includes cost of labor and materials used and expenses incurred in inspecting and maintaining substation equipment, including 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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Patrolling and Locating Trouble: *SCE-02 Vol. 1 Pt. 2*: RAMP Control/Mitigation: *N.A*	Includes the costs incurred by personnel 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 expenses. Unit Description: N/A
Relay Inspections and Maintenance: *SCE-02 Vol. 3*: RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Streetlight Operations, Inspections, and Maintenance: *SCE-02 Vol. 1 Pt. 2*: RAMP Control/Mitigation: *N.A*	Streetlight Operations, Inspections, and Maintenance includes the O&M expenses for SCE's streetlight system. 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 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 expenses. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Substation - Inspections and Maintenance: *SCE-02 Vol. 3*: RAMP Control/Mitigation: *N.A*	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 to check its performance; maintaining 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. Unit Description: N/A
Substation O&M Breakdown Maintenance: *SCE-02 Vol. 3*: RAMP Control/Mitigation: *N.A*	Includes the costs to perform unplanned, breakdown maintenance, include the repair and replacement of 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 causes. Breakdown maintenance does not include costs related to failures that occur during a storm or from a claim. Unit Description: N/A
Wildfire Work Order Related Expense Distribution: *SCE-04 Vol. 5:* RAMP Control/Mitigation: *N.A*	Expenses incurred for work associated with capital additions or replacements. These activities do not qualify for capitalization according to standard accounting guidelines. Unit Description: N/A

2. GRC Activities Variances

Table VII-4 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-4
Distribution Expense Category Activity Variance Calculations

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Circuit Breaker Inspections and Maintenance	$4,675	$6,047	($1,373)	-23%	0	0	0	0%	No	No	No
Dead, Dying and Diseased Tree Removal	$3,031	$1,433	$1,598	112%	0	0	0	0%	No	No	No
Distribution Apparatus Inspection and Maintenance	$4,863	$5,918	($1,055)	-18%	0	0	0	0%	No	No	No
Distribution Intrusive Pole Inspections	$5,561	$5,285	$275	5%	133,095	119,500	13,595	11%	No	No	No
Distribution Overhead Detail Inspections	$12,308	$8,003	$4,305	54%	17,418	17,513	-95	-1%	No	No	No
Distribution Pole Loading Assessments	$14,667	$21,998	($7,331)	-33%	119,045	207,000	-87,955	-42%	No	**Yes**	**Yes**
Distribution Pole Loading Repairs	$8,898	$3,329	$5,570	167%	3,924	1,634	2,290	140%	No	**Yes**	**Yes**

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Distribution Preventive and Breakdown O&M Maintenance	$121,452	$104,984	$16,468	16%	0	0	0	0%	**Yes**	No	No
Distribution Request for Attachment Inspections	$1,919	$0	$1,919	-	0	0	0	0%	No	No	No
Distribution Routine Vegetation Management	$78,752	$66,985	$11,767	18%	0	0	0	0%	**Yes**	No	No
Distribution Underground Detail Inspections	$8,394	$4,748	$3,646	77%	175,404	161,693	13,711	8%	No	No	No
Load Side Support	$842	$1,124	($283)	-25%	0	0	0	0%	No	No	No
Meter System Maintenance Design	$3,280	$2,242	$1,038	46%	0	0	0	0%	No	No	No
Monitoring and Operating Substations	$45,514	$50,254	($4,741)	-9%	0	0	0	0%	No	No	No
Other Substation Equipment Inspections and Maintenance	$2,018	$2,955	($937)	-32%	0	0	0	0%	No	No	No
Patrolling and Locating Trouble	$23,395	$22,362	$1,033	5%	0	0	0	0%	No	No	No
Relay Inspections and Maintenance	$2,947	$2,879	$68	2%	0	0	0	0%	No	No	No
Streetlight Operations,	$6,324	$7,711	($1,387)	-18%	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Inspections, and Maintenance											
Substation - Inspections and Maintenance	$1,325	$2,158	($833)	-39%	0	0	0	0%	No	No	No
Substation O&M Breakdown Maintenance	$1,958	$2,302	($344)	-15%	0	0	0	0%	No	No	No
Wildfire Work Order Related Expense Distribution	$0	$0	$0	-	0	0	0	0%	No	No	No

3. Variance Explanations

Table VII-5 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VII-5
Distribution Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Distribution Pole Loading Assessments *$:No, %:Yes, Units: Yes*	In 2020, SCE's Pole Loading Program Assessments had lower units and lower spend than the 2018 GRC forecast due to a lower number of overall assessments needed to complete the program. The Program was designed as an assessment of the entire population of SCE's poles to identify which poles did not meet safety standard requirements set by GO 95 and replace or repair any non-compliant poles. Expenses for assessments in 2020 were lower than authorized primarily due to fewer poles requiring assessment than originally estimated.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Distribution Pole Loading Repairs *$:No, %:Yes, Units: Yes*	At the time of filing the 2018 GRC, the compliance time frames for repairs were one year for high fire risk areas and two years for non-high fire risk areas. After the GRC was filed, D.17-12-024 changed compliance time frames to six months for extreme high fire areas and one year for elevated high fire areas and non-high fire areas. Due to this change, a greater number of repairs had compliance dates due in 2020 leading to a higher total spend and higher total volume of completed repairs.
Distribution Preventive and Breakdown O&M Maintenance *$:Yes, %:No, Units: No*	Higher spend resulted from the higher volume of enhanced overhead inspection remediations for wildfire prevention when performed alongside non-wildfire work. SCE's remediation strategy is designed to bundle as much work (*i.e.*, address all open notifications) on an asset as reasonably feasible to take place at the same time. As a result of that bundling strategy, certain work orders that were addressed through the wildfire mitigation inspection program include existing, non-wildfire-related notifications. Because those work order costs cannot be separated into wildfire- and non-wildfire-related categories, work orders that include non-wildfire-related notifications are excluded and not considered to be "wildfire-related." Accordingly, SCE is not seeking cost recovery in Track 3 for those combined work orders. The shift from SCE's labor to more contractor labor and more work being performed during premium time resulted in higher use of "time and expense" rates. Unit price contracts are not used when the work has a constrained timeline, the scope of work is uncertain, or defined units do not align with the specific work being performed.
Distribution Routine Vegetation Management *$:Yes, %:No, Units: No*	The higher level of expenses arose from necessary changes supporting public safety and addressing expanded wildfire risk (the latter of which was neither reasonably foreseen nor included in SCE's 2018 GRC forecast). The recorded spend over authorized for Distribution Routine Vegetation Management for incremental wildfire work is FERC- jurisdictional. In contrast with CPUC-jurisdictional expenses, those cost are not recorded in SCE's wildfire memorandum and balancing accounts and, accordingly, are reflected as SAR eligible recorded costs.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For the Distribution capital activities that are SAR-eligible, Table VII-6 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-6
Distribution Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
4 kV Cutovers - Load Growth Driven: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of transformers removed
4 kV Cutovers: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	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 addressing equipment obsolescence, safety, and reliability. Unit Description: # of transformers removed
4 kV Substation Eliminations: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of 4kV substations removed

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Automatic Reclosers Replacement Program: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	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 the portion of the circuit downstream of its location. ARs are similar to circuit breakers but installed in a distribution circuit rather than a substation. Unit Description: # of Automatic Reclosers replaced
Automation: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	Automation includes costs for incorporating automation equipment, technologies, and operations into the electric system which allows SCE to (1) provide system operators the flexibility to safely isolate faults, (2) 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 helps enable system operators to overcome masked load and DER variability concerns to safely manage a system with many DERs. Unit Description: N/A
Cable Life Extension (CLE) Program: *SCE-02 Vol. 1 Pt. 1*: RAMP Control/Mitigation: Cable Replacement Programs (CIC)	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. Unit Description: Cable Testing and Cable Injection, Conductor Miles
Cable-in-Conduit (CIC) Replacement Program: SCE-02 Vol. 1 Pt. 1: RAMP Control/Mitigation: Cable Replacement Programs (CIC)	The Cable-in-Conduit (CIC) Replacement Program proactively replaces segments of SCE's CIC population that are approaching the end of their service life. The program helps reduce the number of in-service failures of CIC cable and drive down the number of unplanned outages for customers. Unit Description: Conductor Miles

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Capacitor Bank Replacement Program: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	The Capacitor Bank Replacement Program replaces or removes failed and obsolete distribution capacitor banks along with their capacitor switches. Capacitor banks are targeted for replacement based on cyclical or field inspections. Each capacitor bank is composed of three capacitor units: fuses, rack, and mounting hardware. Unit Description: # of Capacitor Banks Replaced
DER-Driven Grid Reinforcement: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	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 related DER studies have identified Grid Reinforcement projects driven by immediate capacity and other planning criteria. Unit Description: N/A
Distribution Circuit Upgrades: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	The Distribution Circuit Upgrades Program covers expenditures for work outside of substations to relieve heavily loaded distribution circuits and substations which are expected to exceed distribution planning limits. This includes all work required on circuits to address 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 limits. Typical work includes installing new switches, upgrading cable or conductor, and installing new conductor to create circuit ties facilitating load transfers between substations and circuits. Unit Description: N/A
Distribution Claim: *SCE-02 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	Distribution Claim includes the costs incurred by SCE to repair damage to the distribution system caused by a third party. Where SCE is able to identify the responsible third party, SCE pursues recovery from that third party of the costs to repair the damage. Unit Description: N/A
Distribution Deteriorated Pole Replacement: *SCE-02 Vol. 5:*	The costs incurred in Distribution Deteriorated Pole Replacement are for pole inspections in compliance with GO 165. GO 165 requires intrusive inspections for all poles at least 15 years old or older to be completed within 10 years of the program inception. Thereafter, GO 165 mandates all poles be intrusively inspected when they are 25 years old and then re-inspected no less than once every 20 years. Intrusive

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *N.A*	Pole Inspections (IPI) require inspectors with specific training and experience to drill into the pole's exterior and identify and measure the extent of internal decay which is typically undetectable with external observation alone. Additionally, the inspector performs a visual inspection of the pole's exterior to check for damage. Unit Description: # of Distribution Pole Replacements
Distribution Plant Betterment: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	Distribution Plant Betterment involves 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, and street or freeway improvements that impact SCE's electric infrastructure. Unit Description: N/A
Distribution Pole Loading Program Pole Replacement: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	Through PLP, SCE assesses poles to identify and repair or replace poles that do not meet GO 95's or SCE's loading, temperature and safety factor requirements or, in areas with known local conditions such as high winds. Unit Description: # of Distribution Pole Replacements
Distribution Preventive and Breakdown Capital Maintenance: *SCE-02 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	This maintenance activity captures the labor, equipment, and other material costs to remove and replace failed distribution equipment. Unit Description: N/A
Distribution Storm Response Capital: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *N.A*	Distribution Storm Response Capital includes costs related to repair and replacement work performed on Distribution facilities as part of a storm response. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Distribution Substation Plan (DSP) Circuits: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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 which are projected to exceed capacity in geographically isolated areas with limited usable circuit ties to transfer load. Unit Description: N/A
Distribution Substation Plan Substations: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	The Distribution Substation Planning process identifies substation projects 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. Unit Description: N/A
Distribution Tools and Work Equipment: *SCE-02 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	Distribution Tools and Work Equipment includes purchases of 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 exceeding $1,000. Unit Description: N/A
Distribution Transformers: *SCE-02 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of Distribution Transformers
Distribution Volt VAR Control and Capacitor Automation Program: *SCE-02 Vol. 4 Pt. 2:*	The Programmable Capacitor Control (PCC) Replacement Program and the associated Distribution Volt VAR Control (DVVC) algorithm allows for Conservation Voltage Regulation (CVR) to decrease energy consumption, while maintaining reliable voltage delivery to SCE customers.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *N.A*	Unit Description: # of Programmable Capacitor Controls Replaced
Distribution Wood Pole Disposal - Pole Loading Program: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	Distribution Wood Pole Disposal - Pole Loading Program are the costs incurred to safely dispose of poles removed from service as part of the PLP. Unit Description: N/A
Distribution Wood Pole Disposal: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	Distribution Wood Pole Disposal are the costs incurred when safely disposing poles that are removed from service, but not covered by PLP. Unit Description: N/A
Engineering and Planning Software Tools: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	Engineering and Planning Software Tools support assessing the amount of DERs that the distribution system can host without triggering a need for distribution infrastructure upgrades and forecasting SCE's short-term and long-term grid needs through granular DER and load forecasting. These software tools include, Grid Connectivity Model (GCM), the Grid Analytics Application (GAA), the Long-term Planning Tool (LTPT) and System Modeling Toolset (SMT), Grid Interconnection Processing Tool (GIPT) and DRP External Portal (DRPEP). SCE's investments in these software tools are needed to address multiple limitations with SCE's legacy tools and comply with compliance requirements related to the Commission's DRP Proceeding (R.14-08-013). Unit Description: N/A
Meter System Maintenance Design: *SCE-02 Vol. 1 Pt. 3:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
New Capacitors: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of New Capacitors Installed
Overhead Conductor Program (OCP): *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *Overhead Conductor Program (OCP)*	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 conductors. Unit Description: # of Conductor Miles
PCB Transformer Removal: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	The Polychlorinated biphenyls (PCB) Transformer Removal Program replaces distribution line transformers suspected of being contaminated with PCB oil at levels higher than 50 parts per million (ppm). PCBs are chemicals that have endanger the environment and human health. Unit Description: # of PCB Contaminated Transformers Replaced
Prefabrication: *SCE-02 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	Each of SCE's 34 district service centers has a prefabrication operation responsible for staging material for the construction crews, assembling prepackaged kits, and safely disposing of materials removed from jobsites. Unit Description: N/A
Preventive Maintenance: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Streetlight Maintenance and LED Conversions: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	SCE owns and maintains over 680,000 lights in our service territory. Most streetlights 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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Substation Emergency Equipment: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	SCE's Emergency Equipment Program (EEP) maintains an inventory of equipment requiring a long lead-time for ordering, especially as infrastructure ages. When equipment and parts must be reactively replaced, this inventory supports reduced outage time at the substation and minimizes interruption caused by an unplanned major equipment failure. Unit Description: N/A
Substation Equipment Replacement Program: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	The Substation Equipment Replacement Program (SERP) replaces substation equipment exceeding 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. Unit Description: # of Substation Circuit Breakers Replaced
Substation Tools and Work Equipment: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	As SCE upgrades equipment inside and outside of the substation, new tools must be acquired for testing, commissioning, inspecting and maintaining upgraded 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. Unit Description: N/A
Underground Structure Replacements: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *Cover Pressure Relief and Restraint (CPRR) Program*	The Underground Structure Replacement program consists of three different sub-activities: structure replacements; vault shoring; and Cover Pressure Relief and Restraint (CPRR). CPRR seeks to prevent primary distribution underground electrical equipment failures that could lead to a vault or manhole explosion event. Unit Description: # of Underground Structure Replacements, # of CPRR Installed, and # of Underground Structures Shored
Underground Switch Replacements: *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation:	The Underground Switch Replacement program removes old oil-filled distribution switches located in underground structures and replaces them with current technology switches. The program focuses on removing old oil-filled switches whose failure can damage adjacent electrical equipment (*e.g.*, cable, transformers, switches).

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
UG Oil Switch Replacement Program	Unit Description: # of Underground Switch Replacements
Worst Circuit Rehabilitation (WCR): *SCE-02 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *Cable Replacement Programs (WCR)*	The Worst Circuit Rehabilitation (WCR) program (1) mitigates the safety and reliability risks associated with mainline cable failures and (2) improves the reliability of the Worst Performing Circuits (WPCs) within the SCE system. Unit Description: # of Conductor Miles

2. GRC Activities Variances

Table VII-7 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-7
Distribution Expenditure Category Activity Variance Calculations

GRC Activity	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	$62,573	$94,337	($31,765)	-34%	1,041	3,759	-2,718	-72%	**Yes**	**Yes**	**Yes**
4 kV Cutovers - Load Growth Driven	$25,376	$38,809	($13,433)	-35%	531	755	-224	-30%	No	**Yes**	**Yes**
4 kV Substation Eliminations	$2,988	$2,228	$761	34%	4	9	-5	-56%	No	No	**Yes**

GRC Activity	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
Automatic Reclosers Replacement Program	$957	$2,507	($1,550)	-62%	15	30	-15	-50%	No	No	**Yes**
Automation	$39,135	$80,292	($41,156)	-51%	0	0	0	0%	**Yes**	**Yes**	No
Cable Life Extension (CLE) Program	$77	$25,395	($25,318)	-100%	0	300	-300	-100%	**Yes**	**Yes**	**Yes**
Cable-in-Conduit (CIC) Replacement Program	$22,954	$44,080	($21,126)	-48%	63	150	-87	-58%	**Yes**	**Yes**	**Yes**
Capacitor Bank Replacement Program	$5,261	$14,838	($9,577)	-65%	151	350	-199	-57%	No	No	**Yes**
DER-Driven Grid Reinforcement	$54	$0	$54	-	0	0	0	0%	No	No	No
Distribution Circuit Upgrades	$43,565	$64,064	($20,498)	-32%	0	0	0	0%	**Yes**	**Yes**	No
Distribution Claim	$41,190	$31,358	$9,832	31%	0	0	0	0%	No	No	No
Distribution Deteriorated Pole Replacement	$182,108	$167,687	$14,421	9%	7,777	10,791	-3,014	-28%	No	No	**Yes**
Distribution Plant Betterment	$26,924	$16,754	$10,170	61%	0	0	0	0%	No	**Yes**	No
Distribution Pole Loading Program Pole Replacement	$97,192	$117,545	($20,353)	-17%	3,310	7,342	-4,032	-55%	**Yes**	No	**Yes**
Distribution Preventive and Breakdown Capital Maintenance	$386,216	$289,989	$96,228	33%	0	0	0	0%	**Yes**	**Yes**	No
Distribution Storm Response Capital	$117,622	$38,930	$78,692	202%	0	0	0	0%	**Yes**	**Yes**	No
Distribution Substation Plan (DSP) Circuits	$47,538	$63,974	($16,436)	-26%	0	0	0	0%	No	**Yes**	No

GRC Activity	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 Substation Plan Substations	$67,776	$100,627	($32,850)	-33%	0	0	0	0%	**Yes**	**Yes**	No
Distribution Tools and Work Equipment	$3,437	$5,134	($1,697)	-33%	0	0	0	0%	No	No	No
Distribution Transformers	$96,432	$101,057	($4,625)	-5%	26,989	30,862	-3,873	-13%	No	No	No
Distribution Volt VAR Control and Capacitor Automation Program	$2,326	$4,673	($2,347)	-50%	496	480	16	3%	No	No	No
Distribution Wood Pole Disposal	$4,383	$2,288	$2,095	92%	0	0	0	0%	No	No	No
Distribution Wood Pole Disposal - Pole Loading Program	$0	$1,468	($1,468)	-100%	0	0	0	0%	No	No	No
Engineering and Planning Software Tools	$29,105	$14,227	$14,878	105%	0	0	0	0%	No	**Yes**	No
Meter System Maintenance Design	$788	$952	($164)	-17%	0	0	0	0%	No	No	No
New Capacitors	$4,790	$7,751	($2,961)	-38%	91	183	-92	-50%	No	No	**Yes**
Overhead Conductor Program (OCP)	$30,067	$103,026	($72,960)	-71%	97	705	-608	-86%	**Yes**	**Yes**	**Yes**
PCB Transformer Removal	$1,994	$1,534	$461	30%	229	250	-21	-8%	No	No	No
Prefabrication	$21,472	$15,293	$6,179	40%	0	0	0	0%	No	No	No
Preventive Maintenance	$73,696	$49,413	$24,283	49%	0	0	0	0%	**Yes**	**Yes**	No

GRC Activity	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
Streetlight Maintenance and LED Conversions	$36,233	$52,993	($16,760)	-32%	48,421	102,200	-53,779	-53%	No	**Yes**	**Yes**
Substation Emergency Equipment	$19,754	$4,937	$14,816	300%	0	0	0	0%	No	**Yes**	No
Substation Equipment Replacement Program	$24,781	$30,709	($5,928)	-19%	175	92	83	90%	No	No	**Yes**
Substation Tools and Work Equipment	$8,586	$5,906	$2,680	45%	0	0	0	0%	No	No	No
Underground Structure Replacements	$49,458	$76,987	($27,529)	-36%	79	285	-206	-72%	**Yes**	**Yes**	**Yes**
Underground Switch Replacements	$6,465	$13,444	($6,979)	-52%	106	200	-94	-47%	No	No	**Yes**
Worst Circuit Rehabilitation (WCR)	$85,597	$133,593	($47,996)	-36%	172	350	-178	-51%	**Yes**	**Yes**	**Yes**

3. Variance Explanations

Table VII-8 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VII-8
Distribution Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
4 kV Cutovers *$:Yes, %:Yes, Units: Yes*	Higher unit cost was primarily due to higher contractor labor and material costs (including new civil infrastructure for the assets). The lower overall spend and completed units in 2020 resulted from deferring work in order to focus resources on wildfire prevention activities. Covid-19 restrictions also delayed Distribution IR scope and planning and limited construction scope that could be performed during the year.
4 kV Cutovers - Load Growth Driven *$:No, %:Yes, Units: Yes*	SCE had lower overall spend and executed units in 2020 as a result of deferring efforts in order to focus resources on wildfire prevention activities.
4 kV Substation Eliminations *$:No, %:No, Units: Yes*	Variances are partially attributable to total project completion costs carrying over from year to year. The 2020 unit cost was higher than authorized primarily due to absence of soil remediation costs incurred for removal of 4kV substations from the 2018 GRC forecast. The lower overall spend and completed units in 2020 resulted from deferring work in order to focus resources on wildfire prevention activities. Covid-19 restrictions also delayed Distribution IR scope and planning and limited construction scope that could be performed during the year.
Automatic Reclosers Replacement Program *$:No, %:No, Units: Yes*	The lower overall spend and executed units in 2020 resulted from deferring work in order to focus resources on wildfire prevention activities.
Automation: *$:Yes, %:Yes, Units: No*	Recorded expenditures for both Reliability-driven and DER-driven Distribution Automation activities were lower than authorized as SCE reprioritized resources to wildfire prevention activities. Lower spend is also attributable to delays in training yard permitting which impacted the training supporting new equipment deployments.
Cable Life Extension (CLE) Program: *$:Yes, %:Yes, Units: Yes*	This program was temporarily paused in 2020 to shift resources to wildfire mitigation efforts. This program is expected to recommence in 2023.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Cable-in-Conduit (CIC) Replacement Program: *$:Yes, %:Yes, Units: Yes*	The lower overall spend and completed units in 2020 resulted from deferring work in order to focus resources on wildfire prevention activities and Covid-19 restrictions which delayed Distribution IR scope and planning and limited construction scope that could be performed during the year.
Capacitor Bank Replacement Program: *$:No, %:No, Units: Yes*	Lower number of capacitor bank replacements were primarily a result of deferring work in order to focus resources on wildfire prevention activities. Additionally, Covid-19-related impacts (including stay-at-home orders, outage restrictions, and resource constraints) resulted in lower units than authorized for the year.
Distribution Circuit Upgrades: *$:Yes, %:Yes, Units: No*	The lower overall spend in 2020 resulted from deferring work in order to focus resources on wildfire prevention activities. Covid-19 impacts (including stay-at-home orders, outage restrictions, and resource constraints) resulted in lower overall execution.
Distribution Deteriorated Pole Replacement: *$:No, %:No, Units: Yes*	The Deteriorated Pole Replacement program identified fewer pole replacements arising from the lower volume of inspections than forecast. Completion of work was also delayed to Covid-19-related impacts (including stay-at-home orders, outage restrictions, and resource constraints). During 2020, inspections also showed a lower failure rate resulting in a lower volume of non-compliant poles that needed to be either replaced or repaired. The higher unit costs arose from increased construction costs, including contractor rate increase, higher cost poles for use in high fire risk areas, and permitting cost increases.
Distribution Plant Betterment: *$:No, %:Yes, Units: No*	The Plant Betterment Program entails a variety of work mitigating voltage issues, adding automation to lessen customer interruptions, and protecting equipment. During 2020, expenditures exceeded authorized amounts due to unforeseen charges and civil works that were not included in the 2018 GRC forecast.
Distribution Pole Loading Program Pole Replacement: *$:Yes, %:No, Units: Yes*	The Pole Replacement program identified fewer pole replacements due to lower volume of assessments needed for the year and completion of work was delayed Covid-19-related impacts (including stay-at-home orders, outage restrictions, and resource constraints). During 2020, a lower failure rate was shown during inspections resulting in fewer non-compliant poles that needed to be replaced or repaired.
Distribution Preventive and Breakdown Capital Maintenance: *$:Yes, %:Yes, Units: No*	Higher spend resulted from (1) bundling of enhanced overhead inspections for wildfire prevention with non-wildfire work, (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.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Distribution Storm Response Capital: *$:Yes, %:Yes, Units: No*	SCE plans to file an application in 2021 and/or 2022 to seek recovery of costs recorded in the CEMA for the 2020 catastrophic Firestorms (Apple, Blue Ridge, Bobcat, Creek, El Dorado, Sequoia Complex, and Silverado) and has removed those costs from the recorded expenditures for this activity. The higher spend is a result of the significant number of additional storms and fires that were not declared emergencies which would be eligible for CEMA recovery.
Distribution Substation Plan (DSP) Circuits: *$:No, %:Yes, Units: No*	Lower spend than authorized attributable to several project delays in 2020. Blue Bell, Barnes and Shea projects are under review and have been delayed to 2021 at present. Permitting challenges resulted in the delay of the Mota project until 2021.
Distribution Substation Plan Substations: *$:Yes, %:Yes, Units: No*	The lower spend was related to two projects. Construction of the Garnet project was delayed until second quarter of 2021 due to gas pipeline relocation by SoCalGas and transformer delivery delay. The Lancaster project was deferred to 2021 because the distribution cutovers work was delayed which pushed back work on the switchrack and the Distribution Substation Emergency Replacement Program (DSERP) circuit breakers.
Engineering and Planning Software Tools: *$:No, %:Yes, Units: No*	The 2020 expenditures were $15 million above the authorized amount of $14 million. The Engineering and Planning (E&P) tools improve incorporation of DERs into grid planning processes as significantly more DERs are added to the grid. This requires incorporating increased location and temporal resolution of DER and load forecast dis-aggregations that are needed to accurately model and mitigate the impacts of the DERs on the grid and to evaluate the role these resources can play as alternatives to traditional grid infrastructure upgrades. Three factors contributed to the higher expenditures which were not known in 2016 when SCE's 2018 GRC application was filed and the Grid Modernization program was in the early stages of development: (1) the greater complexity of integrating and deploying the various E&P software applications, (2) the evolving compliance requirements for integrating DERs into the distribution planning process as part of the Commission's Distribution Resources Plan (DRP) proceeding, and (3) the unavailability of compatible commercial off-the-shelf software products leading to the need for higher than forecast tool customization and more complex system interfaces.
New Capacitors: *$:No, %:No, Units: Yes*	SCE had lower overall spend and completed units in 2020 as a result of deferring work in order to focus resources on wildfire prevention activities.
Overhead Conductor Program (OCP): *$:Yes, %:Yes, Units: Yes*	SCE had lower overall spend and completed units in 2020 as a result of deferring work in order to focus resources on other wildfire prevention activities.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Preventive Maintenance: *$:Yes, %:Yes, Units: No*	SCE's 2018 GRC forecast for this substation activity was based on a historical average which takes into account variances from year to year. In 2020, the projects undertaken were more complex resulting in costs exceeding the historical average.
Streetlight Maintenance and LED Conversions: *$:No, %:Yes, Units: Yes*	SCE had lower overall spend and completed units in 2020 as a result of deferring work in order to focus resources on wildfire prevention activities.
Substation Emergency Equipment: *$:No, %:Yes, Units: No*	SCE replenishes emergency equipment inventory under the Emergency Equipment Program (EEP) and needs vary from year to year by equipment type, equipment voltage, and equipment configurations. The 2020 recorded expenditures reflect the purchase of three additional AA transformer banks needed to address emergent equipment needs that were not known at the time of filing the 2018 GRC.
Substation Equipment Replacement Program: *$:No, %:No, Units: Yes*	SCE had lower overall spend in 2020 but completed the installation of more circuit breakers than authorized. These projects can take up to two years and SCE purchased many of these units in 2019 with the final installation occurring in 2020.
Underground Structure Replacements: *$:Yes, %:Yes, Units: Yes*	SCE had lower overall spend and completed units in 2020 as a result of deferring work in order to focus resources on wildfire prevention activities. The higher average unit costs was primarily due to the increased contractor labor and material costs to replace more traditional structures (*i.e.* full replacement with new switches, cables and transformers) instead of installing a vault casing (*i.e.* an emptied/shell structure). Additionally, lower overall spend arose from limiting scope to focus on wildfire prevention activities and from Covid-19 related impacts (e.g. stay-at-home orders, outage restrictions, and resource constraints.)
Underground Switch Replacements: *$:No, %:No, Units: Yes*	SCE had lower overall spend and completed units in 2020 as a result work deferral to focus resources on wildfire prevention activities and Covid-19 related impacts (e.g. stay-at-home orders, outage restrictions, and resource constraints.)
Worst Circuit Rehabilitation (WCR): *$:Yes, %:Yes, Units: Yes*	Higher unit costs are primarily due to the increased contractor labor and material costs to perform WCR work. SCE had lower overall spend and executed units in 2020 as a result of work deferral to focus resources on wildfire prevention activities and Covid-19 related impacts (e.g. stay-at-home orders, outage restrictions, and resource constraints.)

VIII.

TRANSMISSION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For all Transmission expense-category activities that are deemed SAR-eligible, Table VIII-9 below provides the 2021 GRC testimony citation and activity description and indicates whether there are any RAMP controls or mitigations associated with that GRC activity.

Table VIII-9
Transmission Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Equipment Washing: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	Includes the cost of labor, materials used, and expenses incurred in performing the equipment washing activity at distribution and transmission substations. Unit Description: N/A
Insulator Washing: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	debris can cause an energized circuit to short circuit. Includes related costs such as: transportation expenses, meals, traveling, lodging, and incidental expenses. Unit Description: N/A
Monitoring Bulk Power System: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Roads and Rights of Way: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Telecommunication Inspection and Maintenance: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Transformer Inspections and Maintenance: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	Includes the cost of labor, materials used, and expenses incurred in performing the inspection and maintenance of transformers at distribution and transmission substations. Unit Description: N/A
Transmission Intrusive Pole Inspections: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	This activity covers 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 perform visual inspections of the exterior of the pole to check for damage. Unit Description: # of Intrusive Pole Inspections
Transmission Line Patrols: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Transmission Line Rating Remediation (TLRR): *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Transmission O&M Maintenance: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Transmission Pole Loading Assessments: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	The cost incurred to perform 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. Unit Description: # of Pole Loading Assessments
Transmission Pole Loading Repairs: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	The cost incurred to make repairs on transmission poles as part of the Pole Loading Program. Repairs involve the design and installation or modification of guy wires. Unit Description: # of Pole Loading Repairs
Transmission Request for Attachment Inspections: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	Costs for Pre-Inspections and Final Inspections of transmission renter attachments to poles. Unit Description: N/A
Transmission Routine Vegetation Management: *SCE-02 Vol. 6:* RAMP Control/Mitigation: *N.A*	Contact with vegetation is one of the key risk drivers for ignition and the Commission recently adopted expanded minimum and recommended clearance distances for utility lines. 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. Unit Description: N/A
Transmission Underground Structure Inspection: *SCE-02 Vol. 2:*	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 GO 165. Also included in this activity are SCE's Underground Service Alert (USA) location requests.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *N.A*	Unit Description: N/A
Wildfire Work Order Related Expense Transmission: *SCE-04 Vol. 6:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

2. GRC Activities Variances

Table VIII-10 below provides the authorized, recorded, variance and percentage change values for each Transmission expense 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-10
Transmission Expense Category Activity Variance Calculations

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Equipment Washing	$888	$1,327	($439)	-33%	0	0	0	0%	No	No	No
Insulator Washing	$1,011	$1,327	($316)	-24%	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Monitoring Bulk Power System	$51,779	$55,922	($4,143)	-7%	0	0	0	0%	No	No	No
Roads and Rights of Way	$4,573	$3,957	$617	16%	0	0	0	0%	No	No	No
Telecommunication Inspection and Maintenance	$4,859	$3,034	$1,825	60%	0	0	0	0%	No	No	No
Transformer Inspections and Maintenance	$1,389	$1,500	($111)	-7%	0	0	0	0%	No	No	No
Transmission Intrusive Pole Inspections	$545	$911	($366)	-40%	13,526	12,000	1,526	13%	No	No	No
Transmission Line Patrols	$3,544	$5,714	($2,170)	-38%	0	0	0	0%	No	No	No
Transmission Line Rating Remediation (TLRR)	$44	$8,233	($8,190)	-99%	0	0	0	0%	No	Yes	No
Transmission O&M Maintenance	$12,048	$9,161	$2,887	32%	0	0	0	0%	No	No	No
Transmission Pole Loading Assessments	$1,373	$2,213	($839)	-38%	6,669	23,000	-16,331	-71%	No	No	**Yes**
Transmission Pole Loading Repairs	$345	$365	($20)	-5%	73	182	-109	-60%	No	No	**Yes**
Transmission Request for Attachment Inspections	$461	$284	$177	62%	0	0	0	0%	No	No	No
Transmission Routine Vegetation Management	$23,395	$10,933	$12,462	114%	0	0	0	0%	**Yes**	**Yes**	No
Transmission Underground Structure Inspection	$2,452	$1,391	$1,061	76%	0	0	0	0%	No	No	No
Wildfire Work Order Related	$1,005	$0	$1,005	-	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Expense Transmission											

3. Variance Explanations

Table VIII-11 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table VIII-11
Transmission Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Transmission Line Rating Remediation (TLRR): *$: No , % : Yes , Units :No*	Variances in O&M costs are due to the project-based nature of the TLRR. Recorded expenses for TLRR were below authorized levels due to delays from permitting, outage restrictions, and resourcing constraints that limited SCE's ability to complete the work as originally forecast. In addition, the time required for agency review and approval of projects has been longer than originally anticipated.
Transmission Pole Loading Assessments: *$: No , % : No , Units :Yes*	The Pole Loading Program was designed to comprehensively assess the entire population of poles to identify which poles did not meet safety standard requirements set by GO 95 and replace or repair any non-compliant poles. Expenses in 2020 were lower than authorized primarily due to fewer poles requiring assessment. The program is nearing completion and data from prior assessments has shown that fewer poles require assessment than originally estimated.
Transmission Pole Loading Repairs: *$: No , % : No , Units :Yes*	When the 2018 GRC was filed, the compliance time frames for repairs were 1 year for high fire areas and 2 years for non-high fire areas. After the GRC was filed and under D.17-12-024, the compliance time frames changed to 6 months for extreme high fire areas and 1 year for elevated high fire areas and non-high fire areas. Due to this change, a greater number of repairs had compliance dates due in 2020 resulting in higher total spend and volume of completed repairs.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Transmission Routine Vegetation Management: *$: Yes , % : Yes , Units :No*	The higher level of expenses arose from necessary changes supporting public safety and addressing expanded wildfire risk (the latter of which was neither reasonably foreseen nor included in SCE's 2018 GRC forecast). The recorded spend over authorized for Transmission Routine Vegetation Management for incremental wildfire work is FERC-jurisdictional. In contrast with CPUC-jurisdictional expenses, those costs are not recorded in SCE's wildfire memorandum and balancing accounts and, accordingly, are reflected as SAR eligible recorded costs.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For all Transmission capital expenditure-category activities that are deemed SAR-eligible, Table VIII-12 below provides the 2021 GRC testimony citation and activity description and indicates whether there are any RAMP controls or mitigations associated with that GRC activity.

Table VIII-12
Transmission Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Circuit Breaker Replacement: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	The Distribution Circuit Breaker Replacement Program replaces breakers approaching the end of their service lives. These circuit breakers are becoming increasingly unreliable and contain parts known to be problematic or unavailable and some require custom parts for obsolete equipment. Unit Description: # of circuit breakers replaced

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Grid Reliability Projects: *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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) supporting reliability and compliance with NERC, WECC, and CAISO system performance standards and criteria. Unit Description: N/A
Monitoring Bulk Power System: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	[Transmission and Distribution] Grid Operations - 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] 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. Unit Description: N/A
NERC Compliance Programs: *SCE-04 Vol. 4:* RAMP Control/Mitigation: *N.A*	NERC Compliance Programs include the costs incurred to bring facilities into compliance with physical security standards of NERC-CIP-14. Unit Description: N/A
Protection of Grid Infrastructure Assets: *SCE-04 Vol. 4:*	This program is an ongoing effort to improve the physical protection of SCE employees and assets at electric facilities and to deter and protect against theft, security breaches, and other security incidents. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *Grid Infrastructure Protection – Enhanced*	
Protection of Major Business Functions: *SCE-04 Vol. 4:* RAMP Control/Mitigation: *Smart Key Program Phase 1 - Listed BR/BIA Critical Sites and CS Tier Sites, Non-Electric Facilities/Protection of Major Business Functions - Enhanced*	This program is an ongoing effort to improve the physical protection of SCE's employees and non-electric facilities, such as offices and warehouses, and mitigate the impact of theft, security breaches, and other security incidents. Unit Description: N/A
Relays, Protection and Control Replacements: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Substation Capital Breakdown Maintenance: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	This maintenance activity captures the labor, equipment, and other material costs to remove and replace failed substation equipment. Unit Description: N/A
Substation Claim: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	Substation Claim supports repair damage to the substation caused by third parties. SCE seeks to recover the costs to repair the damage through making a claim against the responsible party for the damage. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Substation Transformer Bank Replacement: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	This activity planned includes the preemptive replacement of transformers approaching the end of their service lives. Unit Description: # of Substation Transformers Replaced
Telecommunication Deteriorated Pole Replacement: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	This activity includes the replacement of telecommunication poles under the Deteriorate Pole Program, in compliance with GO 95. Unit Description: N/A
Telecommunication Inspection and Maintenance: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Telecommunication Pole Loading Program Replacement: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	This activity includes the replacement of telecommunication poles under the Pole Loading Program. Unit Description: N/A
Transmission Capital Maintenance: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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 through observations by field personnel and other activities. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Transmission Claim: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Transmission Deteriorated Pole Replacement: *SCE-02 Vol. 5:* RAMP Control/Mitigation: *N.A*	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. Unit Description: # of Pole Replacements
Transmission Emergency Equipment: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	This program identifies, acquires and maintains emergency spare parts for the transmission grid. Some of this equipment has long procurement lead times requiring inventory on hand to avoid delays in responding to emergencies and outages. Examples of equipment maintained in this inventory include poles, steel bundles for towers, underground cable, and overhead conductor. Unit Description: N/A
Transmission Line Rating Remediation (TLRR): *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Transmission Pole Loading Program Replacement: *SCE-02 Vol. 5:*	Costs incurred for the assessment of Transmission poles for compliance with safety requirements. Unit Description: # of Pole Replacements

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *N.A*	
Transmission Substation Plan (TSP): *SCE-02 Vol. 4 Pt. 2:* RAMP Control/Mitigation: *N.A*	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 B-Substations. The A-bank Plan focuses on maintaining SCE's transmission substation capacity. The Sub transmission VAR Plan focuses on maintaining SCE's system reactive power needs. Unit Description: N/A
Transmission Tools and Work Equipment: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	Transmission Tools and Work Equipment includes costs for acquiring and retiring portable tools and work equipment whose costs exceed $1,000. SCE purchases new tools and equipment as older tools become obsolete or outdated. Unit Description: N/A
Transmission/Substation Storm Response Capital: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *N.A*	Repair and replacement costs incurred as part of a storm response on Transmission and Substation facilities. Unit Description: N/A

2. GRC Activities Variances

Table VIII-13 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-13
Transmission Expenditure Category Activity Variance Calculations

GRC Activity	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	$51,010	$47,573	$3,437	7%	172	220	-48	-22%	No	No	**Yes**
Grid Reliability Projects	$248,090	$278,710	($30,620)	-11%	0	0	0	0%	Yes	No	No
Monitoring Bulk Power System	$56,166	$43,104	$13,062	30%	0	0	0	0%	No	**Yes**	No
NERC Compliance Programs	$10,744	$10,334	$410	4%	0	0	0	0%	No	No	No
Protection of Grid Infrastructure Assets	$13,554	$29,113	($15,559)	-53%	0	0	0	0%	No	**Yes**	No
Protection of Major Business Functions	$11,563	$11,384	$179	2%	0	0	0	0%	No	No	No
Relays, Protection and Control Replacements	$54,815	$58,975	($4,159)	-7%	0	0	0	0%	No	No	No
Substation Capital Breakdown Maintenance	$24,143	$8,984	$15,160	169%	0	0	0	0%	No	**Yes**	No
Substation Claim	$245	$985	($740)	-75%	0	0	0	0%	No	No	No
Substation Transformer Bank Replacement	$46,416	$71,983	($25,567)	-36%	14	31	-17	-55%	**Yes**	**Yes**	**Yes**
Telecommunication Deteriorated Pole Replacement	$1,300	$0	$1,300	-	0	0	0	0%	No	No	No
Telecommunication Inspection and Maintenance	$6,612	$6,855	($243)	-4%	0	0	0	0%	No	No	No
Telecommunication Pole Loading Program Replacement	$3	$0	$3	-	0	0	0	0%	No	No	No
Transmission Capital Maintenance	$37,459	$38,584	($1,125)	-3%	0	0	0	0%	No	No	No

GRC Activity	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 Claim	$4,887	$3,053	$1,833	60%	0	0	0	0%	No	No	No
Transmission Deteriorated Pole Replacement	$89,443	$62,917	$26,526	42%	3,027	2,558	469	18%	**Yes**	**Yes**	No
Transmission Emergency Equipment	$0	$112	($112)	-100%	0	0	0	0%	No	No	No
Transmission Line Rating Remediation (TLRR)	$108,847	$170,835	($61,988)	-36%	0	0	0	0%	**Yes**	**Yes**	No
Transmission Pole Loading Program Replacement	$23,796	$24,055	($259)	-1%	622	989	-367	-37%	No	No	**Yes**
Transmission Substation Plan (TSP)	$89,875	$232,300	($142,425)	-61%	0	0	0	0%	**Yes**	**Yes**	No
Transmission Tools and Work Equipment	$1,113	$2,068	($954)	-46%	0	0	0	0%	No	No	No
Transmission/Substation Storm Response Capital	$4,270	$6,406	($2,136)	-33%	0	0	0	0%	No	No	No

3. Variance Explanations

Table VII-8 below provides the variance explanations for those GRC activities that met the established thresholds.

Table VIII-14
Transmission Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Circuit Breaker Replacement *$:No, %:No, Units: Yes*	In 2020, SCE installed 172 of the 220 circuit breaker units authorized in the 2018 GRC Decision. The remaining units were purchased in 2020, but work was not completed until January 2021 resulting in overall recorded spend matching the authorized amount, but recorded units to be under the authorized number.
Grid Reliability Projects *$:Yes, %:No, Units: No*	The 2020 underspend resulted from delays of multiple Grid Reliability Projects. The Eldorado Lugo Mohave Series Capacitor project was delayed by Public Advocates Office's (PAO) protest resulting in the Commission requiring an amended Certificate of Public Convenience and Necessity application to be filed and deferring construction start date to Q4 2020. Final Decision approving the project was voted in the Commissions' August 27, 2020 Business Meeting. Cerritos Channel Relocation: Although foundation-related negotiations delayed start of construction, the Phase 1 overhead clearance was completed in December 2020. Riverside Transmission Reliability Project: The Commission issued a Final Subsequent Environmental Impact Report in October 2018 selecting Alt #1 as environmentally preferred. The Proposed Decision issued January 17, 2020 and Final decision did not issue until March 12, 2020 supporting Alt #1.
Monitoring Bulk Power System: *$:No, %:Yes, Units: No*	The 2020 recorded expenditures of $56M exceeded the 2018 GRC authorized of $43M by $13M or 30%. Our aging telecommunications infrastructure provides some of the most critical communications connections to substations, customer call centers, data centers, and large office facilities. As a result, a high performing and reliable network is critical to operating the electric grid and conducting normal business activities. To preserve a healthy communication network and ultimately a reliable electric grid, SCE must routinely replace telecommunication equipment that is obsolete, past its useful life, or has failed. In addition to replacing aged or failed equipment, SCE must also keep pace with current product offerings in the marketplace. As vendors in the telecom industry introduce new technologies and discontinue established products, SCE must adopt the new technologies to avoid the operational, security, and financial risks associated with using unsupported

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	and obsolete equipment. The primary driver of the variance is driven by Data and Voice Network replacements and Transmission Network and Facilities where recorded is $44M compared to the authorized of $25M, a variance of $19M. As vendors in the telecom industry introduce new technologies and discontinue established products, SCE must adopt the new technologies to avoid the operational, security, and financial risks associated with using unsupported and obsolete equipment.
Protection of Grid Infrastructure Assets *$:No, %:Yes, Units: No*	The Tier program improves the protection of critical assets, buildings and people around electrical facilities. Tier 2 consists of substations exceeding 500kv that have 5 or more network connections. The underrun is mainly driven by certain Tier 2 projects within the Tier 2 blanket program being delayed until 2021. The Tier 2 delays occurred because of competing work on NERC CIP 014 (Tier 1) projects and COVID-19 related impacts.
Substation Capital Breakdown Maintenance: *$:No, %:Yes, Units: No*	The costs incurred to replace failed substation equipment in substation breakdown maintenance fluctuates from year-to-year due to factors outside of SCE's control. In the 2018 GRC request, SCE's forecast was based on a five-year average to account for this variability. The 2020 overrun was due to higher level of breakdown replacements at various substation locations, including bushing removal and replacements at Rector, extensive bank damage at Eagle Mountain, and AC panel repairs at Magunden.
Substation Transformer Bank Replacement: *$:Yes, %:Yes, Units: Yes*	This program encompasses multiple projects with lengthy approval processes. Many of these projects were delayed in 2020 for a multitude of reasons reflecting the complexity and uniqueness of each project. Covid-19-related impacts, including stay-at-home orders, outage restrictions, and resource constraints also delayed project completion dates.
Transmission Deteriorated Pole Replacement: *$:Yes, %:Yes, Units: No*	The higher spend was due to increased construction costs, contractor rate increases, purchase of specialized and more costly poles used in high fire risk areas, increased permitting costs, and price increases for weathered steel poles.
Transmission Line Rating Remediation (TLRR): *$:Yes, %:Yes, Units: No*	The variance was primarily driven by delayed work from 2020 to 2021 at the Big Creek and Pardee projects. The Big Creek project was delayed due to the September fires in that area. Eagle Mountain-Blythe project experienced material delivery delays which caused the work to shift to 2021. The construction of the Big Creek 1-BC2 projects were deferred to 2021/2022 based on new revised

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	sequence of work schedule baseline. Reconductor work for Big Creek 1-Rector project was delayed to 2021 due to increased complexity coordinating with fire remediation work.
Transmission Pole Loading Program Replacement: *$:No, %:No, Units: Yes*	The Pole Replacement Program identified fewer pole replacements due to lower volume of assessments needed for the year and completion of work was delayed in 2020 due to Covid-19 related impacts (*e.g.* stay-at-home orders, outage restrictions, and resource constraints.) There was also a reduction in 2020 replacement pole volume resulting from the lower failure rate experienced during inspections and fewer non-compliant poles that needed to be either replaced or repaired.
Transmission Substation Plan (TSP): *$:Yes, %:Yes, Units: No*	The variance in this activity is largely driven by the authorized 2020 Post Test Year (PTYR) escalation compared to SCE's 2020 project-based forecast presented in SCE's 2018 GRC. This resulted in approximately $75M in authorized funds over SCE's 2020 project-based forecast. SCE also experienced several delays, deferrals and project cancellations in TSP that contributed to the underspend in 2020. SCE continues work with the Commission for final approval of Alberhill project. The Elizabeth Lake-Pitchgen project was cancelled and Johanna, Lindsay and La Cienega-Beverly-Culver projects were deferred. In addition, SCE determined that the Springville and Strathmore projects could be combined resulting in lower overall spend to complete the projects.

IX.

GENERATION CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For all Generation expense-category activities that are deemed SAR-eligible, Table IX-15 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that GRC activity.

Table IX-15
Generation Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Catalina - Diesel: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Hydro: *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*	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. Unit Description: N/A
Mountainview: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Palo Verde: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Peakers: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	plants. This also includes costs for interconnection fees that SCE pays to be connected to the bulk power grid. Unit Description: N/A
Solar: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A

2. GRC Activities Variances

Table IX-16 below provides the authorized, recorded, variance and percentage change values for each Generation expense 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-16
Generation Expense Category Activity Variance Calculations

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Catalina - Diesel	$4,662	$4,973	($311)	-6%	0	0	0	0%	No	No	No
Hydro	$44,138	$44,092	$46	0%	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Mountainview	$22,873	$25,706	($2,833)	-11%	0	0	0	0%	No	No	No
Palo Verde	$73,719	$86,907	($13,188)	-15%	0	0	0	0%	**Yes**	No	No
Peakers	$7,994	$8,218	($224)	-3%	0	0	0	0%	No	No	No
Solar	$1,024	$1,690	($666)	-39%	0	0	0	0%	No	No	No

3. Variance Explanations

Table IX-17 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table IX-17
Generation Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Palo Verde: *$:Yes, %:No, Units: No*	Palo Verde recorded O&M of $74M in 2020 which is lower than the 2018 GRC authorized amount of $87M by $13.2M or -15%. Approximately $10.7M of the underspend was due to operational refinements as SCE continued to analyze risk and implement efficiencies at the generating station. SCE continues to analyze how costs compare to the industry as well as the impact of market conditions on future industry operating costs. Efficiency efforts such as the Transform Efficiently the Maintaining the Plant Organization (TeMPO) project, Equipment Reliability efforts, Advanced Data Analytics, and "Delivering the Nuclear Promise," an industry wide effort to implement efficiency improvements, have all contributed to reduced expenses. There is also an ongoing focus on staffing decisions, contractor management, and other spending to conserve costs. These combined efforts resulted in reduced O&M expenses at the Plant. The additional underspend of $2.5M was due to lower Site Travel/Service expenses of $1M, outage scope reductions of $0.9M, insurance reimbursement of $0.8M, reduced employee Incentive payout of $0.7M, and load adjustments of $0.2M offset by additional support-related expenses of ($1.1M).

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For all Generation capital expenditure-category activities that are deemed SAR-eligible, Table IX-18 below provides the 2021 GRC testimony citation and activity description and indicates whether there are any RAMP controls or mitigations associated with that GRC activity.

Table IX-18
Generation Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Catalina - Diesel: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	SCE's planned capital expenditures for Catalina's generation and ancillary equipment that support reliable service, compliance with applicable laws and regulations, and safe operations for employees and the public. Projects include Catalina Repower and a 2.4 kV switchyard upgrade. Unit Description: N/A
Hydro - Dams and Waterways: *SCE-05 Vol. 1*: RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Hydro - Decommissioning: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Due to contractual obligations and proposed U.S. Forest Service requirements, SCE likely will be required to perform significant construction work on the San Gorgonio and other related facilities before turning the project over to local water agencies. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Hydro - Electrical Equipment: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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, and 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 the Hydro plant voltage to that of the transmission network or grid. Automation equipment is used to remotely control processes at powerhouses and ancillary facilities. Unit Description: N/A
Hydro - Prime Movers: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	SCE Hydro operates 76 generating units at 35 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 becomes inevitable. Unit Description: N/A
Hydro - Relicensing: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Hydro - Relicensing executes the requirements of FERC relicensing and new license implementation projects, including Minimum Instream Flow Upgrades and Campground Infrastructure Refurbishments/Replacements. Unit Description: N/A
Hydro - Structures and Grounds: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Hydro - Structures and Grounds involves work related to various structures, including the powerhouses, roofs, cranes, heating ventilation and air conditioning, and infrastructure, including roads, bridges, paving, fencing and gates, and fire and water and wastewater systems. The major projects in this category involve replacing high-pressure piping, completing road and bridge improvements, and installing dam safety video surveillance equipment. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Mountainview: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Mountainview's capital expenditures support reliable service, compliance with applicable laws and regulations, and safe operations for employees and the public at the plant. Unit Description: N/A
Palo Verde: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Palo Verde's capital expenditures support safe and reliable operations of the plant and compliance with regulatory requirements. Unit Description: N/A
Peakers: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Protection of Generation Assets: *SCE-04 Vol. 4:* RAMP Control/Mitigation: *Protection of Generation Capabilities*	This activity includes the costs to implement security measures such as access controls, alarms, surveillance, and perimeter protections at Generation assets, such as dams and peaker facilities. Unit Description: N/A
Solar: *SCE-05 Vol. 1:* RAMP Control/Mitigation: *N.A*	Solar capital expenditures include purchase of spare parts such as inverters, transformers, and other capitalized replacement components that fail in service. Unit Description: N/A

2. GRC Activities Variances

Table IX-19 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-19
Generation Expenditure Category Activity Variance Calculations

GRC Activity	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	$1,437	$474	$963	203%	0	0	0	0%	No	No	No
Hydro - Dams and Waterways	$10,024	$15,847	($5,823)	-37%	0	0	0	0%	No	No	No
Hydro - Decommissioning	$762	$3,176	($2,414)	-76%	0	0	0	0%	No	No	No
Hydro - Electrical Equipment	$4,684	$5,864	($1,180)	-20%	0	0	0	0%	No	No	No
Hydro - Prime Movers	$2,375	$25,489	($23,114)	-91%	0	0	0	0%	**Yes**	**Yes**	No
Hydro - Relicensing	$5,191	$12,297	($7,106)	-58%	0	0	0	0%	No	No	No
Hydro - Structures and Grounds	$3,554	$1,328	$2,226	168%	0	0	0	0%	No	No	No
Mountainview	$1,133	$339	$794	234%	0	0	0	0%	No	No	No
Palo Verde	$36,376	$41,812	($5,435)	-13%	0	0	0	0%	No	No	No
Peakers	$2,288	$2,964	($676)	-23%	0	0	0	0%	No	No	No
Protection of Generation Assets	$1,661	$0	$1,661	-	0	0	0	0%	No	No	No
Solar	($5)	$212	($217)	-102%	0	0	0	0%	No	No	No

3. Variance Explanations

Table IX-20 below provides the variance explanations for those GRC activities that met the established thresholds.

Table IX-20
Generation Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Hydro - Prime Movers: *$:Yes, %:Yes, Units: No*	Hydro - Prime Movers recorded capital of $2.4M in 2020 which is lower than the 2018 GRC authorized amount of $25M by $23M or 91%. The Hydro – Prime Movers capital for 2020 was authorized at $25M, which is the 2018 GRC Test Year capital of $24.3M plus escalation of $0.7M. The 2020 authorized is $13.6M above SCE's 2018 GRC's 2020 forecast of $11.4M for this work activity. Actual 2020 Prime Mover spend was $2.8M and the remaining underspend variance of $8.6M (*i.e.*, $11.4M - $2.8M) is largely attributable to the deferral of the $8M Big Creek 1 Unit 2 Generator Rewind following favorable assessments of the generators condition. Projects that incurred expenditures in 2020 (Total of $2.8M) include: - Big Creek 2 Unit 5 – Turbine Replacement: $0.7M - Big Creek 2 Unit 6 - Generator Rewind and Field Pole Assessment: $0.6M - Big Creek 8 Unit 1 – Generator Rewind and Field Pole Assessment: $0.4M - Other smaller projects $1.1M

X.

OTHER CATEGORY

A. Expensed Programs

1. GRC Activity and Unit Description Table

For all Other expense-category activities that are deemed SAR-eligible, Table X-21 below provides the 2021 GRC testimony location, 2021 GRC activity description, and an indication of whether there are any RAMP controls or mitigations associated with that GRC activity.

Table X-21
Other Expense Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	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*	Includes costs to assess and mitigate hazards such as seismic, climate change, severe weather and other hazards. Unit Description: N/A
Business Planning: *SCE-06 Vol. 2*:	Business Planning encompasses functions to build and operationalize integrated, risk-informed planning for the enterprise, and includes strategic planning, business planning and financial planning.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *N.A*	Unit Description: N/A
Customer Contact Center: *SCE-03 Vol. 4:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Cyber Software License and Maintenance: *SCE-04 Vol. 3:* RAMP Control/Mitigation: *SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection*	Expenses incurred for licensing and maintenance agreements to maintain cybersecurity software and hardware assets. This includes software support agreements that give SCE access to break/fix support, service patches, software updates, and upgrades for a variety of cybersecurity software products utilized by SCE. The secure operation and maintenance of these applications is vital and the patches/updates from vendors are necessary to address security, operational defects and operating system compatibility and improve performance. Unit Description: N/A
Cybersecurity Delivery and IT Compliance: *SCE-04 Vol. 3:* RAMP Control/Mitigation: *SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection*	Expenses associated with delivering cybersecurity services that consists of multiple layers of protection and proactive vulnerability testing to prevent unauthorized access and control of SCE systems, as well as monitoring compliance with key cybersecurity related regulations. This activity also includes collaboration and technology transfer with government agencies and other utilities in support of intelligence gathering. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Develop and Manage Policy and Initiatives: *SCE-06 Vol. 6:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Distribution Storm Response O&M: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *N.A*	Includes the costs to patrol for and repair storm related damages and toxic waste disposal for distribution lines and facilities. Storm damage can be caused by severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs in this account include: 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 expenses. Unit Description: N/A
Education, Safety and Operations: *SCE-06 Vol. 6:* RAMP Control/Mitigation: *N.A*	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 policy initiatives such as energy efficiency, renewable energy sources, distributed generation, transportation electrification, community resiliency, and other programs. Unit Description: N/A
Emergency Preparedness and Response: *SCE-04 Vol. 2:*	Costs incurred to emergency management preparedness, response and recovery operations for the company and our service territory. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
RAMP Control/Mitigation: *Fire Management, Emergency Management*	
Employee and Contractor Safety: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *Safety Culture Transformation (Core Program), Safety Controls, Industrial Ergonomics, Contractor Safety Program*	Includes all costs associated with salaries, expenses, and consulting fees for Employee and Contractor Safety activities. Unit Description: N/A
Environmental Management and Development: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	Includes salaries and expenses of personnel engaged in Environmental Services activities. Activities relate to management and oversight of environmental programs. This includes coordination activities involving public, private, and governmental agencies and organizations on environmental matters and issues that affect company operations, including legislative, regulatory, compliance trends, and policies. This activity involves administrative and general activities such as training employees and supporting and maintaining the ES organization. This activity also includes costs for vehicle fleet maintenance (fuel, direct and indirect costs associated with use of vehicles), equipment maintenance, operation of Environmental Notification Center (ENC), and other miscellaneous program costs. Unit Description: N/A
Environmental Programs: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	Includes the labor, materials used, and costs incurred for distribution, transmission, generation, and hazardous waste environmental programs. Examples include environmental programs related to Biological and Natural Resources, Avian Protection, Wetlands Permitting Support, Water and Air Quality, Vegetation Management and Weed Abatement, Hazardous Materials and Waste, and Environmental Engineering. For Transmission and Substation Toxic Waste Disposal, this includes payroll, automotive, and other expenses incurred in the inspection, sampling, testing, and cleaning of oil products or polychlorinated biphenyl (PCB) contamination caused by leakage and/or spillage, as well as costs incurred to clean-up and dispose of hazardous or toxic waste for distribution equipment. Environmental Programs also include expenses

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	associated with the maintenance and monitoring of the San Dieguito Wetlands and Wheeler North Reef Mitigation Projects. Unit Description: N/A
External Communications: *SCE-03 Vol. 2:* RAMP Control/Mitigation: *Public Outreach*	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. Unit Description: N/A
Facility and Land Operations: *SCE-06 Vol. 5:* RAMP Control/Mitigation: *Fire Life Safety Portfolio Assessment, Electrical Inspections, Office Ergonomics*	Facility and Land Operations activities include: Facility Asset Management, Facility Business Planning, Corporate Real Estate (CRE) Project Management, Camp Edison Forestry & Management and Land Rights Acquisition and Disposition. Facility Asset Management activities are focused on providing a safe and productive environment for employees, visitors, and customers at SCE facilities. Facility Business Planning activities include strategic planning and facility transaction activities including lease costs for SCE's facility portfolio. CRE Project Management activities include overseeing all stages of large capital projects in the SCE facility portfolio. Camp Edison Forestry & Management includes vegetation management, timber harvesting (thinning), wildfire prevention, reforestation and rehabilitation, the protection of natural resources and operating and maintaining the campground facility and infrastructure. Land Rights Acquisition and Disposition activities include acquiring, maintaining and disposing of SCE land and land rights required for the installation, operation and maintenance of SCE electrical infrastructure. Unit Description: N/A
Grid Mod Cybersecurity: *SCE-04 Vol. 3:* RAMP Control/Mitigation: *Grid Modernization Cybersecurity*	Expenses incurred in providing cybersecurity capabilities for the Grid Mod 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 is necessary as it 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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	possible. The program seeks to accomplish this through a combination of infrastructure, applications, and threat intelligence initiatives. Unit Description: N/A
Planning, Continuity and Governance: *SCE-04 Vol. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Public Safety: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	Includes all costs associated with salaries, expenses, and consulting fees of personnel engaged of Public Safety activities. Unit Description: N/A
Safety Activities - Transmission & Distribution: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	The cost of labor, materials used, and expenses incurred to develop and deliver safety programs for 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 events such as transportation expenses, meals, travel, lodging, and incidental expenses and division overhead. Unit Description: N/A
Safety Culture Transformation: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	Includes all costs associated with salaries, expenses, and consulting fees 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. Unit Description: N/A
Security Technology Operations and Maintenance: *SCE-04 Vol. 4:* RAMP Control/Mitigation: *Asset Protection*	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. 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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	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. Unit Description: N/A
Software Maintenance and Replacement: *SCE-06 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	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 application refresh activities, which consist of the management, upgrade, maintenance, optimization, monitoring, and testing of IT applications and interfaces through their lifecycle. Unit Description: N/A
Technology Delivery: *SCE-06 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	This activity includes SCE labor and non-labor costs to plan and implement non-routine system enhancements or capital software projects for all organizational units. It also includes costs for project management, post go-live stabilization, and change management expenses. This activity also includes O&M software project costs that are expensed (typically less than $250,000). This activity is critical to minimize disruption to existing systems and processes as new capabilities are enabled across the enterprise. Unit Description: N/A
Technology Infrastructure Maintenance and Replacement: *SCE-06 Vol. 1 Pt. 1:* RAMP Control/Mitigation: *N.A*	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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	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. Unit Description: N/A
Telecommunication Storm Response O&M: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *N.A*	Includes the costs to patrol for and repair storm related damages and toxic waste disposal for Telecommunication lines and facilities. Storm damage can be caused by severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs in this account include: 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 expenses. Unit Description: N/A
Training Delivery and Development - Transmission and Distribution: *SCE-06 Vol. 3:* RAMP Control/Mitigation: *N.A*	The cost of labor, materials used, and expenses incurred to develop and deliver training to transmission personnel. Unit Description: N/A
Training Seat-Time - Transmission and Distribution: *SCE-06 Vol. 3:* RAMP Control/Mitigation: *N.A*	This activity includes seat-time (labor costs) for distribution employees to attend training and informational meetings. Non-labor costs include employee related costs such as transportation expenses, meals, travel, lodging, and incidental expenses and division overhead. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Training, Drills and Exercises: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *Facility Emergency Management Program, Emergency Mgmt.*	Costs incurred for the training of employees, conducting drills and exercises, for the Company's response capabilities for various hazards, such as earthquakes, wildfires, and cyber-attacks. Unit Description: N/A
Transmission Pole Loading Work Order Related Expense: *SCE-02 Vol. 2:* RAMP Control/Mitigation: *N.A*	When poles are replaced under the Pole Loading Program, most of the costs incurred are recorded as a capital expenditure, because of the long-lived nature of these assets. However, some of the ancillary work performed during a pole replacement, such as replacing fuses or insulators on a pole, do not qualify for capitalization according to standard accounting guidelines, and must be charged as an expense. This activity captures expenses incurred for work performed for capital additions or replacements. Unit Description: N/A
Transmission/Substation Storm Response O&M: *SCE-04 Vol. 2:* RAMP Control/Mitigation: *N.A*	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 caused by severe weather conditions such as rain, wind, lightning, and by natural disasters such as earthquakes and forest fires. The storm costs in this account include: 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 expenses. Unit Description: N/A
Work Force Protection/Insider Threat: *SCE-04 Vol. 4:* *RAMP Control/Mitigation: Insider Threat Program Enhancement & Information*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Analysis – Base, Asset Protection	

2. GRC Activities Variances

Table X-22 below provides the authorized, recorded, variance and percentage change values for each Other expense 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-22
Other Expense Category Activity Variance Calculations

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
All Hazards Assessment, Mitigation and Analytics	$4,025	$2,358	$1,667	71%	0	0	0	0%	No	No	No
Business Planning	$35,298	$38,003	($2,704)	-7%	0	0	0	0%	No	No	No
Customer Contact Center	$40,836	$49,730	($8,894)	-18%	0	0	0	0%	No	No	No
Cyber Software License and Maintenance	$5,171	$3,470	$1,702	49%	0	0	0	0%	No	No	No
Cybersecurity Delivery and IT Compliance	$16,074	$16,369	($295)	-2%	0	0	0	0%	No	No	No
Develop and Manage Policy and Initiatives	$18,656	$18,331	$326	2%	0	0	0	0%	No	No	No
Distribution Storm Response O&M	$12,617	$7,972	$4,645	58%	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Education, Safety and Operations	$7,313	$9,334	($2,021)	-22%	0	0	0	0%	No	No	No
Emergency Preparedness and Response	$6,699	$1,990	$4,709	237%	0	0	0	0%	No	No	No
Employee and Contractor Safety	$4,368	$3,373	$995	30%	0	0	0	0%	No	No	No
Environmental Management and Development	$11,563	$9,875	$1,689	17%	0	0	0	0%	No	No	No
Environmental Programs	$26,003	$15,270	$10,734	70%	0	0	0	0%	**Yes**	**Yes**	No
External Communications	$12,878	$11,051	$1,827	17%	0	0	0	0%	No	No	No
Facility and Land Operations	$56,918	$61,681	($4,763)	-8%	0	0	0	0%	No	No	No
Grid Mod Cybersecurity	$542	$0	$542	-	0	0	0	0%	No	No	No
Planning, Continuity and Governance	$870	$2,027	($1,157)	-57%	0	0	0	0%	No	No	No
Public Safety	$756	($16)	$772	-4746%	0	0	0	0%	No	No	No
Safety Activities - Transmission & Distribution	$8,626	$13,820	($5,194)	-38%	0	0	0	0%	No	**Yes**	No
Safety Culture Transformation	$2,066	$2,341	($275)	-12%	0	0	0	0%	No	No	No
Security Technology Operations and Maintenance	$4,454	$4,241	$213	5%	0	0	0	0%	No	No	No
Software Maintenance and Replacement	$74,913	$64,303	$10,610	16%	0	0	0	0%	**Yes**	No	No
Technology Delivery	$9,035	$38,322	($29,287)	-76%	0	0	0	0%	**Yes**	**Yes**	No
Technology Infrastructure Maintenance and Replacement	$22,266	$14,789	$7,477	51%	0	0	0	0%	No	**Yes**	No
Telecommunication Storm Response O&M	$36	$0	$36	-	0	0	0	0%	No	No	No

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	$ Threshold Variance Explanation	% $ Variance Explanation	Unit Variance Explanation
Training Delivery and Development - Transmission and Distribution	$14,878	$13,993	$885	6%	0	0	0	0%	No	No	No
Training Seat-Time - Transmission and Distribution	$14,617	$27,750	($13,134)	-47%	0	0	0	0%	**Yes**	**Yes**	No
Training, Drills and Exercises	$1,830	$2,600	($770)	-30%	0	0	0	0%	No	No	No
Transmission Pole Loading Work Order Related Expense	$13	$208	($195)	-94%	0	0	0	0%	No	No	No
Transmission/Substation Storm Response O&M	$664	$1,671	($1,008)	-60%	0	0	0	0%	No	No	No
Work Force Protection/Insider Threat	$17,478	$25,428	($7,950)	-31%	0	0	0	0%	No	**Yes**	No

3. Variance Explanations

Table X-23 below provides the variance explanations for those GRC activities that met the established thresholds.

Table X-23
Other Expense Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Environmental Programs:	Variance is mainly driven by the following: - $5.3M are related to Wheelar North Reef Expansion which is a new activity and was not requested or authorized in the 2018 GRC.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
$:Yes, %:Yes, Units: No	- $3.1M increased post-construction restoration costs for the Tehachapi Renewable Transmission Project (TRTP) driven by post-construction requirements stemming from regulatory and permitting requirements (Final Environmental Impact Report (FEIR)/Final Environmental Impact Statement (FEIS), Biological Opinion (BO), Special Use Permit (SUP), Angeles National Forest Record of Decision (ROD), etc.). - $0.6M Increased costs for reef maintenance & San Dieguito Wetlands driven by California Coastal Commission fees and requirements. - 0.3M Increased costs to support Air Quality Compliance Program and comply with California Air Resources Board (CARB) regulation changes resulting in additional compliance determinations. The additional work includes chemical compliance analysis, data analysis, permit applications, and reporting for T&D and Generation operations and facilities. - 0.3M Increased environmental support to Big Creek Drinking Water Program driven by implementation of program improvements to comply with agency regulations. - 0.2M Increased environmental support to transmission road grading activities as SCE initiated a new approach to road grading requiring supplemental environmental work and compliance oversight. - $0.9M various other environmental programs activities driven by increased scope to support environmental compliance.
Safety Activities - Transmission & Distribution: *$:No, %:Yes, Units: No*	T&D has several programs in place to engage employees in creating and maintaining safe work practices and environment. These activities are necessary to continue to engage employees, foster trust, and improve the safety culture and work environment. In 2020, SCE reevaluated the method of deploying and managing Safety Activities for T&D field personnel to address COVID-19 related restrictions. This resulted in a decrease in overall spending compared to authorized. For instance, meetings and Safety Congresses were conducted in a virtual environment as opposed to in-person which reduced overall expenses. Our Functional Movement Screenings (FMS) program was similarly modified to comply with social distancing guidelines. SCE anticipates that recorded expenses will increase in 2021 and forward as the COVID-19 restrictions ease and more in person meetings take place.

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Software Maintenance and Replacement: *$:Yes, %:No, Units: No*	IT's O&M recorded for Software Maintenance and Replacement of $74.9M is higher than the 2018 GRC authorized amount of $64.3M by $10.6M or 16%. This variance was primarily in two sub-activities: Software (Perpetual licenses, SaaS and Cloud): Recorded costs are $1.7M over authorized due primarily to deferring various software decommissioning plans resulting in the need to extend the respective software products and increases to project scope requiring additional maintenance support (*e.g.*, Success Factors, CA Inc.). Application Refresh: Recorded costs are $10.2M over authorized primarily due to the reassignment of personnel connected to reorganizations, which included moving resources to the Software Maintenance and Replacement activity from the IT Technology Delivery activity. As a result, a corresponding downward variance was recorded in the IT Delivery GRC activity. SCE also required the use of consulting and professional services support of on-going maintenance for specialized OU applications that were not supportable and required external expertise.
Technology Delivery: *$:Yes, %:Yes, Units: No*	Technology Delivery's recorded costs of $9M in 2020 were less than the 2018 GRC authorized amount of $38.3M by ($29.3M) or -76%. Technology Delivery's ($29.3M) underrun was primarily driven by the labor re-assigned as a result of earlier reorganizations, which included moving Technology Delivery resources to IT Plan and Service Management Organization functions, as well as strategic programs such as Grid Modernization or CSRP that required delivery management skills and expertise. As a result, SCE recorded labor in different IT activities than the activities where originally forecast at the time of developing SCE's 2018 GRC (e.g., Technology Infrastructure Maintenance and Replacement). SCE also recorded lower 2020 expenses by deferring several O&M projects that did not directly impact safety or reliability. Lastly, SCE recorded lower Capital Related Expense due to a change in accounting policy that lowered the capitalization thresholds ($250K instead of $1.0M) and shared Organizational Change Management (OCM) costs with other SCE Operating Units (OUs).
Technology Infrastructure Maintenance and Replacement:	IT's O&M recorded for Technology Infrastructure Maintenance and Replacement of $22.6M in 2020 is higher than the 2018 GRC authorized amount of $14.8M by $7.5M or 51%. This was primarily driven by an accounting methodology change that occurred in 2017 (subsequent to the filing of SCE's 2018 GRC application in 2016) whereby IT products and services costs were previously billed to and recorded in other OUs (*e.g.* Transmission & Distribution and Customer Service) are now recording directly to IT

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
$:No, %:Yes, Units: No	O&M. This methodology change simplified a complex and time-consuming process of billing costs to the other OUs.
Training Seat-Time - Transmission and Distribution: *$:Yes, %:Yes, Units: No*	The impact of COVID-19 restrictions and safety protocols was the primary factor in the underrun in the Training Seat Time activity in 2020. SCE also deferred some training due to a lower volume of new hires than anticipated. Training employees to work efficiently while maintaining a safe work environment is extremely important. However, COVID-19 created challenges to conducting all designated training in 2020 and forced SCE to temporarily pause in person training and events to maintain the health and safety of the employees. As new COVID-19 guidelines were released, trainings were modified and adjusted to adhere to the social distancing and limited capacity standards. These changes resulted in fewer classes conducted than originally planned. SCE will continue to adapt and adjust training classes as new guidelines are released; this may result in an overspend in 2021 or 2022 in an effort to bring employees up to speed on necessary training.
Work Force Protection/Insider Threat: *$:No, %:Yes, Units: No*	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 SCE continues to evaluate the criticality and vulnerabilities of SCE facilities, we assess the level of security needed and may deploy additional security officer services in the future based on those assessments. In 2020, COVID-19 restrictions resulted in alterations to our planned deployments based on changes to building occupancies and facility operations. This included some delays in adding officer deployments planned for identified risks and hiring additional staff for our Security Operations Center which are forecast to resume in 2021.

B. Capital Expenditure Programs

1. GRC Activity and Unit Description Table

For all Other capital expenditure-category activities that are deemed SAR-eligible, Table X-24 below provides the 2021 GRC testimony citation and activity description, and indicates whether there are any RAMP controls or mitigations associated with that GRC activity.

Table X-24
Other Expenditure Category Activity Description

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Air Operations: *SCE-06 Vol. 5:* RAMP Control/Mitigation: *N.A*	Aircraft Operations includes expenditures supporting aircraft components, overhauls, tools and helicopter lease buy-outs. Aircraft plays a critical role 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. Unit Description: N/A
All Hazards Assessment, Mitigation and Analytics: *SCE-04 Vol. 1:* RAMP Control/Mitigation: *Seismic Building Safety Program, Climate Adaptation & Severe Weather*	All Hazards, Assessment, Mitigation & Analytics includes costs to assess and mitigate hazards such as seismic events, climate change, severe weather and other hazards. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Climate Adaptation and Severe Weather: *SCE-04 Vol. : 1:* RAMP Control/Mitigation: *N.A.*	This activity was not requested or authorized in SCE's 2018 GRC. Capital expenditures for this activity is requested in SCE's 2021 GRC. The expenditures in 2020 were for a sea level rise project where SCE installed sensors to monitor potential for sea level rise and coastal inundation at certain SCE substations Unit Description: N/A
Communications Equipment: *SCE-05 Vol. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: SCE commissions remote communication data links used to exchange station and system information with contracted generation resources operating in the CAISO market. Telemetry data links are required to manage, monitor, and communicate electronically with generation resources in SCE's portfolio. Telemetry provides 24/7/365 situational awareness data for SCE's Generation Operations Center and is used to respond to system issues and CAISO real time dispatch instructions.
Communications: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	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 (including DERs), distribution substations, and SCE's operations control centers. This enables 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.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	Unit Description: N/A
CRE Project Management: *SCE-06 Vol. 5:* RAMP Control/Mitigation: *Office Ergonomics (Core Program), Electrical Inspections*	CRE Project Management includes large capital projects such as infrastructure upgrades, facility repurpose, and substation reliability upgrades. Unit Description: N/A
Cybersecurity Delivery and IT Compliance: *SCE-04 Vol. 3:* RAMP Control/Mitigation: *SCADA Cybersecurity, Perimeter Defense, Interior Protection, Grid Modernization Cybersecurity, Data Protection*	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 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. Unit Description: N/A
Environmental Programs: *SCE-06 Vol. 4:* RAMP Control/Mitigation: *N.A*	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. Unit Description: #of Decommissioned Wells
Facility Asset Management: *SCE-06 Vol. 5:* RAMP Control/Mitigation: *Office Ergonomics (Core Program), Fire Life Safety Portfolio Assessment*	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). Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Fleet Asset Management: *SCE-06 Vol. 5:* RAMP Control/Mitigation: *N.A*	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 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. FAM's Vehicle Acquisition unit oversees purchase order contracts for the fleet, manages the delivery of and in-service protocols for each vehicle, manages a network of rental suppliers, negotiates favorable agreements with the Supply Management team, and processes rental requests. FAM's Fleet Planning and Strategy unit provides a dedicated communication conduit to align goals and strategies between TSD and SCE's other OUs for effective fleet management. Fleet Planning and Strategy also provides support for the telematics technology installed on SCE's on-road powered vehicles. The telematics technology allows for automatic retrieval and monitoring of vehicle-specific data (*e.g.* global position, fuel consumption, miles driven, engine idle hours, specialty equipment operation, hard braking and hard acceleration.) Fleet Planning and Strategy oversees telematics equipment use, manages the relationship with telematics technology vendors, engages with drivers on use of the technology to promote safe and more efficient operation of the vehicles, and analyzes data concerning fleet fuel costs, vehicle usage, and operational issues with the vehicles. Unit Description: N/A
Fleet Operations and Maintenance:	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

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
SCE-06 Vol. 5: RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Grid Management System: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Grid Mod Cybersecurity: *SCE-04 Vol. 3:* RAMP Control/Mitigation: *Grid Modernization Cybersecurity*	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. Unit Description: N/A

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
Laboratory Operations: *SCE-02 Vol. 4 Pt. 1:* RAMP Control/Mitigation: *N.A*	The Grid Technology Laboratories safely evaluate, test, and pilot new and emerging technologies that support public initiatives 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 as 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) in Westminster. Unit Description: N/A
Oil Containment Diversion System: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	This program focuses on preventing 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. Unit Description: N/A
Software Maintenance and Replacement: *SCE-06 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	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. Unit Description: N/A
Substation Switchrack Rebuild: *SCE-02 Vol. 3:* RAMP Control/Mitigation: *N.A*	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.

GRC Activity, Testimony Location and RAMP Control/Mitigation	GRC 2021 Activity Description
	Unit Description: # of Substation Switchrack Rebuilds
Technology Infrastructure Maintenance and Replacement: *SCE-06 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *N.A*	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 software that may be more operationally efficient with improved price performance to leverage new technologies such as the cloud. Unit Description: N/A
Technology Solutions: *SCE-06 Vol. 1 Pt. 2:* RAMP Control/Mitigation: *Non-Electric Facilities/Protection of Major Business Functions – Enhanced, Protection of Generation Capabilities*	Costs incurred for capitalized software solutions in support of OU work efforts at SCE. Unit Description: N/A

2. GRC Activities Variances

Table X-25 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-25
Other Expenditure Category Activity Variance Calculations

GRC Activity	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	$2,454	$6,675	($4,220)	-63%	0	0	0	0%	No	No	No
All Hazards Assessment, Mitigation and Analytics	$42,259	$35,906	$6,352	18%	0	0	0	0%	No	No	No
Climate Adaptation and Severe Weather	$40	$0	$40	-	0	0	0	0%	No	No	No
Communications	$128,740	$30,002	$98,739	329%	0	0	0	0%	**Yes**	**Yes**	No
Communications Equipment	$696	$1,993	($1,297)	-65%	75	72	3	4%	No	No	No
CRE Project Management	$63,714	$99,200	($35,486)	-36%	0	0	0	0%	**Yes**	**Yes**	No
Cybersecurity Delivery and IT Compliance	$39,502	$43,971	($4,469)	-10%	0	0	0	0%	No	No	No
Environmental Programs	$365	$712	($347)	-49%	5	15	-10	-67%	No	No	**Yes**
Facility Asset Management	$48,603	$30,905	$17,698	57%	0	0	0	0%	No	**Yes**	No
Fleet Asset Management	$2,503	$2,464	$39	2%	0	0	0	0%	No	No	No

GRC Activity	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
Fleet Operations and Maintenance	$459	$491	($32)	-7%	0	0	0	0%	No	No	No
Grid Management System	$41,627	$41,765	($138)	0%	0	0	0	0%	No	No	No
Grid Mod Cybersecurity	$22,892	$8,549	$14,343	168%	0	0	0	0%	No	Yes	No
Laboratory Operations	$4,496	$3,775	$721	19%	0	0	0	0%	No	No	No
Oil Containment Diversion System	$452	$572	($119)	-21%	0	0	0	0%	No	No	No
Software Maintenance and Replacement	$35,873	$11,961	$23,912	200%	0	0	0	0%	**Yes**	**Yes**	No
Substation Switchrack Rebuild	$21,921	$19,927	$1,994	10%	2	3	-1	-33%	No	No	**Yes**
Technology Infrastructure Maintenance and Replacement	$70,222	$55,043	$15,178	28%	0	0	0	0%	No	**Yes**	No
Technology Solutions	$97,986	$114,680	($16,694)	-15%	0	0	0	0%	No	No	No

3. Variance Explanations

Table X-26 below provides the variance explanations for those GRC activities meeting the established thresholds.

Table X-26
Other Expenditure Category Activity Variance Explanations

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
Communications: *$:Yes, %:Yes, Units: No*	Expenditures in 2020 for Communications of $129M were higher than the 2018 GRC authorized amount of $30M by $99M or 329%. The authorized amount of $30M for Communications was for Field Area Network (FAN), Common Substation Platform (CSP) and Distributed System Efficiency Enhancement Program (DSEEP). Beginning in January 2019, the FAN team conducted an in-depth 12-month study regarding the merits, feasibility, and cost of deploying a Private Long-Term Evolution (LTE) network instead of Mesh Radio Network (MRN) and determined Private LTE as the preferred technology solution. In the 2018 GRC, SCE's forecast assumed MRN would be the technology solution for FAN (at the time LTE spectrum was not available). Since then, SCE undertook an evaluation of the best technology solution option for the FAN, which concluded that MRN technology is no longer considered a viable option to pursue for the FAN network. The $110.0M overrun of the Communications spend was attributable to FAN and driven by SCE's purchase of Spectrum licenses to build a private wireless network using LTE technology to replace the existing field communications network. SCE participated in a confidential bidding process in August 2020 and was officially awarded the private LTE licenses from the Federal Communications Commission (FCC) in September of 2020. The scope of this investment is focused on addressing the obsolescence of NetComm, Cybersecurity issues, and Grid Mod Distribution Automation. The network capabilities align with the business requirements for Grid Modernization. FAN also contributes to mitigating the cybersecurity risk in the existing field network, which was ranked as one of the top nine risks in the most recent SCE RAMP filing.
CRE Project Management:	Variance is mainly driven by: - $33M Underrun in T&D Training Facility project due to delay in construction and project cost estimate

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
$:Yes, %:Yes, Units: No	reduction to leverage existing Rancho Vista property in lieu of new property purchase, and site use developments. Project is currently planned during 2021-2024. - $8M Underrun in Garage Infrastructure Upgrade Program due to postponement of the project to address manufacturer changes for electrified vehicle specifications and to conduct benchmarking and design studies. The Project is currently planned from 2021-2024. - $6M Underrun in Long Beach Regional Office (LBRO) Infrastructure Upgrade project due to cancellation of the project resulting from the decision to sell rather than upgrade the facility. - ($4.2M) Overrun driven by increased spend on furniture and ergonomic equipment relative to authorized spend. - ($2.1M) Overrun driven by vehicles fleet electric charging infrastructure project to allow for electrification of SCE fleet. - ($1.4M) Overrun in Substation Reliability Upgrades Rector project to close out the project. - ($1.1M) Overrun driven by employee electric charging infrastructure project to install EV at various SCE facilities. - ($6M) Overrun in all other projects mainly driven by SCE general office workplace upgrades, emergency operations center expansion, Alhambra facility renovations and various other infrastructure upgrade projects to support ongoing SCE operational requirements.
Environmental Programs: *$:No, %:No, Units: Yes*	The variance in spend and units during 2010 was driven by wildfires impacting planned work locations for 10 units and COVID-19 restrictions restricting field activities. However, SCE completed work on nine units over its forecast in 2019. Consequently, the total units were accomplished in this GRC cycle (2018 – 2020).
Facility Asset Management: *$:No, %:Yes, Units: No*	Variance is mainly driven by: - $12M overrun on Non-Electric capital maintenance projects including facility capital maintenance ($6M), fire life safety ($4M), and obsolescence remodels ($2M). The increase is driven by ongoing capital maintenance requirements to maintain the safety and productivity of SCE workplaces, maintain facilities to prevent significant and unplanned facility or building equipment outages, and continually address compliance requirements. - $5M Overrun for Safety Compliance Operation Reliability (SCOR) Program addressing capital project requests from other OUs supporting Safety, Compliance, Operations, and Reliability needs. The increase is driven by incremental Fire Life Safety improvements, evolving maintenance requirements, business

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	requirements, changing conditions, reliability of equipment, and new code requirements. - $2M overrun for the Arc Flash Compliance Upgrade Program. The program was included in 2018 GRC request and it entails the development and implementation of arc flash, thermal infrared survey, and upgrade of buildings' electrical system components. - $1M overrun for Substation capital maintenance projects responding to maintenance incidents and proactively repairing or replacing building systems and components that are damaged, degraded, non-operational, non-compliant, or have reached their end of useful life. The increase in spend is due to growth in deficient building conditions driven by roofs, pavement, plumbing, lighting, and lead/asbestos found in walls, ceilings, and floor tiles.
Grid Mod Cybersecurity: *$:No, %:Yes, Units: No*	2020 Capital recorded of $23M were higher than the 2018 GRC authorized amount of $8.5M by $14M or 168%. This variance is attributed to: Cybersecurity threats are evolving and becoming more complex as technology advances, third party devices proliferate, and the grid interacts with more parts of the network on a more frequent basis. SCE's existing systems were designed 20 years ago, when many of these threats did not exist. While we have been able to integrate cybersecurity tools and controls into our existing systems to-date, we anticipate that our current system will not suffice as these cybersecurity threats evolve. The 2020 recorded expenditures were consistent with SCE's request in the 2018 GRC. However, the Commission authorized approximately 40% of SCE's request. Due to evolving and increasing cybersecurity threats, SCE continued to address the complexity and necessity of designing the foundation of a Grid Modernization Cybersecurity architecture which included definition and design documentation for core cybersecurity capabilities such network access control, vulnerability management, threat detection and analysis, certificate management, encryption services, privileged identity management, and device and network forensics. This necessitated additional technology support from external contractors and SCE's Grid Services and Enterprise Architecture teams, as well as higher than anticipated hardware purchases and professional services needed to build and configure several critical cybersecurity tools.
Software Maintenance and Replacement: *$:Yes, %:Yes, Units: No*	The 2020 expenditures of $36M were higher than the 2018 GRC authorized of $12M by $24M or 200%. This was primarily due to an accumulated number of refreshes for applications whose vendor supportability ended (or would soon end) and were critical to refresh to promote business continuity and mitigate

GRC 2021 Activity and Variance Threshold Triggers	Variance Explanations
	reliability and operational risks. This overall increase in the recorded costs and volume of application refreshes also included applications transferred from various OUs to SCE's IT OU.
Substation Switchrack Rebuild: *$:No, %:No, Units: Yes*	SCE was authorized 3 substation switchrack rebuilds in 2020. SCE completed two of those rebuilds in 2020 and deferred one to 2021. Notably, switchracks have a lead time of three years meaning the total recorded costs in 2020 includes projects with a delivery date beyond 2020. Hence, the single unit of one switchrack rebuild has costs spread over three years.
Technology Infrastructure Maintenance and Replacement: *$:No, %:Yes, Units: No*	The 2020 expenditures of $70M were higher than the 2018 GRC authorized of $55M by $15M or 28%. The primary driver for the overspend was due to significant increases in appliance and storage replacement expenditures and associated infrastructure appliances for mission-critical systems such as Edison SmartConnect®, Outage Management System, and Customer Service System (CSS). At the time of SCE's 2018 GRC application, SCE had not yet transitioned to the Hyper Converged Infrastructure (HCI) model which began in 2019, continued in 2020, and will continue going forward as SCE replaces existing appliances for mission-critical systems such as SAP Enterprise Resource Planning, Design Manager, and Outage Management System.

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 2020 authorized and recorded safety, reliability and maintenance capital and O&M costs presented in Chapters VII to X.[28] 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-27 below lists the beginning and ending balances in each applicable balancing and memorandum account and the associated cost-recovery mechanism. This is followed by a discussion of the costs, broken down between non-wildfire and wildfire-related activities.

[28] April 10, 2020 letter from Energy Division to SCE.

Table XI-27
Balancing and Memorandum Account Balance - ($000s)

Balancing / Memorandum Account	2020 Beginning Balance	2020 Ending Balance	Mechanism for Disposition
Mobilehome Park Master Meter Balancing Account (MMMBA)	$0	$0	Year-end advice letter, $25,634 transferred to BRRBA in Dec 2020
Grid Safety and Resiliency Program Balancing Account (GSRPBA)*	$0**	$0***	December 2020 transfer of $140,307 to BRRBA (Advice 4197-E)
Fire Hazard Prevention Memorandum Account (FHPMA)	$199,761	$453,675	Track 3 of the GRC (2020 portion)
Wildfire Mitigation Plan Memorandum Account (WMPMA)	$265,639	$394,608	Track 3 of the GRC (2020 portion)
Fire Risk Mitigation Memorandum Account (FRMMA)	$7,502	$20,436	Track 3 of the GRC (2020 portion)
Drought Catastrophic Event Memorandum Account (CEMA)****	$112,482	$147,882	Standalone Application
2020 CEMA Events – Fires and Heat Waves	$0	$202,646	Standalone Application
Catastrophic Event Memorandum Account (CEMA) COVID-19	$0	$54,120	Standalone Application

* In July 2020, the balance tracked in the GSRP Memorandum Account (GSRPMA) was transferred to the GSRPBA and is reflected in the amounts shown here.
** The 2020 beginning balance in the GSRPMA was $29.773 million.
*** This only includes the non-AB 1054 subaccount of the GSRPBA. The 2020 year-end balance in the AB 1054 subaccount is $15.755 million.
**** This activity includes 2017-2020 Drought CEMA expenses.

B. Non-Wildfire Activities

SCE has identified two regulatory mechanisms not directly related to wildfire mitigation activities.

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 December 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 Letter 4372-E on December 17, 2020 addressing the operation of the MMMBA in 2020. Table XI-28 below provides the 2020 recorded O&M and capital expenditures associated with the MHP conversion pilot program. Table XI-28 also summarizes the expenses and capital expenditures for 2020 for the MHP conversion pilot program.

Table XI-28
2020 O&M Expense and Capital Expenditures for Mobile Home Parks *($000s)*

Activity	O&M Expense	Capital Expenditure	Ratemaking Account
Mobile Home Park	$67	$24,584	MMMBA

CEMA: CEMA Events – Fires and Heat Waves, CEMA Drought and CEMA-COVID-19

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 CEMAs are shown below in Table XI-29. 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 combined CEMA cost recovery application in 2021 that seeks recovery of costs recorded in the CEMAs for Drought, 2017 - 2020 catastrophic events – fires and heat waves, and COVID-19.

Table XI-29
2020 O&M Expense and Capital Expenditures for CEMA Events – Fires and Heat Waves, CEMA Drought and CEMA COVID-19
(Total Company $000s)

Ratemaking Account	O&M Expense	Capital Expenditure
CEMA COVID-19[29]	$44,840	-
Drought Catastrophic Event Memorandum Account (CEMA)	$34,422	-
2020 CEMA Events – Fires and Heat Waves	$202,709	$340,611
Total	**$281,971**	**$340,611**

C. Wildfire Activities

SCE has identified four regulatory mechanisms related to wildfire mitigation activities:[30] The Grid Safety and Resiliency Program Memorandum/Balancing Account (GSRPMA/BA), Fire Hazard Prevention Memorandum Account (FHPMA), Wildfire Mitigation Plan Memorandum Account (WMPMA), and Fire Risk Mitigation Memorandum Account (FRMMA), collectively

[29] Table XI-29 represents the O&M expenses associated with SAR eligible activities as represented in Figure III-2. SCE will be seeking recovery of additional CEMA COVID-19 expenses in the application that are not associated with SAR eligible activities.

[30] SCE also records certain wildfire-related costs in the Wildfire Expense Memorandum Account (WEMA). However, the costs tracked in the WEMA only include amounts paid by SCE that are related to or are the result of a wildfire, and that were not previously authorized in SCE's GRC, including: (1) payments to satisfy wildfire claims, including any deductibles, co-insurance and other insurance expense paid by SCE; (2) outside legal expenses incurred in the defense of wildfire claims; (3) payments made for wildfire insurance and related risk-transfer mechanisms; and (4) the cost of financing these amounts.

referred to as Fire Mitigation MAs. All cover wildfire mitigation activities. The 2020 costs recorded in the Fire Mitigation MAs are currently being reviewed for reasonableness and recovery as part of Track 3 of SCE's 2021 GRC.

GSRPMA/BA

SCE filed its Grid Safety and Resiliency Program (GSRP) Application on September 10, 2018. This application proposed deploying new wildfire mitigation technologies and activities between September 2018 and December 2020 that were not included in SCE's 2018 GRC. These technologies and activities included SCE's Wildfire Covered Conductor Program (involving the replacement of standard "bare" overhead conductors with "covered" conductors), the installation of new fuses that activate quickly to reduce the energy transmitted to faults, and additional measures to reduce outage impacts during wildfire and Public Safety Power Shutoff (PSPS) events. On April 16, 2020, the Commission issued D.20-04-013 authorizing SCE to (1) establish the GSRPBA, (2) transfer the amounts previously tracked in the GSRPMA to the GSRPBA account and close the GSRPMA; and (3) update the GSRP revenue requirement. GSRP-related costs exceeding the amounts approved in D.20-04-013 are eligible for reasonableness review and recovery in Track 3 of SCE's 2021 GRC proceeding.

FHPMA

In D.17-12-024, issued on December 14, 2017, the Commission adopted new regulations to enhance the fire safety of overhead electric power lines and communication lines in high fire-threat areas. Pursuant to D.17-12-024, SCE is inspecting and pruning trees to meet the Commission's new 48-inch clearance requirement in the expanded Tier 2 and Tier 3 areas. SCE is also increasing the trimming distance to reflect the Commission's new recommended time-of-trim clearances. The incremental costs of these vegetation management activities are being recorded in the FHPMA, and the incremental amounts spent in 2020 are provided in Table XI-30 below. SCE is seeking recovery of its 2020 costs recorded in the FHPMA in Track 3 of its 2021 GRC.

WMPMA

Pursuant to D.19-05-038, the WMPMA is used to record costs that are:

- Incurred to implement SCE's approved WMP that are not currently reflected in other Commission revenue requirements being paid by customers in rates (*e.g.,* in Commission-approved GRC base rates revenue requirements),
- Not pending approval by the Commission via a separate SCE proposal (*e.g.,* in SCE's GSRP application), and
- Not being tracked in an existing Commission-authorized memorandum account (*e.g.,* FHPMA or the Catastrophic Event Memorandum Account described below).

Accordingly, the WMPMA was used to track the incremental costs of activities such as: SCE's Enhanced Overhead Inspection (EOI) program,[31] which inspects all distribution and transmission structures in SCE's High Fire Risk Areas (HFRA) and performs associated necessary remediations, new vegetation management activities in HFRA such as expanded pole brushing and LIDAR inspections, and overall Program Management Office support to manage SCE's collection of wildfire mitigation activities. The incremental amounts spent in 2020 are provided in Table XI-30. SCE is seeking recovery of its 2020 costs recorded in the WMPMA in Track 3 of its 2021 GRC.

FRMMA

Pursuant to Public Utilities Code Section 8386(j), and as described in Advice 3936-E, the FRMMA is used to record the incremental costs of wildfire mitigation activities that are not found in the approved annual Wildfire Mitigation Plan or otherwise authorized/tracked in another ratemaking account. Accordingly, the FRMMA was used to the track the incremental costs of activities such as: the public education campaign designed to educate customers about PSPS events, and organizational change management activities such as employee

---

[31] SCE's Enhanced Overhead Inspection Program is now referred to as the High Fire Risk Informed Inspections program.

communications and training. The incremental amounts spent in 2020 are provided in Table XI-30 below. SCE is seeking recovery of its 2020 costs recorded in the FRMMA in Track 3 of its 2021 GRC.

Table XI-30
2020 O&M Expense and Capital Expenditures for Wildfire Activities
(Total Company $000s)

Ratemaking Account	O&M Expenses	Capital Expenditure
GSRPMA	$75,540	$589,830
FRMMA	$12,705	$6,034
WMPMA	$204,952	$172,040
FHPMA	$252,317	-
Total	**$545,514**	**$767,904**

Appendix A

Risk Mitigation Mapping

RAMP to GRC Activity Mapping

SCE 2021 GRC Activity	SCE 2021 Exhibit	SCE 2021 Volume	RAMP Risk	RAMP ID	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)
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

SCE 2021 GRC Activity	SCE 2021 Exhibit	SCE 2021 Volume	RAMP Risk	RAMP ID	RAMP Control / Mitigation Name
Employee and Contractor Safety	6	4	Employee, Contractor & Public Safety	C1	Safety Controls
Employee and Contractor Safety	6	4	Employee, Contractor & Public Safety	C2	Contractor Safety Program
Employee and Contractor Safety	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

SCE 2021 GRC Activity	SCE 2021 Exhibit	SCE 2021 Volume	RAMP Risk	RAMP ID	RAMP Control / Mitigation Name
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
Protection of Major Business Functions	4	4	Physical Security	M2	Smart Key Program Phase 1 - Listed BR/BIA Critical Sites and CS Tier Sites
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
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

GRC Activity Walkover

1. Capital[1]

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 02**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Substation Plan (DSP) Circuits	Yes	No	Yes	No
SCE-02	**Vol. 02**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-02	**Vol. 02**	LOAD GROWTH	SCE-02	4 Pt. 2	Transmission Substation Plan (TSP)	Yes	No	Yes	No
SCE-02	**Vol. 02**	OPERATIONS - IT	SCE-02	4 Pt. 2	Grid Reliability Projects	Yes	No	Yes	Yes
SCE-02	**Vol. 02**	OPERATIONS - IT	SCE-02	4 Pt. 2	Transmission Substation Plan (TSP)	Yes	No	Yes	No
SCE-02	**Vol. 02**	OTHER - TDBU	SCE-02	1 Pt. 2	Distribution Transformers	Yes	No	Yes	No
SCE-02	**Vol. 02**	TRANS PROJECTS	SCE-02	4 Pt. 2	Grid Reliability Projects	Yes	No	Yes	Yes
SCE-02	**Vol. 03**	GRID MODERNIZATION	SCE-02	4 Pt. 2	Distribution Circuit Upgrades	Yes	No	Yes	No
SCE-02	**Vol. 03**	GRID MODERNIZATION	SCE-02	4 Pt. 2	Distribution Substation Plan (DSP) Circuits	Yes	No	Yes	No
SCE-02	**Vol. 03**	GRID MODERNIZATION	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-02	**Vol. 03**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	4 kV Cutovers	Yes	Yes	Yes	No
SCE-02	**Vol. 03**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	4 kV Substation Eliminations	Yes	Yes	Yes	No
SCE-02	**Vol. 03**	INFRASTRUCTURE REPL	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	4 kV Cutovers - Load Growth Driven	Yes	Yes	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Circuit Upgrades	Yes	No	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Plant Betterment	Yes	Yes	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Substation Plan (DSP) Circuits	Yes	No	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	New Capacitors	Yes	No	Yes	No

[1] SAR eligible activities only

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Substation Equipment Replacement Program	Yes	No	Yes	Yes
SCE-02	**Vol. 03**	LOAD GROWTH	SCE-02	4 Pt. 2	Transmission Substation Plan (TSP)	Yes	No	Yes	No
SCE-02	**Vol. 03**	OPERATIONS - IT	SCE-02	3	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-02	**Vol. 03**	OPERATIONS - IT	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-02	**Vol. 03**	OPERATIONS - IT	SCE-02	4 Pt. 2	Grid Reliability Projects	Yes	No	Yes	Yes
SCE-02	**Vol. 03**	OPERATIONS - IT	SCE-02	4 Pt. 2	Transmission Substation Plan (TSP)	Yes	No	Yes	No
SCE-02	**Vol. 03**	TRANS PROJECTS	SCE-02	4 Pt. 2	Grid Reliability Projects	Yes	No	Yes	Yes
SCE-02	**Vol. 04**	BREAKDOWN MTCE	SCE-02	1 Pt. 2	Distribution Preventive and Breakdown Capital Maintenance	Yes	Yes	Yes	No
SCE-02	**Vol. 04**	CUSTOMER REQ/RELO	SCE-02	1 Pt. 2	Distribution Preventive and Breakdown Capital Maintenance	Yes	Yes	Yes	No
SCE-02	**Vol. 04**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 2	Distribution Preventive and Breakdown Capital Maintenance	Yes	Yes	Yes	No
SCE-02	**Vol. 05**	CLAIM	SCE-02	1 Pt. 2	Distribution Claim	Yes	No	No	Yes
SCE-02	**Vol. 05**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Underground Structure Replacements	Yes	Yes	Yes	Yes
SCE-02	**Vol. 05**	OTHER - TDBU	SCE-02	1 Pt. 2	Distribution Tools and Work Equipment	Yes	No	Yes	No
SCE-02	**Vol. 05**	OTHER - TDBU	SCE-02	1 Pt. 2	Prefabrication	Yes	No	No	Yes
SCE-02	**Vol. 05**	OTHER - TDBU	SCE-02	1 Pt. 2	Streetlight Maintenance and LED Conversions	Yes	No	No	Yes
SCE-02	**Vol. 05**	OTHER - TDBU	SCE-06	5	Facility Asset Management	Yes	Yes	Yes	Yes
SCE-02	**Vol. 05**	STORM	SCE-04	2	Distribution Storm Response Capital	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	BREAKDOWN MTCE	SCE-02	3	Substation Capital Breakdown Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 06**	GRID APPS/COMM	SCE-02	3	Relays, Protection and Control Replacements	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Automation	Yes	Yes	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 06**	INFRASTRUCTURE REPL	SCE-02	3	Preventive Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 06**	INFRASTRUCTURE REPL	SCE-02	3	Relays, Protection and Control Replacements	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	INFRASTRUCTURE REPL	SCE-04	4	NERC Compliance Programs	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	INFRASTRUCTURE REPL	SCE-04	4	Protection of Grid Infrastructure Assets	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	OPERATIONS - IT	SCE-02	3	Preventive Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 06**	OPERATIONS - IT	SCE-02	3	Relays, Protection and Control Replacements	Yes	Yes	Yes	No
SCE-02	**Vol. 06**	OTHER - TDBU	SCE-02	3	Oil Containment Diversion System	Yes	Yes	No	No
SCE-02	**Vol. 06**	OTHER - TDBU	SCE-02	3	Substation Emergency Equipment	Yes	No	Yes	No
SCE-02	**Vol. 06**	OTHER - TDBU	SCE-02	3	Substation Tools and Work Equipment	Yes	No	Yes	No
SCE-02	**Vol. 07**	BREAKDOWN MTCE	SCE-02	2	Transmission Capital Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 07**	CLAIM	SCE-02	2	Transmission Claim	Yes	No	No	Yes
SCE-02	**Vol. 07**	CLAIM	SCE-02	3	Substation Claim	Yes	No	No	Yes
SCE-02	**Vol. 07**	ECS	SCE-02	2	Telecommunication Inspection and Maintenance	Yes	No	No	Yes
SCE-02	**Vol. 07**	INFRASTRUCTURE REPL	SCE-02	2	Transmission Capital Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 07**	OTHER - RP	SCE-02	2	Transmission Capital Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 07**	OTHER - TDBU	SCE-02	2	Transmission Line Rating Remediation (TLRR)	Yes	Yes	Yes	No
SCE-02	**Vol. 07**	OTHER - TDBU	SCE-02	2	Transmission Emergency Equipment	Yes	No	Yes	No
SCE-02	**Vol. 07**	OTHER - TDBU	SCE-02	2	Transmission Line Rating Remediation (TLRR)	Yes	Yes	Yes	No
SCE-02	**Vol. 07**	OTHER - TDBU	SCE-02	2	Transmission Tools and Work Equipment	Yes	No	Yes	No
SCE-02	**Vol. 07**	STORM	SCE-04	2	Transmission/Substation Storm Response Capital	Yes	Yes	Yes	Yes
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	3	Circuit Breaker Replacement	Yes	No	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	3	Substation Switchrack Rebuild	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	3	Substation Transformer Bank Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Automatic Reclosers Replacement Program	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Cable Life Extension (CLE) Program	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Cable-in-Conduit (CIC) Replacement Program	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Capacitor Bank Replacement Program	Yes	No	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Overhead Conductor Program (OCP)	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	PCB Transformer Removal	Yes	Yes	No	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Underground Switch Replacements	Yes	Yes	Yes	No
SCE-02	**Vol. 08**	INFRASTRUCTURE REPL	SCE-02	1 Pt. 1	Worst Circuit Rehabilitation (WCR)	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	Distribution Transformers	SCE-02	1 Pt. 2	Distribution Transformers	Yes	No	Yes	No
SCE-02	**Vol. 09**	INFRASTRUCTURE REPL	SCE-02	5	Distribution Deteriorated Pole Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	INFRASTRUCTURE REPL	SCE-02	5	Distribution Pole Loading Program Pole Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	INFRASTRUCTURE REPL	SCE-02	5	Transmission Deteriorated Pole Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	INFRASTRUCTURE REPL	SCE-02	5	Transmission Pole Loading Program Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	OTHER - TDBU	SCE-02	5	Distribution Pole Loading Program Pole Replacement	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	OTHER - TDBU	SCE-02	5	Distribution Wood Pole Disposal	Yes	Yes	Yes	No
SCE-02	**Vol. 09**	Prefabrication	SCE-02	1 Pt. 2	Prefabrication	Yes	No	No	Yes
SCE-02	**Vol. 09**	Wood Pole Disposal	SCE-02	5	Distribution Wood Pole Disposal - Pole Loading Program	Yes	Yes	Yes	No
SCE-02	**Vol. 10**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Automation	Yes	Yes	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 10**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Communications	Yes	No	Yes	No
SCE-02	**Vol. 10**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Engineering and Planning Software Tools	Yes	Yes	Yes	No
SCE-02	**Vol. 10**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Grid Management System	Yes	Yes	Yes	No
SCE-02	**Vol. 11**	LOAD GROWTH	SCE-02	4 Pt. 2	Distribution Volt VAR Control and Capacitor Automation Program	Yes	No	Yes	No
SCE-02	**Vol. 11**	OTHER - TDBU	SCE-02	4 Pt. 1	Laboratory Operations	Yes	Yes	Yes	No
SCE-03	**Vol. 01**	SPEC EQUIP	SCE-02	1 Pt. 2	Distribution Tools and Work Equipment	Yes	No	Yes	No
SCE-03	**Vol. 01**	STRUCTURES & IMP	SCE-02	1 Pt. 2	Distribution Tools and Work Equipment	Yes	No	Yes	No
SCE-04	**Vol. 01**	OPERATIONS - IT	SCE-02	3	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-04	**Vol. 01**	OPERATIONS - IT	SCE-02	3	Relays, Protection and Control Replacements	Yes	Yes	Yes	No
SCE-04	**Vol. 01**	OPERATIONS - IT	SCE-02	1 Pt. 3	Meter System Maintenance Design	Yes	No	No	Yes
SCE-04	**Vol. 01**	OPERATIONS - IT	SCE-06	1 Pt. 1	Technology Infrastructure Maintenance and Replacement	Yes	No	Yes	Yes
SCE-04	**Vol. 01**	SOLUTION DELIVERY	SCE-06	1 Pt. 1	Technology Infrastructure Maintenance and Replacement	Yes	No	Yes	Yes
SCE-04	**Vol. 02**	CCI	SCE-06	1 Pt. 1	Technology Solutions	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	ENTERPRISE TECH	SCE-06	1 Pt. 1	Technology Solutions	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	GRID MODERNIZATION	SCE-02	4 Pt. 1	Engineering and Planning Software Tools	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	GRID MODERNIZATION	SCE-04	3	Grid Mod Cybersecurity	Yes	No	Yes	Yes
SCE-04	**Vol. 02**	OPERATIONS - IT	SCE-06	1 Pt. 1	Software Maintenance and Replacement	Yes	No	Yes	Yes
SCE-04	**Vol. 02**	OPERATIONS - IT	SCE-06	1 Pt. 1	Technology Solutions	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	SOLUTION DELIVERY	SCE-06	1 Pt. 1	Technology Solutions	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	SOLUTION DELIVERY	SCE-06	1 Pt. 1	Technology Solutions	Yes	Yes	Yes	No
SCE-04	**Vol. 02**	TECHNOLOGY & RISK	SCE-04	3	Cybersecurity Delivery and IT Compliance	Yes	No	Yes	Yes
SCE-05	**Vol. 01**	PALO VERDE	SCE-05	1	Palo Verde	Yes	No	No	Yes
SCE-05	**Vol. 02**	SBU	SCE-05	2	Communications Equipment	Yes	No	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-05	1	Hydro - Dams and Waterways	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-02	4 Pt. 2	Distribution Substation Plan Substations	Yes	No	Yes	No
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-05	1	Hydro - Dams and Waterways	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-05	1	Hydro - Electrical Equipment	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-05	1	Hydro - Prime Movers	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO EAST CORE BASE	SCE-05	1	Hydro - Structures and Grounds	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO EAST DECOMM	SCE-05	1	Hydro - Decommissioning	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO EAST RELICENSG	SCE-05	1	Hydro - Relicensing	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO NO CORE BASE	SCE-05	1	Hydro - Dams and Waterways	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO NO CORE BASE	SCE-05	1	Hydro - Electrical Equipment	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO NO CORE BASE	SCE-05	1	Hydro - Prime Movers	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO NO CORE BASE	SCE-05	1	Hydro - Relicensing	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO NO RELICENSG	SCE-05	1	Hydro - Relicensing	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO NO RELICENSG	SCE-05	1	Hydro - Dams and Waterways	Yes	Yes	Yes	No
SCE-05	**Vol. 03**	HYDRO NO RELICENSG	SCE-05	1	Hydro - Relicensing	Yes	Yes	No	No
SCE-05	**Vol. 03**	HYDRO NO RELICENSG	SCE-05	1	Hydro - Structures and Grounds	Yes	Yes	No	No
SCE-05	**Vol. 04**	MTNVW CORE BASE	SCE-05	1	Mountainview	Yes	Yes	Yes	No
SCE-05	**Vol. 04**	PEAKERS CORE BASE	SCE-05	1	Peakers	Yes	Yes	Yes	No
SCE-05	**Vol. 05**	PPD SPV	SCE-05	1	Solar	Yes	No	Yes	No
SCE-05	**Vol. 05, Part 02**	OTHER - TDBU	SCE-05	1	Catalina - Diesel	Yes	No	Yes	Yes
SCE-07	**Vol. 01**	SEISMIC PROGRAM	SCE-04	1	All Hazards Assessment, Mitigation and Analytics	Yes	Yes	Yes	Yes
SCE-07	**Vol. 02**	EHS	SCE-06	4	Environmental Programs	Yes	Yes	Yes	No
SCE-07	**Vol. 03**	CRE	SCE-06	5	CRE Project Management	Yes	Yes	Yes	Yes
SCE-07	**Vol. 03**	CRE	SCE-06	5	Facility Asset Management	Yes	Yes	Yes	Yes
SCE-07	**Vol. 03**	OPERATIONS - IT	SCE-06	5	CRE Project Management	Yes	Yes	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	2021 GRC Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-07	**Vol. 05**	Corporate Security	SCE-04	4	Protection of Major Business Functions	Yes	No	No	Yes
SCE-07	**Vol. 05**	Physical Security Systems	SCE-04	4	Protection of Grid Infrastructure Assets	Yes	Yes	Yes	No
SCE-07	**Vol. 05**	PMO	SCE-04	4	NERC Compliance Programs	Yes	Yes	Yes	No
SCE-07	**Vol. 05**	SOLUTION DELIVERY	SCE-04	4	Protection of Major Business Functions	Yes	No	No	Yes
SCE-07	**Vol. 07**	TSD	SCE-06	5	Air Operations	Yes	No	Yes	Yes
SCE-07	**Vol. 07**	TSD	SCE-06	5	CRE Project Management	Yes	Yes	Yes	Yes
SCE-07	**Vol. 07**	TSD	SCE-06	5	Fleet Asset Management	Yes	No	Yes	No
SCE-07	**Vol. 07**	TSD	SCE-06	5	Fleet Operations and Maintenance	Yes	No	Yes	Yes

2. O&M[33]

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 3**	588.220 - DISTRIBUTION GRID ENGINEERING AND TECHNOLOGY	**SCE-02**	**4 Pt. 2**	Load Side Support	Yes	No	Yes	No
SCE-02	**Vol. 4**	583.120 - INSPECTION OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT	**SCE-02**	**1 Pt. 2**	Distribution Underground Detail Inspections	Yes	Yes	Yes	No
SCE-02	**Vol. 4**	583.120 - INSPECTION OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT	**SCE-02**	**1 Pt. 2**	Distribution Overhead Detail Inspections	Yes	Yes	Yes	No
SCE-02	**Vol. 4**	593.120 - PLANNED MAINTENANCE OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT; VEGETATI	**SCE-02**	**2**	Insulator Washing	Yes	No	Yes	Yes
SCE-02	**Vol. 4**	593.120 - PLANNED MAINTENANCE OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT; VEGETATI	**SCE-02**	**6**	Dead, Dying and Diseased Tree Removal	Yes	Yes	Yes	Yes
SCE-02	**Vol. 4**	593.120 - PLANNED MAINTENANCE OF DISTRIBUTION OVERHEAD AND	**SCE-02**	**1 Pt. 2**	Distribution Apparatus Inspection and Maintenance	Yes	No	No	Yes

[33] SAR eligible activities only.

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
		UNDERGROUND LINES AND EQUIPMENT; VEGETATI							
SCE-02	**Vol. 4**	593.120 - PLANNED MAINTENANCE OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT; VEGETATI	**SCE-02**	**1 Pt. 2**	Distribution Preventive and Breakdown O&M Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 4**	593.120 - PLANNED MAINTENANCE OF DISTRIBUTION OVERHEAD AND UNDERGROUND LINES AND EQUIPMENT; VEGETATI	**SCE-02**	**6**	Distribution Routine Vegetation Management	Yes	Yes	Yes	Yes
SCE-02	**Vol. 4**	594.120 - DISTRIBUTION OVERHEAD AND UNDERGROUND BREAKDOWN MAINTENANCE	**SCE-02**	**1 Pt. 2**	Distribution Preventive and Breakdown O&M Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 5**	583.170 - GRID OPERATIONS - TROUBLEMEN PATROL, LOCATE, AND REPAIR ACTIVITIES	**SCE-02**	**6**	Distribution Routine Vegetation Management	Yes	Yes	Yes	Yes
SCE-02	**Vol. 5**	583.170 - GRID OPERATIONS - TROUBLEMEN PATROL, LOCATE, AND REPAIR ACTIVITIES	**SCE-02**	**1 Pt. 2**	Distribution Preventive and Breakdown O&M Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 5**	583.170 - GRID OPERATIONS - TROUBLEMEN PATROL, LOCATE, AND REPAIR ACTIVITIES	**SCE-02**	**1 Pt. 2**	Patrolling and Locating Trouble	Yes	Yes	Yes	No
SCE-02	**Vol. 5**	585.170 - GRID OPERATIONS - STREET LIGHT OPERATIONS AND MAINTENANCE	**SCE-02**	**1 Pt. 2**	Streetlight Operations, Inspections, and Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 5**	588.140 - DESIGN CONSTRUCTION & MAINTENANCE - CONSTRUCTION SUPPORT ACTIVITIES	**SCE-02**	**1 Pt. 2**	Distribution Preventive and Breakdown O&M Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 5**	598.170 - GRID OPERATIONS - DISTRIBUTION STORM	**SCE-03**	**4**	Customer Contact Center	Yes	Yes	No	No
SCE-02	**Vol. 5**	598.170 - GRID OPERATIONS - DISTRIBUTION STORM	**SCE-04**	**2**	Distribution Storm Response O&M	Yes	Yes	No	No
SCE-02	**Vol. 6**	561.170 - GRID OPERATIONS - MANAGEMENT AND OPERATION OF THE GRID CONTROL CENTER	**SCE-02**	**3**	Monitoring and Operating Substations	Yes	No	Yes	No
SCE-02	**Vol. 6**	561.170 - GRID OPERATIONS - MANAGEMENT AND OPERATION OF THE GRID CONTROL CENTER	**SCE-02**	**3**	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-02	**Vol. 6**	561.170 - GRID OPERATIONS - MANAGEMENT AND OPERATION OF THE GRID CONTROL CENTER	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-02	**Vol. 6**	562.150 - SUBSTATION INSPECTION AND MAINTENANCE - INSPECTIONS AND MAINTENANCE ACTIVITIES PERFORMED A	**SCE-02**	**3**	Substation - Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	562.170 - GRID OPERATIONS - OPERATING TRANSMISSION STATIONS	**SCE-02**	**3**	Monitoring and Operating Substations	Yes	No	Yes	No
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Other Substation Equipment Inspections and Maintenance	Yes	No	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Equipment Washing	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Transformer Inspections and Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Relay Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Substation O&M Breakdown Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 6**	568.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - SUPERVISION OF TRANSMISSION SUBSTATION MAINTENANCE	**SCE-02**	**3**	Circuit Breaker Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	582.150 - SUBSTATION INSPECTION AND MAINTENANCE - INSPECTIONS AND MAINTENANCE ACTIVITIES PERFORMED A	**SCE-02**	**3**	Substation - Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	582.170 - GRID OPERATIONS - SUPERVISING AND OPERATING DISTRIBUTION STATIONS	**SCE-02**	**3**	Monitoring and Operating Substations	Yes	No	Yes	No
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Equipment Washing	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**1 Pt. 2**	Distribution Apparatus Inspection and Maintenance	Yes	No	No	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Transformer Inspections and Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Substation O&M Breakdown Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Relay Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Other Substation Equipment Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 6**	592.150 - SUBSTATION CONSTRUCTION & MAINTENANCE - INSPECTION AND MAINTENANCE OF DISTRIBUTION SUBSTAT	**SCE-02**	**3**	Circuit Breaker Inspections and Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-02**	**5**	Transmission Request for Attachment Inspections	Yes	No	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-02**	**2**	Transmission Underground Structure Inspection	Yes	Yes	Yes	No
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-02**	**2**	Transmission O&M Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-02**	**2**	Telecommunication Inspection and Maintenance	Yes	No	No	Yes
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-02**	**2**	Transmission Line Patrols	Yes	Yes	Yes	No
SCE-02	**Vol. 7**	566.150 - TRANSMISSION - INSPECTION AND OPERATION OF TRANSMISSION LINES AND STRUCTURES	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-02**	**2**	Insulator Washing	Yes	No	Yes	Yes
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-02**	**2**	Roads and Rights of Way	Yes	Yes	No	Yes
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-02**	**2**	Transmission O&M Maintenance	Yes	No	Yes	Yes
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-02**	**2**	Transmission Line Rating Remediation (TLRR)	Yes	Yes	Yes	Yes
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-02**	**6**	Transmission Routine Vegetation Management	Yes	Yes	Yes	No
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-04**	**2**	Transmission/Substation Storm Response O&M	Yes	Yes	Yes	No
SCE-02	**Vol. 7**	571.150 - TRANSMISSION - LINE, STRUCTURE, ROAD, AND RIGHT-OF-WAY MAINTENANCE	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-02	**Vol. 7**	573.170 - GRID OPERATIONS - TRANSMISSION AND SUBSTATION STORM EXPENSE	**SCE-04**	**2**	Transmission/Substation Storm Response O&M	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	566.125 - TRANSMISSION POLE ASSESSMENTS	**SCE-02**	**5**	Transmission Intrusive Pole Inspections	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	566.125 - TRANSMISSION POLE ASSESSMENTS	**SCE-02**	**5**	Transmission Pole Loading Assessments	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	566.125 - TRANSMISSION POLE ASSESSMENTS Non-B/A	**SCE-02**	**5**	Transmission Intrusive Pole Inspections	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	566.125 - TRANSMISSION POLE ASSESSMENTS Non-B/A	**SCE-02**	**5**	Transmission Pole Loading Assessments	Yes	Yes	Yes	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 9**	571.125 - TRANSMISSION POLE REPAIRS AND TRANSMISSION POLE RELATED EXPENSE	**SCE-02**	**5**	Transmission Pole Loading Repairs	Yes	No	Yes	Yes
SCE-02	**Vol. 9**	583.125 - DISTRIBUTION POLE ASSESSMENTS	**SCE-02**	**5**	Distribution Pole Loading Assessments	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	583.125 - DISTRIBUTION POLE ASSESSMENTS Non-B/A	**SCE-02**	**5**	Distribution Intrusive Pole Inspections	Yes	Yes	Yes	No
SCE-02	**Vol. 9**	593.125 - DISTRIBUTION POLE REPAIRS AND DISTRIBUTION POLE RELATED EXPENSE	**SCE-02**	**5**	Distribution Pole Loading Repairs	Yes	Yes	Yes	Yes
SCE-02	**Vol. 11**	580.260 - DISTRIBUTION GRID TECHNOLOGY	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	565.281 - ENVIRONMENTAL PROGRAMS - TRANSMISSION	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-02	**Vol. 12**	566.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR TRANSMISSION AND SUBSTATION PERSONNEL	**SCE-05**	**1**	Catalina - Diesel	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	566.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR TRANSMISSION AND SUBSTATION PERSONNEL	**SCE-06**	**4**	Safety Activities - Transmission & Distribution	Yes	Yes	No	No
SCE-02	**Vol. 12**	566.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR TRANSMISSION AND SUBSTATION PERSONNEL	**SCE-06**	**3 Pt. 1**	Training Delivery and Development - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	566.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR TRANSMISSION AND SUBSTATION PERSONNEL	**SCE-06**	**3 Pt. 1**	Training Seat-Time - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	573.250 - CORPORATE ENVIRONMENTAL SERVICES WASTE MANAGEMENT - TRANSMISSION	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-02	**Vol. 12**	582.250 - ENVIRONMENTAL PROGRAMS - DISTRIBUTION	**SCE-06**	**4**	Safety Activities - Transmission & Distribution	Yes	Yes	No	No
SCE-02	**Vol. 12**	582.250 - ENVIRONMENTAL PROGRAMS - DISTRIBUTION	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-02	**Vol. 12**	588.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR DISTRIBUTION PERSONNEL	**SCE-02**	**1 Pt. 2**	Distribution Preventive and Breakdown O&M Maintenance	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	588.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR DISTRIBUTION PERSONNEL	**SCE-05**	**1**	Catalina - Diesel	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	588.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR DISTRIBUTION PERSONNEL	**SCE-06**	**3 Pt. 1**	Training Delivery and Development - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	588.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR DISTRIBUTION PERSONNEL	**SCE-06**	**4**	Safety Activities - Transmission & Distribution	Yes	Yes	No	No

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-02	**Vol. 12**	588.250 - TRAINING AND SAFETY DELIVERY AND SEAT-TIME FOR DISTRIBUTION PERSONNEL	**SCE-06**	**3 Pt. 1**	Training Seat-Time - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-02	**Vol. 12**	598.250 - CORPORATE ENVIRONMENTAL SERVICES WASTE MANAGEMENT - DISTRIBUTION	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-02	**Vol. 13**	588.280 - DISTRIBUTION CONSTRUCTION CONTRACT MANAGEMENT	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-02	**Vol. 13**	920.220 - REAL PROPERTIES	**SCE-06**	**3 Pt. 1**	Training Seat-Time - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-02	**Vol. 13**	920.220 - REAL PROPERTIES	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-03	**-**	580 - METER SERVICES OPERATIONS AND MANAGEMENT	**SCE-06**	**3 Pt. 1**	Training Seat-Time - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-03	**-**	586.400 - TEST/INSPECT/REPAIR METERS	**SCE-02**	**1 Pt. 2**	Patrolling and Locating Trouble	Yes	Yes	Yes	No
SCE-03	**-**	587 - CS CUSTOMER INSTALLATION EXPENSE	**SCE-02**	**1 Pt. 2**	Patrolling and Locating Trouble	Yes	Yes	Yes	No
SCE-03	**-**	587 - CS CUSTOMER INSTALLATION EXPENSE	**SCE-06**	**3 Pt. 1**	Training Seat-Time - Transmission and Distribution	Yes	Yes	Yes	Yes
SCE-03	**-**	587 - CS CUSTOMER INSTALLATION EXPENSE	**SCE-06**	**4**	Safety Activities - Transmission & Distribution	Yes	Yes	No	No
SCE-03	**-**	901 - OPERATING UNIT MANAGEMENT & SUPPORT	**SCE-03**	**4**	Customer Contact Center	Yes	Yes	No	No
SCE-03	**-**	901 - OPERATING UNIT MANAGEMENT & SUPPORT	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-03	**-**	902 - METER READING OPERATIONS	**SCE-02**	**1 Pt. 3**	Meter System Maintenance Design	Yes	No	Yes	No
SCE-03	**-**	903.500 - BILLING	**SCE-06**	**6**	Education, Safety and Operations	Yes	Yes	No	No
SCE-03	**-**	903.800 - CCC AND PHONE BILLS	**SCE-03**	**4**	Customer Contact Center	Yes	Yes	No	No
SCE-03	**-**	907.600 - OPERATING UNIT MANAGEMENT & SUPPORT	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-03	**-**	907.600 - OPERATING UNIT MANAGEMENT & SUPPORT	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-04	**Vol. 1**	BUSINESS INTEGRATION & DELIVERY - 920/921	**SCE-04**	**3**	Cybersecurity Delivery and IT Compliance	Yes	No	Yes	Yes
SCE-04	**Vol. 1**	BUSINESS INTEGRATION & DELIVERY - 920/921	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-04	**Vol. 1**	BUSINESS INTEGRATION & DELIVERY - 920/921	**SCE-06**	**1 Pt. 1**	Technology Infrastructure Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	BUSINESS INTEGRATION & DELIVERY - 920/921	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	BUSINESS INTEGRATION & DELIVERY - 920/921	**SCE-06**	**1 Pt. 1**	Technology Delivery	Yes	Yes	No	No
SCE-04	**Vol. 1**	CYBERSECURITY & COMPLIANCE 920-921	**SCE-04**	**3**	Cyber Software License and Maintenance	Yes	No	Yes	Yes
SCE-04	**Vol. 1**	CYBERSECURITY & COMPLIANCE 920-921	**SCE-04**	**3**	Cybersecurity Delivery and IT Compliance	Yes	No	Yes	Yes
SCE-04	**Vol. 1**	CYBERSECURITY & COMPLIANCE 920-921	**SCE-06**	**1 Pt. 1**	Technology Delivery	Yes	Yes	No	No
SCE-04	**Vol. 1**	ENTERPRISE ARCHITECTURE & STRATEGY - 920/921	**SCE-06**	**1 Pt. 1**	Technology Delivery	Yes	Yes	No	No
SCE-04	**Vol. 1**	ENTERPRISE ARCHITECTURE & STRATEGY - 920/921	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-04	**Vol. 1**	GRID SERVICES - 920/921	**SCE-02**	**3**	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-04	**Vol. 1**	GRID SERVICES - 920/921	**SCE-06**	**1 Pt. 1**	Technology Infrastructure Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	GRID SERVICES - NETWORK RENTS - 931	**SCE-02**	**3**	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-04	**Vol. 1**	INFORMATION TECHNOLOGY OPERATIONAL EXCELLENCE - 920/921	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - 920/921	**SCE-02**	**3**	Monitoring Bulk Power System	Yes	No	Yes	No
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - 920/921	**SCE-06**	**1 Pt. 1**	Technology Delivery	Yes	Yes	No	No
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - 920/921	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - 920/921	**SCE-06**	**1 Pt. 1**	Technology Infrastructure Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - HW/SW LICENSE MAINTENANCE - 920/921	**SCE-06**	**1 Pt. 1**	Technology Infrastructure Maintenance and Replacement	Yes	No	No	Yes
SCE-04	**Vol. 1**	SERVICE MANAGEMENT OFFICE & OPERATIONS - HW/SW LICENSE MAINTENANCE - 920/921	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes
SCE-05	**Vol. 1**	PALO VERDE - 524	**SCE-05**	**1**	Palo Verde	Yes	No	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-05	**Vol. 2**	POWER PROCUREMENT - 557	**SCE-05**	**2**	Energy Procurement	No	No	No	No
SCE-05	**Vol. 3**	536 - WATER FOR POWER	**SCE-05**	**1**	Hydro	Yes	Yes	No	Yes
SCE-05	**Vol. 3**	539 - MISC. HYDRAULIC POWER GENERATION EXPENSES	**SCE-05**	**1**	Hydro	Yes	Yes	No	Yes
SCE-05	**Vol. 3**	539 - MISC. HYDRAULIC POWER GENERATION EXPENSES	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-05	**Vol. 3**	545 - MAINTENANCE OF MISC. HYDRAULIC PLANT	**SCE-05**	**1**	Hydro	Yes	Yes	No	Yes
SCE-05	**Vol. 3**	545 - MAINTENANCE OF MISC. HYDRAULIC PLANT	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-05	**Vol. 4**	506.013 MOHAVE	**SCE-05**	**1**	Peakers	Yes	No	Yes	Yes
SCE-05	**Vol. 4**	506.013 MOHAVE	**SCE-06**	**4**	Environmental Management and Development	Yes	No	Yes	Yes
SCE-05	**Vol. 4**	506.013 MOHAVE	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-05	**Vol. 4**	549 - GAS TURBINE PEAKER	**SCE-05**	**1**	Solar	Yes	No	No	Yes
SCE-05	**Vol. 4**	549 - GAS TURBINE PEAKER	**SCE-05**	**1**	Peakers	Yes	No	Yes	Yes
SCE-05	**Vol. 4**	549 - GAS TURBINE PEAKER	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-05	**Vol. 4**	549 - MOUNTAINVIEW	**SCE-05**	**1**	Mountainview	Yes	Yes	No	No
SCE-05	**Vol. 4**	549 - MOUNTAINVIEW	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-05	**Vol. 4**	554 - GAS TURBINE PEAKER	**SCE-05**	**1**	Peakers	Yes	No	Yes	Yes
SCE-05	**Vol. 4**	554 - MOUNTAINVIEW	**SCE-05**	**1**	Mountainview	Yes	Yes	No	No
SCE-05	**Vol. 5 Part 1**	549 - SOLAR PHOTOVOLTAIC PROGRAM	**SCE-05**	**1**	Solar	Yes	No	No	Yes
SCE-05	**Vol. 5 Part 2**	549.140 - CATALINA GENERATION - OPERATIONS AND MAINTENANCE OF GENERATION FACILITIES	**SCE-05**	**1**	Catalina - Diesel	Yes	Yes	Yes	Yes
SCE-06	**Vol. 1**	EXECUTIVE OFFICERS - 920-921	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-06	**Vol. 1**	HUMAN RESOURCES - 920-921	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-02**	**5**	Distribution Intrusive Pole Inspections	Yes	Yes	Yes	No
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-02**	**6**	Transmission Routine Vegetation Management	Yes	Yes	Yes	No
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-02**	**5**	Distribution Pole Loading Assessments	Yes	Yes	Yes	No
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-02**	**6**	Distribution Routine Vegetation Management	Yes	Yes	Yes	Yes
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-05**	**1**	Hydro	Yes	Yes	No	Yes
SCE-06	**Vol. 2**	MISCELLANEOUS BENEFIT PROGRAMS - 926	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-07	**Vol. 1**	BUSINESS RESILIENCY - 920-921	**SCE-04**	**1**	All Hazards Assessment, Mitigation and Analytics	Yes	Yes	No	No
SCE-07	**Vol. 1**	BUSINESS RESILIENCY - 920-921	**SCE-04**	**2**	Emergency Preparedness and Response	Yes	Yes	No	No
SCE-07	**Vol. 1**	BUSINESS RESILIENCY - 920-921	**SCE-04**	**1**	Planning, Continuity and Governance	Yes	Yes	No	No
SCE-07	**Vol. 1**	BUSINESS RESILIENCY - 920-921	**SCE-04**	**2**	Training, Drills and Exercises	Yes	Yes	No	No
SCE-07	**Vol. 1**	SEISMIC MITIGATION - 935	**SCE-04**	**1**	All Hazards Assessment, Mitigation and Analytics	Yes	Yes	No	No
SCE-07	**Vol. 2**	CORPORATE ENVIRONMENTAL SERVICES - 920-921	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-07	**Vol. 2**	CORPORATE ENVIRONMENTAL SERVICES - 920-921	**SCE-06**	**4**	Environmental Management and Development	Yes	No	Yes	Yes
SCE-07	**Vol. 2**	ENVIRONMENTAL OPERATIONAL EXCELLENCE - 920921	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-07	**Vol. 2**	SAN DIEGUITO WETLANDS AND WHEELER NORTH REEF - 920921	**SCE-06**	**4**	Environmental Programs	Yes	Yes	No	No
SCE-07	**Vol. 3**	566.282 - SUBSTATION FACILITY MAINTENANCE - CORPORATE REAL ESTATE	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-07	**Vol. 3**	580.282 - FIELD FACILITY MAINTENANCE - CORPORATE REAL ESTATE	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-07	**Vol. 3**	CORPORATE REAL ESTATE - 920-921	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-07	**Vol. 3**	CORPORATE REAL ESTATE - 931	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-07	**Vol. 3**	CORPORATE REAL ESTATE - 935	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-07	**Vol. 4**	CORPORATE HEALTH & SAFETY - 925	**SCE-06**	**4**	Public Safety	Yes	Yes	No	No
SCE-07	**Vol. 4**	CORPORATE HEALTH & SAFETY - 925	**SCE-06**	**4**	Safety Activities - Transmission & Distribution	Yes	Yes	No	No
SCE-07	**Vol. 4**	CORPORATE HEALTH & SAFETY - 925	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-07	**Vol. 4**	CORPORATE HEALTH & SAFETY - 925	**SCE-06**	**4**	Safety Culture Transformation	Yes	Yes	No	No
SCE-07	**Vol. 4**	CORPORATE HEALTH & SAFETY - 925	**SCE-06**	**4**	Employee and Contractor Safety	Yes	Yes	No	No
SCE-07	**Vol. 5**	CORPORATE SECURITY 920-921-923	**SCE-04**	**4**	Security Technology Operations and Maintenance	Yes	No	No	Yes
SCE-07	**Vol. 5**	CORPORATE SECURITY 920-921-923	**SCE-04**	**4**	Work Force Protection/Insider Threat	Yes	Yes	No	No
SCE-07	**Vol. 5**	CORPORATE SECURITY 920-921-923	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes
SCE-07	**Vol. 5**	CORPORATE SECURITY 920-921-923	**SCE-06**	**1 Pt. 1**	Technology Delivery	Yes	Yes	No	No
SCE-07	**Vol. 5**	CORPORATE SECURITY 920-921-923	**SCE-06**	**6**	Develop and Manage Policy and Initiatives	Yes	Yes	No	No
SCE-07	**Vol. 6**	SUPPLY MANAGEMENT - 920-921	**SCE-06**	**5**	Facility and Land Operations	Yes	Yes	Yes	Yes
SCE-08	**Vol. 2**	CORPORATE COMMUNICATIONS - 920-921 - COMMUNICATIONS OPERATIONS	**SCE-03**	**2**	External Communications	Yes	Yes	Yes	Yes
SCE-08	**Vol. 2**	CORPORATE COMMUNICATIONS - 920-921 - COMMUNICATIONS OPERATIONS	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-08	**Vol. 2**	CORPORATE COMMUNICATIONS - 920-921 - COMMUNICATIONS OPERATIONS	**SCE-06**	**6**	Education, Safety and Operations	Yes	Yes	No	No
SCE-08	**Vol. 2**	CORPORATE COMMUNICATIONS - 923 - OUTSIDE SERVICES	**SCE-03**	**2**	External Communications	Yes	Yes	Yes	Yes
SCE-08	**Vol. 2**	CORPORATE COMMUNICATIONS - 930 - COMMUNICATIONS PRODUCTS	**SCE-03**	**2**	External Communications	Yes	Yes	Yes	Yes
SCE-08	**Vol. 2**	LOCAL PUBLIC AFFAIRS - 920-921	**SCE-06**	**6**	Education, Safety and Operations	Yes	Yes	No	No
SCE-08	**Vol. 2**	REGULATORY AFFAIRS - 920-921	**SCE-06**	**6**	Develop and Manage Policy and Initiatives	Yes	Yes	No	No
SCE-08	**Vol. 2**	REGULATORY AFFAIRS - INTEGRATED PLANNING POWER PROCUREMENT REGULATORY SUPPORT - 557	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes

2018 GRC Exhibit	2018 GRC Volume	2018 GRC Activity	GRC 2021 Exhibit	2021 GRC Volume	2021 GRC Activity	SAR Eligible	Safety	Reliability	Maintenance
SCE-08	**Vol. 2**	REGULATORY AFFAIRS - INTEGRATED PLANNING POWER PROCUREMENT REGULATORY SUPPORT - 557	**SCE-06**	**6**	Develop and Manage Policy and Initiatives	Yes	Yes	No	No
SCE-08	**Vol. 3**	FINANCIAL SERVICES - 920-921	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-08	**Vol. 3**	FINANCIAL SERVICES - 923-930	**SCE-06**	**2**	Business Planning	Yes	Yes	Yes	Yes
SCE-09	**Vol. 1**	Reduction in A&G For Catalina	**SCE-06**	**1 Pt. 1**	Software Maintenance and Replacement	Yes	No	No	Yes

Appendix C

New, Canceled and Deferred Projects

A. New Projects[2]

List of projects that were not presented in the 2018 GRC but were taken up
(Nominal $000)

Funding Source	Program	Project Name	Project Description	Safety	Reliability	Maintenance	2019 Recorded
CAPITAL:							
	Grid Reliability Projects	Moorpark-Pardee 230 kV No. 4 Circuit	Address a generation capacity deficiency that can cause a voltage collapse in the Moorpark local capacity subarea; Involve stringing a fourth Moorpark-Pardee 230 kV circuit approximately 26 miles on existing structures in SCE's transmission right-of-way; Install terminal equipment at Moorpark and Pardee Substations and relocating existing circuit terminations in the 230 kV switchrack at Moorpark Substation.	Yes	Yes	No	$26,104
	Distribution Substation Plan Substations	Garnet Substation Modification Project - Phase 1: Rebuild 115kV, 33kV, & 12kV switchracks, add (2) 56MVA transformers	Due to the 160MW+ known cultivation load growth in Desert Hot Springs, Garnet 115/33kV needs to be rebuilt to accomodate more transformation and circuit positions. This includes rebuild the 115&33kV switch rack, install (2) 56MVA transformers and (2) 14.4 MVAR Station Caps. (4) new DSP circuits are needed to serve the load and improve area reliability. Will require fence to be extended, within on SCE property. 636 A.A on the Devers-Garnet 115kV line and Devers-Garnet-Indigo 115kV line Garnet line drop need to be upgraded to avoid N-1 overload	Yes	Yes	No	$18,105
	Distribution Substation Plan Substations	Lee Vining Substation Rebuild	Rebuild entire substation, increase bank capacity	Yes	Yes	No	$10,378

[2] This list includes any project that had $10M or more in recorded expenditures (CPUC and FERC-jurisdictional) in 2020 but were not presented in the 2018 GRC and are SAR-eligible.

Funding Source	Program	Project Name	Project Description	Safety	Reliability	Maintenance	2019 Recorded
	Wildfire Resiliency	Arbora (Veg Management Long Term)	In support of Vegetation Management, Arbora will implement a single digital platform across various T&D vegetation programs that are spread among various applications and paper today	Yes	Yes	Yes	$11,216
Total Capital							**$65,803**

B. List of Cancelled and Deferred Projects[3]

Program	Project Name	2018 GRC Operating Date	Safety/ Reliability/ Maintenance	Current Operating Date	2018 - 2020 Authorized
DISTRIBUTION					
Distribution Substation Plan Substations	Yokohl 66/12 (D) - Construct a new 56 MVA substation	6/1/2020	Yes	Cancelled	58,501
	Del Valle 66/16kV Substation	6/1/2022	Yes	8/3/2027	11,796
	Mira Loma-Jefferson - Construct approximately 11 miles of new 66 kV subtransmission line between Mira Loma and Jefferson.	6/1/2021	Yes	6/30/2022	50,525
TRANSMISSION					
Transmission Substation Plan (TSP	Valley-Ivyglen 115kV Subtransmission Line	5/1/2020	Yes	4/3/2022	44,628
	Alberhill construct new 500/115kV substation	6/1/2021	Yes	10/21/2025	216,785
OTHER					
Technology Solutions	Network Metering Service	2018	Yes	Cancelled	17,707

[3] List represents projects authorized in the 2018 GRC and are known to have been deferred or cancelled subject to a $10M dollar authorization threshold from 2018 – 2020. Inclusive of FERC- & CPUC-Jurisdictional Costs and Customer Contributions.